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The Contrasting Paths of Jordan and the United Arab Emirates in Nuclear Cooperation with the United States

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Abstract

As one of about eight countries that supply nuclear materials and equipment for nuclear energy development to the rest of the world, the United States also requires some of the most stringent nonproliferation measures of its prospective clients. In 2009, the United States signed a nuclear cooperation agreement with the United Arab Emirates (UAE). Under the terms of the agreement, the UAE foreswore developing sensitive fuel cycle technologies on its own soil in exchange for the ability to receive U.S.-origin materials and equipment. The Kingdom of Jordan is also seeking to develop a nuclear energy program in the face of its growing energy needs. However, it has refused to sign an agreement with the same restrictive terms as the UAE's. This thesis seeks to understand why the UAE has signed an agreement while Jordan has not. It argues that the driver of the different outcomes is the two countries' respective power positions in the international system. This preliminary result seems to imply that contrary to some vigorous arguments in the U.S. policymaking community, the U.S. will have less leverage over global nonproliferation policy if it adopts a one-size-fits-all nuclear trade policy.

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Chapter One: Jordan's and the UAE's divergent choices for nuclear cooperation with the United States

Introduction

As countries around the world seek to meet growing energy demand with nuclear power, a corresponding question is whether the international nuclear nonproliferation regime can meet the challenges associated with technology diffusion. Suppliers of nuclear technologies must decide whether they are willing to engage in trade that would allow non-nuclear countries to develop the full nuclear fuel cycle, a prospect that would also necessarily afford them the technologies to make nuclear weapons. For its part, the United States, has one of the most restrictive export regimes, requiring its prospective customers to sign a nuclear cooperation agreement (NCA). Among other things, NCAs restrict U.S.-origin "special nuclear material"[1] from being enriched or reprocessed without prior approval.[2] Uranium enrichment and spent fuel reprocessing, done at the front and back ends of the nuclear fuel cycle, respectively, are processes that are necessary to make a nuclear bomb; they are particularly troublesome from a proliferation standpoint because countries that seek to make nuclear weapons can use these technologies to cover up diversion of materials to a clandestine weaponization program. U.S. NCAs do not guarantee trade; they simply allow for transfer of U.S. nuclear materials to occur with other countries under U.S. law.

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1 U.S. Library of Congress, CRS, *Nuclear Cooperation with Other Countries: A Primer*, by Mary Beth Nikitin and Paul Kerr, CRS Report RS22937 (Washington, DC: Office of Congressional Information and Publishing, June 19, 2012), 1. Special nuclear material means plutonium or enriched uranium in the isotopes 233 or 235.

2 Ibid, p. 2

In 2009, the United States signed an unprecedented NCA with the United Arab Emirates (UAE), under which the UAE forswore enrichment and reprocessing of all nuclear materials, not just those received from the United States. As a state party to the Treaty on the Nonproliferation of Nuclear Weapons (NPT), the UAE thus gave up its "inalienable right" to "develop research, production, and use of nuclear energy for peaceful purposes *without discrimination*…"[3] Another Middle Eastern country, Jordan, has resisted signing a NCA with the United States that would include the same provisions on enrichment and reprocessing as the UAE's.

U.S. NCAs have both real and symbolic benefits for the client state. First, they allow for U.S. nuclear material transfers; second, as the strictest agreements in the world, the client receives internationally recognized nonproliferation credibility.[4] However, the United States' heightened requirements in their agreements – that is, that U.S. NCA clients must forswear indigenous uranium enrichment on the front end and reprocessing fuel on the back end not just of U.S.-origin materials but of any other origin material as well – have had a tangible effect on the United States' ability to conclude them. Potential and existing nuclear trading partners have had second thoughts about whether the benefits

3 "Treaty on the Non-Proliferation of Nuclear Weapons," April 22, 1970, *The International Atomic Energy Agency, INFCIRC 140*, 3. Emphasis mine; it is important to note that the US-UAE NCA has two provisions that lessen the impact of the deal. First, the agreement's "Agreed Minute" states that UAE may renege on the deal if another Middle East country signs a NCA without similar no enrichment and reprocessing provisions. Second, while Article 7 of the agreement states that the UAE commits to the non-acquisition of sensitive nuclear facilities, Article 12 of the agreement reads that the commitment does not forsake the UAE's fundamental rights under the NPT. (Early (2013), p. 278, note 52). However, this paper is interested in the commitment the UAE made and why Jordan is not making a similar one.

4 Chen Kane, "US nuclear cooperation agreements and the Middle East," Arms Control and Regional Security For the Middle East Blog, entry posted on August 3, 2012, http://www.middleeast-armscontrol.com/2012/08/03/us-nuclear-cooperation-agreements-and-the-middle-east/ (accessed May 14, 2013).

of trade and/or international approval are incentive enough to relinquish their rights to a full nuclear fuel cycle.[5]

Conventional wisdom tells us that alliances, especially in the Middle East, matter a great deal to Middle East foreign policy calculations. Indeed, as Chen Kane argues,

> ANY nuclear cooperation agreement with the United States is about why the country needs or wants the U.S. blessing or cooperation for its nuclear energy program and what leverage the United States has over these countries. And as far as I know, the United States has leverage, be it military, political or economic, over many countries in the Middle East.[6]

However, the United States' leverage over its weaker and less powerful allies does not seem to be as important as one may think.

This study is about what is driving the disparate outcomes in Jordan and the UAE in terms of their decisions to conclude NCAs with the United States. Jordan is among the states that have decided not to sign the U.S. NCA despite its strong alliance with the United States and desire to move forward with a nuclear energy program. On the other hand, the UAE is also closely allied with the United States, but it signed an unprecedented agreement, giving up its right to a full nuclear fuel cycle.

The paper makes two assumptions. First, the NPT regime's guiding principle that states, rather than the market, should control the international movement of nuclear technology (unlike in other areas of international trade) provides a space for smaller and

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5 Fred McGoldrick, *The U.S.-UAE Peaceful Nuclear Cooperation Agreement: A Gold Standard or Fools Gold?* (Washington, DC: Center for Strategic and International Studies, November 30, 2010).

6 Kane (2012, A)

weaker states to succeed in negotiations with more powerful states. Second, because states in the international nonproliferation regime have greater authoritative control of the transfer of materials, they can make calculations vis-à-vis bilateral trade agreements that they perceive will help their long-term power positions in the international system.

In relation, then, to the two cases under review here, I argue Jordan and the United Arab Emirates based their decisions to conclude nuclear cooperation agreements with the United States on power-relational rather than economic or political considerations. Put another way, the two countries power positions in the international system drove their decisions. Even though concluding an NCA with the United States may help Jordan gain economically in the short run by allowing it to move forward with a nuclear program more quickly, doing so would keep Jordan more dependent on international assistance than if it were able to exploit its natural uranium reserves for eventual fuel export. On the other hand, while it may have been economical for the United Arab Emirates to develop an indigenous uranium capacity as part of its nuclear power program, the UAE had a greater interest in the ability to overcome its history as an enabler of nuclear proliferation and thus quickly develop a nuclear power program.

The link between sovereign decision-making and the nonproliferation regime is manifested through Article IV of the NPT. Article IV provides the right of any state to develop a full nuclear fuel cycle on its soil. Most nuclear materials are not sold on an open international market; materials, technology, and know-how are controlled primarily by states. In this way, Krasner refers to the nonproliferation regime as "authoritative." As such, Krasner argues, it is "more likely that a durable, mutually acceptable pattern of

behavior will established." States agree on the regime's "basic norms and principles" so states can expect to resolve agreements within the regime's framework.[7] Moreover, the NPT has one of the most extensive participation rates of global treaties, adding to the "buy-in" on norms and principles. The Article IV norm is strongly held by many NPT states parties and is seen as a point of leverage over nuclear weapons states and other suppliers (most of whom are in the developed world) that wish to curtail transfers of fuel cycle technologies. Indeed, as part of the 2010 NPT Review Conference, 120 members of the Non-Aligned Movement issued a statement that said of Article IV's guarantee to "research, produce, and use nuclear technology for peaceful purposes, "…NAM States Parties do not see any room for reinterpretation or setting of conditions for the peaceful uses of nuclear energy."[8]

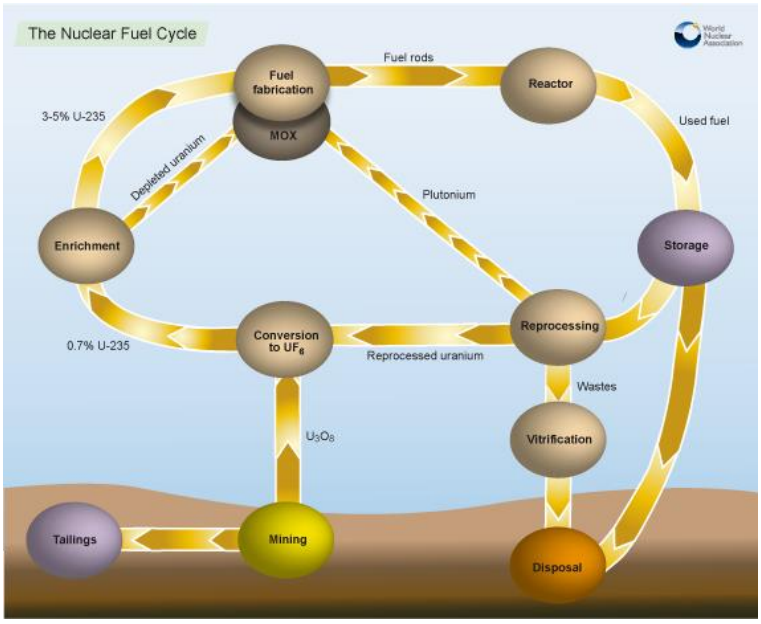

Figure 1

7 Stephen Krasner, *Structural Conflict* (Berkeley and Los Angeles: University of California Press, 1985), 287-290.

8 United Nations, *Non-Aligned Movement Statement before the 2010 Review Conference of the Parties to the Non-proliferation of nuclear weapons Treaty*, given by H.E. Dr. R.M. Marty M. Natalegawa, Minister for Foreign Affairs of the Republic of Indonesia (New York, 2010), 4.

Source: World Nuclear Association

There are two interrelated implications of this research, one for U.S. policy and the other for prospects for internationalization of the nuclear fuel cycle -- an arrangement whereby states would no longer have sovereign control over the production of nuclear fuel. With regard to the first, the question among American policymakers is whether the UAE NCA should be the "Gold Standard"[9] or whether new or renewed agreements should be negotiated on a case-by-case basis. Proponents of the Gold Standard argue that the dangers of nuclear technology proliferation necessitate a strict U.S. position on enrichment and reprocessing and that the benefits of doing business do not outweigh this imperative. Opponents of the Gold Standard may agree that the diffusion of nuclear technology is dangerous, but argue that the competitive international nuclear industry leaves the U.S. with little leverage to dictate terms.[10]

Based on this paper's finding that autocratic states participating within the existing structure of the nuclear nonproliferation regime base their fuel cycle decisions on their strategic positions rather than purely economic or political reasons, I argue that the Gold Standard approach should be abandoned. It appears that without providing better incentives, U.S. policy will not be able to dictate nuclear fuel cycle terms to new or existing nuclear power countries. Even (or especially) if the U.S. continues to implement a case-by-case policy with regard to nuclear cooperation agreements, it should not allow NCAs to become an end rather than a means to more effective global nonproliferation policy. I argue that the changes in U.S. leverage, the increased demand for new nuclear

9 Jessica Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?" note 5, (Washington, DC: Nuclear Threat Institute, November 27, 2012). http://www.nti.org/analysis/articles/us-nuclear-cooperation-nonproliferation-reforms-or-devil-you-know/ (accessed May 30, 2013).

10 Kane (2012 A)

energy development, and the expansion of existing nuclear energy programs necessitates a genuine U.S. effort to enact a global multilateral nuclear fuel cycle arrangement where states would get their fuel from an independent entity. However, if countries are making decisions based on their relative power positions within the international system, and how changes to the regime would affect those positions, such an arrangement would need to ensure that all participating states would be provided fair and equitable treatment.

The remainder of this paper will proceed as follows. The rest of Section I will expound on the above argument, describe how other theories would explain the outcomes, provide a brief rationale for the research question, and describe the comparative method used. Sections II and III present the two cases, providing evidence for the arguments above and alternative explanations that appear less likely. The final section, Section IV, will provide an overview of the arguments, demonstrate the overarching challenges to the nonproliferation regime in greater detail, and present policy implications and recommendations based on the case studies.

The argument: The power-maximizing tendencies of states and international regimes

This study adopts the Realist assumptions that states are rational actors and will seek to maximize their power in the international system under conditions of anarchy. In the absence of an overarching order, states find it difficult to trust one another and will revert to acting in ways that support their own interests. As a result, cooperation among states can often be difficult. Jervis explains the dilemma as follows:

> States must worry that others will seek to take advantage of them; agreements must be crafted to minimize the danger of double crosses; the incentives that operate when agreements are signed may be quite different when the time comes for them to be carried out; and both

> promises and threats need to be made credible.[11]

In a Realist paradigm, a state's economic choices are fundamentally, in the end, about a political motive.

> National interest may at times be influenced by the peculiar economic interests of classes, elites, or other subgroups of the society; but factors of geography, external configurations of power, and the exigencies of national survival are primary in determining foreign policy.[12]

The Realist argument emphasizes that international trade occurs not because it is in both states' interests (though, sometimes it is) but rather because the hegemon has dictated a system that works for it and weaker states are often forced to opt into the system. Gilpin argues, "In the absence of economic and especially the political influence of the hegemonic power, the system would fragment into autarkic economies or regional blocs."[13]

Thus, Realist theory would expect a state to pursue economic power in the service of its national interests. This means we should expect states to "seek to diversify their economies and lessen dependence on others, thereby reducing their vulnerability to economic coercion, and obtain a larger share of the gains produced by…the relative gains from trade."[14] Lake notes there are two primary ways a state can grow its economy: trade and capital transfers. He argues that while trade can enhance national and global welfare, only capital transfers can increase economic power.[15] This is especially true in countries

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11 Robert Jervis, "Realism, Neoliberalism, and Cooperation: Understanding the Debate," *International Security*, 24, no. 1 (1999): 42-63, 43-44.

12 Robert Gilpin, *The Political Economy of International Relations*, New York: Basic Books, Inc., 1975, 28.

13 Gilpin, 33

14 David A. Lake, "Power and the Third World: Toward a Realist Political Economy of North-South Relations," *International Studies Quarterly*, 31, No. 2 (Jun., 1987) No. 31, 217-234, 228

with a surplus of labor and little capital in that trade exacerbates specialization –thereby enhancing economic welfare – and therefore precludes diversification of the economy. Moreover, labor-intensive products add little to the value chain of production, whereas capital-intensive goods "are usually high value added manufactured goods early in their product cycles. Through learning or by stimulating technological innovation, such goods often produce significant positive externalities."[16]

Krasner (1985) also argues that developing states, on the whole, prefer more "authoritative" as opposed to market-oriented modes of allocation.[17] Authoritative modes of allocation include direct allocation of resources by political authorities or indirect allocation by limiting private actors, such as corporations from entering the market.[18] By adopting authoritative modes of allocation, leaders are better able to hedge against exogenous shocks that may cause unrest and instability, as well as declines in material well-being.[19] Thus, contrary to an "economistic" notion that political power is subordinate to wealth-maximization, Krasner's self-styled "modified realist" contention is that "in international forums concerned with global regimes, the most important motivation of the Third World is to reduce vulnerability by supporting principles, norms, and rules that legitimate authoritative allocation rather than market-oriented allocation."[20] Krasner uses this contention to explain why, in the 1970s, the developing world banded

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15 Lake, 229

16 Lake, ibid

17 Krasner, 5

18 Ibid, 5

19 Krasner, 6

20 Krasner, 306

together to pursue the "New International Economic Order," a proposal to change the dominant "liberal" paradigm governing international economic exchange.

Three variables highlighted by Kranser as important to the success of international regimes appear to characterize the development and current state of the international nonproliferation regime. First, as has been mentioned, the regime is governed by state- rather than market control of nuclear materials, technology, and know-how. Second, developing countries (i.e., the less powerful states) have a cogent and unified voice as regards their demands of the developed world. Third, the power-wielding states, particularly the United States, must have relatively less influence over existing regimes.[21]

Briefly, I will cover these three features of the nonproliferation regime –state-controlled trade, "weak" state grievance cogency, and the limited influence of powerful states -- in more detail. Early efforts to internationalize nuclear trade –i.e. establish a supranational agency that would control the means of production of the nuclear fuel cycle and dispense licenses to countries wishing to pursue nuclear energy[22] -- failed because the international environment did not allow for states to trust that all parties would follow through on commitments to hand over their resources. The result has been the establishment of two formal institutions -- the International Atomic Energy Agency, established in 1957, and the Treaty on Nonproliferation of Nuclear Weapons (NPT),

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21 Kranser, pp. 7-10

22 Joseph Cirincione, *Bomb Scare*, (New York, New York: Columbia University Press, 2007) 17. U.S. Department of State Office of the Historian, "Milestones: (1945-1952) http://history.state.gov/milestones/1945-1952/BaruchPlans.

which entered into force in 1970 -- that set the rules and norms of the international nuclear nonproliferation regime.

Essentially, the regime created two distinct classes of states: those possessing nuclear weapons and states legally prohibited from possessing them. Within the regime they are known as nuclear weapons states (NWS) and non nuclear weapons states (NNWS). While the regime is inherently discriminatory, a grand bargain was negotiated: Article IV of the NPT dictated that NNWS would have NWS assistance with indiscriminate access to development of the nuclear fuel cycle and NWS would take steps to eliminate their nuclear arsenals. At the time, the Article IV requirement stemmed, in part, from the fact that technical knowledge about nuclear power was concentrated among very few countries, including the United States and Russia.[23]

From the 1970s to 1990s, the normal process of technology, materials, and knowledge transfer in the nuclear arena spurred familiar tensions regarding the spread of the fuel cycle: nuclear suppliers attempted to control the supply nuclear technologies and materials over the protests of non-nuclear weapons states.[24] However, members of the regime were willing to work within its confines because, as Krasner argues, "the North and the South…agree[d] that the international movement of nuclear technology and material must be subject to state decisions rather than the market."

With the nonproliferation regime's accepted norms and principles allowing for relative negotiating parity between "weak" and "strong" states, in negotiating with the United States on nuclear cooperation agreements, Jordan and the UAE took decisions

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23 Joseph A. Yager, *International Cooperation in Nuclear Energy*, (Washington, D.C.: The Brookings Institution) 1981.

24 Krasner, 289.

based on their resource endowments. As Lake argues, Realism would expect weaker states to conduct trade that would bolster their international power positions, that is, allowing them greater economic independence. Jordan is a country with "few natural resources and a small industrial base" and its economy is heavily dependent on "external aid from abroad, tourism, expatriate worker remittances, and the service sector."[25] In other words, we would expect Jordan to seek to develop any and all value-added resources it has in order to diversify its economy. In the words of Jordan's leading nuclear energy official, enrichment is "the source of strength in its nuclear program."[26] Without it, the program would not necessarily be worth pursuing. We would also expect the UAE to engage in trade that would continue the economic independence the UAE has enjoyed from its vast oil reserves. For the UAE, one path to maintaining economic independence is the development of a nuclear power program. It needed U.S. approval, in the form of the cooperation agreement, to move forward with a nuclear energy program and overcome questions about its involvement in proliferation of nuclear weapons after serving as a transshipment hub in the A.Q. Khan Proliferation network.

Other International Relations Theories and Nuclear Cooperation

Liberalism and its variants

Liberals contend that wealth accumulation rather than power per se motivates rational actors, including states. Liberals also believe that states' interests are

25 U.S. Library of Congress, CRS, *Jordan: Background and U.S. Relations*, CRS Report RL33546, (Washington, DC: Office of Congressional Information and Publishing) April 9, 2010, 7.

26 Allison MacFarlane, "Where, How, and Why Will Nuclear Happen? Nuclear 'Renaissance' Discourses from Buyers and Suppliers," in Adam Stulberg and Matthew Furhmann (editors), *Nuclear Renaissance and International Security* (Stanford, CA: Stanford Security Studies, 2013), 58

harmonious[27] and therefore international trade will produce mutually beneficial economic effects resulting, eventually, in the end of interstate conflict. Thus, states would be expected to act in ways that maximize their wealth rather over their power in the international system. If we were to look at the cases of Jordan and the UAE through a Liberal lens, we would expect the opposite outcomes, or at the very least, we would not expect the outcomes observed. Jordan would have no reason not to engage in an NCA with the United States because indigenous uranium enrichment only becomes cost effective when a state can capably produce 10 gigawatts of nuclear power. Jordan's plans entail producing ~3 GW of nuclear power by 2025.[28] Although Jordan wishes to exploit its domestic uranium reserves, wealth maximization rather than economic independence would be Jordan's primary motivator. We might expect the UAE to pursue other actors, such as Russia, that would trade with the UAE setting conditions on development of the full nuclear fuel cycle.

An offshoot of liberalism is neoliberal institutionalism, which attempts to account for states' cooperation behavior. As Jervis points out, the difference between realism and neoliberalism is over states' motivations for conflict and cooperation and the corresponding ways in which cooperation might be achieved.[29] Like realism, neoliberal institutionalism holds that conflict is the result of insufficient information about actors' intentions. However, unlike realists, neoliberals believe that institutions – whether formal

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27 Gilpin, 27

28 Sharon Squassoni, "Mapping Nuclear Power's Future Spread" (Chapter 2) in Henry Sokolski (ed), Nuclear Power's Global Expansion: Weighing It's Costs and Risks, *Strategic Studies Institute*, 69.

29 Jervis, pp. 42-43

or informal – are the desired mechanism to help states overcome information asymmetries.[30] In the absence of formal institutions, states can signal to each other credible commitments by sending "costly signals" that demonstrate a state is willing to incur a cost that it might not have otherwise in order to participate in war or to cooperate.[31] One example of costly signals is an audience cost, or the political fallout from leaders reneging on their commitments.[32]

Stulberg (2013) argues that it is particularly difficult for states to signal intentions regarding cooperation on multilateral nuclear approaches (MNAs), i.e., arrangements that would require states to give up sovereign fuel cycle rights.[33] He suggests that the credible commitment problem arises for several reasons. First, MNAs create varying reputational costs for different actors. Thus, "it is not clear a priori what the meaning of reputation is for a customer state, whether it works as a single identity, how states manage multiple reputations across different issue areas and which reputation matters most for nuclear energy bargaining."[34] Second, MNAs hold different status for different countries. No single regime type can be said to have a preference for MNAs, thus complicating "the ability of nuclear suppliers and customers to convince one another of the normative or

30 Jervis

31 James D. Fearon, Foreign Policy Interests: Tying Hands versus Sinking Costs, *The Journal of Conflict Resolution*, 41, No. 1, (Feb.,1997): 68-90, 69.

32 Fearon, 69

33 Adam Stulberg, "Confronting the Credible Commitment Problem," in Adam Stulberg and Matthew Furhmann (editors), *Nuclear Renaissance and International Security* (Stanford, CA: Stanford Security Studies, 2013).

34 Stulberg, pp.102-103

domestic political costs that they would incur by reneging on nuclear obligations."[35] Third, even benignly motivated suppliers and customers cannot signal that they will not renege on fuel supply commitments: history shows that political changes have indeed affected a number of nuclear fuel transactions, in turn creating unacceptable costs for one or both of the parties.[36] As a result, states cannot signal "ex ante" that changes to the commitments will not occur "ex post."

Stulberg argues that successful MNAs hinge on the customers' projected future reliance of its nuclear energy program as part of its overall reliance on energy coupled with the suppliers' share of market power – as a measure of the power dynamic between the customer and supplier. Future reliance would be important for the state's ability to secure an agreement because "the more reliant a state expects to be on nuclear power for its energy security, the more important it will become to secure a steady fuel supply." Trust issues are compounded if the supplier's share of the market grows "too large" (Stulberg estimates the threshold at 25 percent). Even if its intentions are benign, a prospective nuclear trading partner becomes untrustworthy when it has a large enough market share.

Under this framework, one would expect the UAE and Jordan to face similar prospective trading partners – all options would be open -- but have a different reliance on nuclear energy as part of their overall energy source. Jordan's reliance would be greater and therefore we would expect it to have more difficulty trusting its prospective partners. The UAE, on the other hand, has more ability to engage in agreements because

35 Stulberg, p. 105

36 Ibid

of its energy independence. Indeed, in his article, Stulberg argues that UAE engaged in "cheap talk." It could signal its own benign intentions with regard to nuclear power by foreswearing enrichment and reprocessing, and facing a plethora of potential suppliers and no need to secure a constant nuclear fuel supply, it could sign an agreement with the United States easily.[37] Ultimately, while the argument is compelling, it would be exceedingly difficult to predict the level at which states could overcome the asymmetric informational issues. It would be difficult to know at what point Jordan's nuclear energy reliance becomes too great to inhibit, or the UAE's sufficient to enable, cooperation.

Finally, a domestic politics approach (using a societal rather than state level of analysis) would focus on how domestic politics affects foreign policy decision-making. Given that both countries have authoritarian regimes (though are accountable to their populous to different degrees), the most salient relationship we would examine would be that between elites and institutions and the way in which they threaten their leadership.[38] On its face, a domestic politics argument appears credible. That is, one might argue that Jordan needed to appease domestic political actors, particularly elites, while the UAE did not because Jordan was facing more internal pressure. But, as a recent review of Jordanian politics shows, elites do not constitute such a threat because the electoral system allows the King to maintain control over newly elected representatives.[39] In addition, the UAE's president, Shaikh Khalifa bin Zayed, has benefited from kinship

37 Stulberg, pp.110-112

38 Erica Frantz and Natasha Ezrow, *The Politics of Dictatorship: Institutions and Outcomes in Authoritarian Regimes* (Boulder: Lynne Rienner Publishers) 2011, 6.

39 Andrew Barwig, "The 'New Palace Guards:' Elections and Elites in Morocco and Jordan," *The Middle East Journal*, 66, No. 3 (Summer 2012), 425-439, 426.

loyalties and shrewd political maneuvering to maintain tight control over the seven emirates that make up the UAE. However, it has also been argued that expected future loss of control of elites may have also influenced the UAE's decision.[40] The UAE's natural gas shortage and impending energy crisis threatens, among other things, legitimacy of the ruling party. As will be shown, nuclear energy would provide a strategy to shore up petroleum export revenues and maintain its system patronage in the long run.[41] Here there is overlap between a domestic politics argument and the realist argument. While I assert that the structure of the international nuclear nonproliferation regime and the UAE's position within the international system provided it leverage to negotiate an agreement giving up its full cycle rights, I also argue that subsumed within this calculation was the way in which the nuclear program would ultimately benefit the regime.

Constructivism

Unlike realists and liberals, constructivists do not assume that states are rational actors or that they have a determined set of preferences.[42] Rather, under a constructivist paradigm, states and structures are "mutually constituted"[43] – as the title of the seminal work on constructivism, "Anarchy is What States Make of It"[44] suggests. The approach addresses how identities and norms shape processes rather than Realist inquiries

40 Li-Chen Sim, "Re-branding Abu Dhabi: From oil giant to energy titan," *Place Branding and Public Diplomacy*, 8, No. 1, pp.83-98, 86.

41 Sim, p. 86

42 Ted Hofp, "The Promise of Constructivism," *International Security*, 23, No. 1, (Summer 1998): 171-200.

43 Hofp, 172

44Alexander Wendt, "Anarchy is what states make of it: the Social Construction of Power Politics," *International Organization*, 46, No. 3, (Spring 1992) 391-425.

regarding how structures (i.e., the international system) incentivize actors (i.e., states).[45] Although it is not necessarily a predictive theory, Hopf argues that constructivism provides "alternative accounts of mainstream puzzles," such as the realist's security dilemma and the neoliberal institutionalist's accounts of cooperation under anarchy.[46] In general, a constructivist approach would examine the sources of a state's interests and identities: uncertainty would not always lead to a security dilemma; it would be a variable to be understood based on states' conceptions of other states' interests. Rather than take as a given that information asymmetries can often preclude cooperation, constructivism assumes that cooperation can be a natural state between actors.

In this way, a constructivist approach may provide an important complementary explanation for the outcomes related to Jordanian and Emirati nuclear cooperation with the United States. Under this paradigm, we might examine how the international nonproliferation regime has shaped states' identities and vice versa. Some argue that states' perceptions regarding the NPT's "grand bargain" – wherein Non Nuclear Weapons States (NNWS) are promised full access to the use of the atom for peaceful purposes in return for their promise of not developing nuclear weapons -- has created a need for NNWS to insist on fuel cycle equity even though they don't plan to exploit this "right." For instance, as U.S. State Department official Richard Stratford stated with regard to the possibility of a new law requiring all NCAs to have the same provisions as the UAE's:

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45 Ibid, p. 392

46 Hopf, p. 186

> …that can be problematic. Why? Because a very large part of the Non-Aligned Movement and those that might proceed into nuclear are not people who are going to sign away their, quote, 'inalienable article IV rights to nuclear cooperation.'"[47]

Although Constructivism does not necessarily have set theoretical expectations, existing literature does use Constructivism to predict proliferation behavior. In relation to this study, Maria Rublee's (2009) argument that states make proliferation choices based on the "international social environment" rather than "an overwhelming quest for security (Realism) or a "set of cost-benefit calculations (neoliberal institutionalism)"[48] is more applicable to the question of UAE's signing of the NCA than Jordan's. For instance, she argues that "the fear of social costs and the desire for social rewards can motivate states to exercise nuclear forbearance." Within this prediction, she argues that states would engage only in what is minimally required by the NPT and "will look for, and where feasible, exploit loopholes in NPT and other related treaties."[49] While the question is over nuclear power and not nuclear weapons, Rublee's prediction appears to be an accurate representation of the UAE's behavior. Up until it began thinking about nuclear energy, it had not signed the "Additional Protocol" allowing for more invasive inspections by the IAEA. On the other hand, the UAE did not sign the U.S. NCA and engage in other "good" nonproliferation behavior simply to come into good international favor but rather because doing so allowed it to move forward with a nuclear energy program.

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47 Carnegie Endowment for International Peace. "U.S. Nuclear Cooperation: How and With Whom?," Transcript by Federal News Service, Washington, D.C., March 29, 2011.

48 Maria Rublee, *Nonproliferation Norms: Why States Choose Nuclear Restraint* (Athens: The University of Georgia Press, 2009), 27.

49 Rublee, 28

Constructivism may be a promising avenue for further research, especially given the importance of norms and rules in the nonproliferation regime.

Rationale for the study

The enduring attempts to promote "peaceful" uses of the atom and prevent nuclear weapons proliferation

From the U.S. perspective, nuclear nonproliferation has long been an important objective in ensuring international security; however, new challenges to the nonproliferation regime -- the diffusion of technology, material and know-how; the expansion of industry suppliers; and the development of a clandestine nuclear trade network – add impetus to the urgency of global nonproliferation efforts. As Scott Sagan notes,

> A fundamental goal for American and global security is to minimize the proliferation risks associated with the expansion of nuclear power. If this development is poorly managed or the efforts to contain risks are unsuccessful, the nuclear future will be dangerous."[50]

Thus, an objective of this study is to learn what leverage the U.S. and other major powers will have when or if they pursue more stringent restrictions on the expansion of nuclear technology than current policy dictates.

Why the United Arab Emirates and Jordan?

I chose to examine Jordan and the UAE for two main reasons. First, they allow for a sound initial probe of the research question using a most similar system design, which selects cases based on similarities of potential explanatory variables and differences with respect to the dependent variable. The similarities that might bear on

50 Steven E. Miller and Scott D. Sagan, "Power without Proliferation?," special issue, *Dædalus* 138, no. 4 (Fall and Winter 2009): 7-18, 170-171, 13.

proliferation include geography, racial and sectarian composition of the state's population, regime features, and alliance dynamics; that is, they are located in the Middle East, have Sunni Arab population, are ruled by authoritarian regimes, and are closely allied with the United States. The important difference for this paper, however, as has been stated, is their choice for their respective nuclear programs about whether to explicitly renounce enrichment and reprocessing rights in a NCA with the United States. Thus, to be explicit, the dependent variable is the two states' divergent choices in concluding an NCA with the U.S. and the independent variable is their relative power positions within the international system.

A secondary motivation for choosing these two cases is their relevance to U.S. foreign policy. The Middle East is a hotbed of controversy related to nuclear weapons issues, not least with regard to Iran's alleged nuclear ambitions and the resultant reactionary policies of its neighbors; the tensions surrounding the Arab-Israeli security dilemma, including Israel's ambiguous policy toward its own nuclear weapons stockpile; and the United States' historically ill-conceived actions regarding nuclear weapons in the region, such as the preemptive war with Iraq over its perceived weapons of mass destruction program. As a consequence, these factors contribute to Middle Eastern states' rationales regarding their nuclear fuel cycles. Depending on whether the United States can meet its nonproliferation goals in the Middle East, the global nonproliferation norm may be strengthened. This is especially important in light of some observers' worry about the United States' waning influence in this arena,[51] both in terms of its foothold as an

51 See, for example, the exchange between Congresswoman Diane Watson and witness Ambassador Thomas Graham, Jr., Chairman of the Lightbridge Group at Congressional hearing. "Ms. Watson: there is a bottom-line question in my mind, and what forms of influence should we, as the United States, use with foreign

industry leader and its ability to exert leverage over former allies for non commercially-related reasons.

The Comparative Method

The cases in this paper were chosen for the reason listed above: to provide a compelling initial probe of a research question in which the similarities among the potential explanatory variable provide a puzzle for the difference in outcomes. The data collected is mainly from a combination of primary and secondary sources, such as newspaper articles and academic journals. In addition, I conducted non-for-attribution interviews with a current U.S. government official directly involved in negotiating NCAs[52], and two background interviews with a scholar[53] and former government official[54] with knowledge of US nuclear cooperation agreements. Due to time and resource constraints, I was precluded from conducting surveys of in-country decision-makers and members of the general population. Likewise, the paper utilizes little public polling data because very few polls have been independently conducted. Information gaps constrain the validity of the arguments and the lack of cases constrains the paper's generalizability. Nonetheless, I argue that the results of this study will provide preliminary insights on states' fuel cycle decisions, implications for U.S. and global nonproliferation policy, and impetus for a future research program.

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supplier countries and their nuclear vendors to convince them to adopt these non-proliferation criteria in their foreign sales or at least not undercut the U.S. goals? Ambassador Graham: That is another very good question. I don't have really a particularly good answer." House Committee on Foreign Affairs, *Nuclear Cooperation and nuclear nonproliferation after Khan and Iran: Are we asking enough of current and future agreements?,* 111th Cong., 2nd sess., 2011.

52 Telephone interview with government official, May 14, 2013.

53 Telephone interview with Dr. Chen Kane, May 15, 2013.

54 Interview with Christopher R. Hill, May 13, 2013.

Conclusion

The purpose of this study is to understand what has motivated Jordan and the UAE in making different decisions regarding nuclear cooperation with the United States and thus access to the full nuclear fuel cycle. Using a Realist approach, I argue that the difference can be explained by the significant disparity in their relative power positions within the international system. Within this paradigm, the two countries have different goals regarding the international nuclear nonproliferation regime and take different actions to reach those goals. Correspondingly, the features of international nuclear nonproliferation regime are conducive to allowing for challenges from developing countries like Jordan in that (1) trade is based on an authoritative rather than market-based mode of allocation, (2) there is consensus among states regarding the importance of rules and norms governing the regime (i.e., the "grand bargain,") and (3) the influence of the regime's powerful actors -- the nuclear weapons states -- is not overwhelming. The argument here has important implications for the prospect of internationalizing the nuclear fuel cycle. First, it demonstrates that alliances do not drive states' decisions regarding their fuel cycle rights. In this way, the U.S. would be foolish to attempt to perpetuate the "Gold Standard:" it would lose what existing nonproliferation leverage it has while other countries move in to supply new and expanding nuclear states. Second, it shows that any arrangement that relieves states of their sovereignty must be equitable and provide compensation for the benefits they would otherwise receive for developing an indigenous nuclear fuel cycle. The study uses a most similar system design and the

conclusions I have drawn have been inferred from press accounts, the existing literature, and author interviews.

Chapter Two. The United Arab Emirates

The Puzzle

There are economic, ideological, and practical reasons to expect that the United Arab Emirates would not sign a nuclear cooperation agreement with the United States, which restricts domestic enrichment and reprocessing. First, for states intent on producing at least 8-10 gigawatts of electricity, it may be cost effective to develop an indigenous enrichment capacity.[55] Indeed, the UAE has ambitious plans for its nuclear program. The UAE estimates that "it must expand its power generation and transmission capacity from the current level of 16 gigawatts to 40 gigawatts in order to meet projected [domestic electricity] demand increases."[56] Second, as MacFarlane argues and has been noted above, "The issue of equity among countries plays a special role in the acquisition of nuclear power technology."[57] Finally, given the political nature of nuclear trade, if a country is serious about its nuclear energy program, any country giving up the right to indigenous enrichment is necessarily putting itself at risk of not having a secure fuel supply.

The Argument: The UAE's position within the International System

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55 Stulberg, 97-123. Importantly, the UAE's has publicly stated that it does not believe enrichment to be economical for its small number of reactors (UAE Ministry of Foreign Affairs, 2008, 9).

56 U.S. Library of Congress, CRS, *The United Arab Emirates (UAE): Issues for U.S. Policy*, by 2010Kenneth Katzman, CRS Report , (Washington, DC: Office of Congressional Information and Publishing) RS21852, March 18, 2013.

57 Allison MacFarlane, "Where, How, and Why Will Nuclear Happen? Nuclear 'Renaissance' Discourses from Buyers and Suppliers," in *Nuclear Renaissance and International Security*, ed. Adam Stulberg and Matthew Furhmann (Stanford, CA: Stanford Security Studies, 2013) 50-73, 58.

The UAE, as a member of the Organization of Petroleum Exporting Countries (OPEC), has historically promoted its "Third World" goals[58] through colluding with its fellow petroleum-rich states to charge high prices on oil and gas exports. Krasner argues that the "creation of OPEC was, during the mid- and late 1970s, the most effective exercise of power by the South against the North since the conclusion of the Second World War."[59] The power OPEC countries have wielded since its creation has increased oil producing countries' leverage in international affairs bargaining. What's more, on the whole, developing countries – highly negatively impacted by OPEC's formation and subsequent steep increase in oil prices – did not condemn OPEC's behavior; rather, they saw OPEC as a "model to be emulated,"[60] further enhancing OPEC's power.

The UAE's position has only strengthened, not only as a result of its OPEC membership but also of its strategy to attract foreign investment and foreign talent by cultivating a diversified economic system.[61] Consequently, the UAE has been able to maintain a strong alliance with the United States. The U.S. trusts in the stability and reliability of the UAE as an oil supplier[62] and the U.S. has sold the UAE tens of billions of dollars worth of military equipment.[63] Thus, today, the UAE finds itself in an advantageous position within the international system and is taking steps to perpetuate

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58 Krasner, 14

59 Krasner, 108

60 Krasner, 106

61 Abdulah al Suwaidi, "The United Arab Emirates at 40: A Balance Sheet," *Middle Easy Policy*, 28, No. 4, (Winter 2011): 44-58, 48.

62 Christopher M. Davidson, "After Shaikh Zayed: The Politics of Succession in Abu Dhabi and the UAE," *Middle East Policy*, 12, no, 1 (Spring 2006): 42-59, 44.

63 al Suwaidi, 47

this position over the long-term. One of these steps includes the development of a nuclear energy program. I argue that while the UAE may sympathize with developing states' desires to maintain an equitable nonproliferation regime, it is more concerned about the real benefits that nuclear energy will have on its long-term power position.

Manifestation of its international power position vis-à-vis nuclear cooperation

Realists argue that a country's economic prospects are closely linked with its national interests. Unlike Liberals who assert that states will partake in economic exchange to maximize wealth for the wealth's sake, Realists argue that economic relations are done in the service of political aims. Realists also contend that the goal of "economic (and political) activity…is the redistribution of wealth" in the areas of employment, industry and military power.[64] It is within this paradigm that I argue that UAE signed the NCA with the United States. The UAE wanted to ensure the quick development of a nuclear energy program as part of its strategy to maintain its ability to provide rents to its citizens and its power position within the international system. The program's success did not hinge on the exploitation of the country's natural resources but rather on the ability overcome its questionable nonproliferation record, discussed below, in order to attract nuclear suppliers.

The UAE's national interest – maintaining economic independence

The UAE faces both demographic and energy challenges that threaten its long-term national interests. Knowing of the impending oil and gas shortage, the UAE's

64 Gilpin, 27

leadership worried[65] that relative economic decline would challenge its various "internal and external survival strategies – including [a] distributive economic system and overseas soft power accumulation."[66] Consequently, the country adopted a strategy of developing nuclear energy to free up oil and gas production for export while using nuclear power as a base load source of power to fuel the country's various demand areas. Standing in the way of these plans were questionable nonproliferation credentials that made suppliers hesitant to engage in trade. American officials revealed that the UAE's port of Dubai served as a hub for the A.Q. Khan clandestine nuclear trade network from which centrifuge technology was shipped to Libya, for example.[67] Thus, in signing the NCA, the UAE was eager to prove its peaceful intentions for nuclear power[68] and was willing to gamble an insecure fuel supply to prevent stalling plans to commence the nuclear energy program. In addition, all of the bids under consideration by the UAE contained for U.S. patented technology. Indeed, in 2009, the *Economist Intelligence Unit* reported that the UAE

> received offers from three groups earlier this year, and had indicated that it was aiming to award the contract in September. However, the schedule slipped slightly owing to the need to secure ratification of a US government agreement allowing the transfer of nuclear technology.[69]

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65 Li-Chen Sim, "Re-branding Abu Dhabi: From oil giant to energy titan," *Place Branding and Public Diplomacy*, 8, no. 1, (Oct. 2011) 83-98, 86.

66 Christopher M. Davidson, "Yes, the Gulf monarchs are in trouble" *Foreignpolicy.com*, November 13, 2012, http://mideast.foreignpolicy.com/posts/2012/11/13/gulf_autocracy_in_question (accessed June 4, 2013).

67 Jay Solomon and Margaret Cocker, "Oil-Rich Arab State Pushes Nuclear Bid With U.S. Help," *Wall Street Journal*, April 2, 2009, http://online.wsj.com/article/SB123862439816779973.html, (accessed June 3, 2013).

68 Charles Ebinger and Sharon Squassoni, "Industry and Emerging Nuclear Markets" in *Business and Nonproliferation*, John P. Banks and Charles Ebinger eds, (Washington, DC: Brookings Institution Press, 2011) 66-118, 84.

69 EIU ViewsWire, "UAE economy: Nuclear bargain," *Economist Intelligence Unit*, Dec. 29, 2009; "KEPCO wins UAE civil nuclear bid" *Nuclear Engineering International*, (Feb 2010), 4. Though the UAE awarded a Korean consortium the bid to develop its nuclear program, Non-Korean companies involved in the KEPCO

Therefore, if nuclear reactor components or fuel were to be transferred from the United States, the UAE knew it needed to win Congressional approval. Its strategy was to emphasize the peaceful nature of the program through both rhetoric and actions.[70] The UAE, for example, signed the Additional Protocol with the IAEA to allow for greater inspections of its future nuclear program.

As mentioned above, the UAE's nuclear energy program is part of a larger national strategy to maintain economic independence long "after the end of the oil era (even if that is still a long way in the future.)"[71] The purpose of the program is to ensure the survival of the state through what has been called by Christopher M. Davidson the "'ruling bargain:" "distributed wealth, the fostering of a dependent patrimonial elite, the reinvigoration (and at times reinvention) of historical and cultural sources of legitimacy, and, of course, the building of strategic alliances with oil-buying superpowers."[72] The UAE would use nuclear energy as a base load power for domestic electricity generation – a current limitation of other forms of alternative energies such as wind and solar[73] and a

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team include Westinghouse of the US, and Toshiba of Japan. Thus, the UAE would be required to sign an agreement with the United States in order for Westinghouse to participate in the contract.

70 Sim, 92

71 Giacomo Luciani, "The Rationale for Nuclear Energy in Persian Gulf States," *Security Index: A Russian Journal on International Security*, 18, no. 4 (Nov. 2013): 7-14, 8.

72 Davidson (2006), 43

73 United Arab Emirates Ministry of Foreign Affairs, "Policy of the United Arab Emirates on the Evaluation and Potential Development of Peaceful Nuclear Energy," April 2008, www.fanr.gov.ae/En/Documents/whitepaper.pdf, (accessed June 4, 2013), 1.

more reliable power source than oil and gas.[74] Freeing up petroleum reserves would increase its export revenues and shore up its ability to maintain the rentier economy.

As is widely known, UAE derives its wealth through its oil and natural gas reserves. A member of the Organization of the Petroleum Exporting Countries (OPEC), UAE is the fourth largest net exporter of oil in the world.[75] However, the country faces a looming energy supply crunch.[76] The *Economist Intelligence Unit* estimates that primary energy demand will grow 71 percent by 2019.[77] As a sign of the increased demand, the UAE is already a net importer of natural gas (from Qatar) even though it has the world's seventh largest natural gas reserves.[78]

Energy demand is increasing for a number of reasons, including population growth and urbanization; market diversification in energy-intensive industries, such as petrochemicals and aluminum manufacture; and increased water demand to be met with desalination plants, which also require electricity. In addition, it has been argued that Gulf States, including the UAE, will become an increasingly attractive tourist destination, once plans to connect the small nations by high-speed rail are complete.[79] Indeed, as part of its Plan 2030, Abu Dhabi –the largest and wealthiest of the seven emirates that constitute the UAE and the biggest force behind the nuclear energy program – seeks to

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74 Luciani, 11

75 Ian Jackson, "Nuclear Energy and Proliferation Risks: myths and realities in the Persian Gulf," *International Affairs*, 85, no. 6 (2009): 1157-1172, 1158.

76 Ebinger and Squassoni, 82

77 Ebinger and Squassoni, note 60, 114

78 Ibid, 82

79 Luciani, 8

attract 7.9 million hotel guests per year by 2030, almost double the UAE's population.[80] "Growing metropolises" are major energy consumers particularly of electricity – which requires availability of "reliable, abundant, and cheap" power production.[81]

Importantly, one of the main factors of the growing energy demand is a demographic shift.[82] First, the population is growing rapidly but the number of Emirates is not outpacing the number of expatriates—in 2011, 11.5 percent of the total population was Emirate compared with 27.6 percent in 1992. In addition, the country is showing signs of a youth bulge; that is, where the younger population begins to reach employment age but jobs for them are scarce. The UAE's brand of youth bulge is a little different in that there are a number of well-educated citizens but the available jobs do not fit their aspirations.[83] Consequently, Sim argues, "the bloated public bureaucracy and capital intensive oil industry are no longer able to absorb the increasing number of highly educated young Emiratis," straining the ruling bargain.[84] Thus, a bonus of the nuclear energy program is that it would create jobs for these educated, unemployed youth. UAE officials have emphasized that 60 percent of Emirati nationals would operate the program

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80 Lara Setrakian, "In Abu Dhabi's 'Formula,' a fast force for change," *foreignpolicy.com,* November 19, 2010, http://mideast.foreignpolicy.com/posts/2010/11/19/in_abu_dhabis_formula_a_fast_force_for_change (accessed June 4, 2013).

81 Luciani, 8

82 Anoushiravan Ehteshami and Steven Wright, "Political change in the Arab oil monarchies," *International Affairs,* 83, no. 5 (2007): 913-932, 916. The authors make this argument regarding all the Sunni Gulf States, not just the UAE.

83 Sim, 86

84Sim, 86

in the future and would be guaranteed training opportunities overseas and in the UAE's Khalifa University.[85]

The above factors demonstrates, as Li argues, that the main driver of the nuclear energy program was the "emirate's domestic gas shortage and its effects on economic diversification and political legitimacy."[86] Contrary to what one might expect, the United States was not pressuring the UAE to make a deal; rather, the UAE had devised a strategy for courting two Western countries, the United States and France, so that it could move forward with its nuclear program.[87] In its 2008 White Paper, the UAE stated its commitment to nonproliferation by "renouncing an intention to develop a domestic enrichment and reprocessing capability and undertaking to source fuel from reliable and responsible foreign suppliers."[88] One way to demonstrate its commitment was signing the deal with the United States. However, the UAE wanted to secure American Congressional approval and did not want to risk another 2006 "Dubai Ports" incident -- when Congress rebuked the Bush Administration-sanctioned right of the state-owned company, DP World, to purchase six American ports.[89] Thus, the UAE not only agreed to the no enrichment and reprocessing provisions of the NCA but also enacted domestic legislation foreswearing these same rights.[90]

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85 Sim, 87

86 Sim, abstract

87 Bryan R. Early, "Acquiring Foreign Nuclear Assistance in the Middle East," *The Nonproliferation Review*, 17, no. 2 (June 2010): 259-280, 260.

88 UAE Ministry of Foreign Affairs, 9.

89 Interview with Dr. Chen Kane, May 15, 2013; Early, 266.
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90 Sim, 92

Alternative explanation

A. Regional rivalry with Iran

Some nuclear policy observers have noted that that UAE began seriously considering nuclear energy at the same time that the international community grew concerned about Iran's belligerence regarding its own nuclear ambitions.[91] Thus, the UAE may have had two motivations in signing a nuclear cooperation deal with the United States. First, it may have been motivated to demonstrate to Iran that it could create a domestic nuclear program without the technologies needed to enrich uranium.[92] Indeed, the UAE has described its program as "peaceful by design" and as a model for other Middle Eastern countries to emulate.[93] Second, it may have been motivated to develop a nuclear energy program as a hedge against Iran. Indeed, contrary to conventional wisdom that some types of nuclear cooperation are benign, Fuhrmann has shown in a quantitative study that all types of nuclear cooperation "raise the risk of proliferation."[94]

While both arguments may have merit, it appears unlikely that the UAE, with a foreign policy that tries to be accommodative to its Iranian neighbor with whom it has tense relations,[95] would go out of its way develop a nuclear program simply to attempt to put pressure on Iran. Such an argument also raises the question of why other Middle East

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91 Joesph Cirincione, "Chain Reaction: How a U.S.-UAE arms deal could set off a Middle East Arms Race" *foreignpolicy.com*, May 7, 2009, http://www.foreignpolicy.com/articles/2009/05/06/chain_reaction (accessed June 3, 2013).

92 Luciani, 8

93 "UAE set nuclear precedent of 'Gold Standards'" *The National*, accessed from *UAE Interact*, August 8, 2010, (Accessed April 26, 2013).

94 Matthew Fuhrmann, "Spreading Temptation: Proliferation and Peaceful Nuclear Cooperation Agreements" *International Security*, 34, no. 1 (2009): 7-41, 8.

95 William Rugh, "The foreign policy of the United Arab Emirates" *The Middle East Journal*, 50, no.1, (Winter 1996): 57-70, 58-63; Suwaidi, 48.

countries that showed similar interest in nuclear power around the same time period, including Jordan and Saudi Arabia, have not signed restrictive nuclear cooperation agreements with the United States. Moreover, given that the UAE is going out of its way to demonstrate its peaceful intentions, it would be challenging to argue that the country was seeking a program that may one day allow it to create a nuclear weapon. For instance,

> If ever a program was designed to make it ill-suited for proliferation, it is the UAE program. First, the program did not flow out of a political-military calculation but out of a rather robust energy policy debate. Second, it specifically rejects acquiring the front or back ends of the fuel cycle. Third, it will be very happy to send away spent fuel and does not wish to pursue a plutonium economy. Fourth, it is in such a hurry to deploy power reactors that it is not going to pursue many of the preliminary steps that other countries do to get ready for nuclear power (e.g., operate research reactors, which we have seen in India and the DPRK are much more useful for small weapons programs than big power reactors are). [96]

Conclusion

As neither a member of the developing world nor that of the so-called advanced industrialized nations, the UAE may have sympathy for its fellow members of the international nuclear nonproliferation regime that wish that ensure sovereignty as their number one prerogative. This argument is given weight by the fact that the US NCA had a "most favored nation" provision in its agreed minute, where the UAE could renegotiate a new agreement if another Middle East country signed an agreement with the U.S. that had more favorable terms.[97] However, ultimately, the UAE's substantial leverage in

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96 Joe DeThomas, "Guest post: Another View on the UAE nuke deal," Passport, a blog by the editors of foreign policy, entry posted Friday, May 15, 2009 by Joshua Keating, http://blog.foreignpolicy.com/posts/2009/05/15/guest_post_another_view_on_the_uae_nuke_deal (accessed June 3, 2013).

97 *The National* (2010)

international dealings made the issue of nuclear fuel cycle sovereignty a less important issue. Without uranium reserves or other economic motives to maintain an enrichment and reprocessing option, the UAE signed an agreement that would allow it to eschew its past reputation for proliferation laxity.

Chapter Three: Jordan

The Puzzle

A number of factors would have seemed to make the conclusion of a nuclear cooperation deal between Jordan and the United States more likely than it has turned out to be. Since 2007, the United States and Jordan have been negotiating a nuclear cooperation agreement (NCA) that would formally restrict Jordan from using sensitive nuclear technologies, such as enrichment and reprocessing, in return for the pledge of U.S. assistance in the development of its program. That year, Jordan and the United States signed a memorandum of understanding where Jordan agreed not to enrich and reprocess nuclear fuel on its soil. After the conclusion of the U.S.-UAE NCA, the United States has insisted that Jordan's program include the same terms. The agreement would allow the United States to legally export nuclear materials, reactors, and reactor components to Jordan; however, it would not make those transfers inevitable. Far from it: Jordan is deciding between two non-U.S. firms as reactor vendors and those vendors are likely to supply nuclear fuel as well. Given that the United States is unlikely, in the short term, to assist Jordan's nuclear program, what would be the incentive for Jordan to sign the agreement? One might expect that the Jordanian-American alliance is strong enough

to incentivize Jordan to cooperate.[98] After all, in fiscal year 2012, the United States provided $736 million total in foreign aid.[99]

The argument – Jordan's weak power position and its uranium reserves

I argue that Jordan is strongly disinclined to forgo what it sees as its sovereign right as well as its as its long-term national security interest – the development of a nuclear energy program with the option to enrich uranium. Jordan's power position vis-à-vis the rest of the world would suggest that it cannot give up the right to exploit its uranium reserves, which would allow for Jordan to finance the program and to one day become a regional fuel supply export location. In other words, given Jordan's current economic situation, the nuclear program wouldn't make sense without the ability to enrich over the long term. Indeed, one rationale for Jordan's energy program is to diversify its economy. Jordan is a resource poor state with little source of income. The regime has survived, partly, by adopting a strategy of buying off its population. Laurie Brand argues that Jordan formed alliances with its Arab neighbors from the 1970s to the first Gulf war to maintaining economic security, a key strategy of rentier states like Jordan's to keep its populous happy.[100] Similarly, today, Jordan is heavily dependent on the United States for the same purpose. The U.S.-Jordanian alliance allows Jordan degree

98 Some observers agree. See Geoff Dyer and John Reed, "Jordan close to commissioning two nuclear reactors, declines to sign accord with U.S." *The Financial Times*, March 6, 2013 and Kane (2012): "ANY nuclear cooperation agreement with the United States is about why the country needs or wants the U.S. blessing or cooperation for its nuclear energy program and what leverage the United States has over these countries. And as far as I know, the United States has leverage, be it military, political or economic, over many countries in the Middle East."

99 Foreignassistance.gov, "Jordan," http://foreignassistance.gov/OU.aspx?OUID=170&FY=2014&AgencyID=0, (accessed April 26, 2013).

100 Michael Fischbach, review of *Jordan's Inter-Arab Relations: The Political Economy of Alliance Making* by Laurie Brand, *The Middle East Journal* 50, no. 2 (Spring 1996) 277.

of autonomy from greater Middle East powers, such as Saudi Arabia.[101] However, now that Jordan's alliance with the United States is constraining its ability to develop greater autonomy, it is acting contrary to the expectation that it would submit to U.S. demands to sign the NCA.

Jordan is facing a severe energy and water crisis in the coming decades; as a result, "development of secure alternative energy supplies is a top priority for the kingdom."[102] The energy and water crises stem from four interrelated issues, which, taken together, strain Jordan's economic growth.[103] First, the country is almost completely dependent on imported fossil fuels for its energy, rendering it vulnerable to supply disruptions. 96 percent of its energy is imported and 98 percent of energy consumption is from fossil fuels.[104] Second, Jordan faces a water supply shortage. Because the country has limited indigenous water resources and water demand will only continue to grow, Jordan is considering relying on desalination plants, which in turn would require large amounts of energy production.[105] Third, Jordan is concerned with environmental degradation from its heavy reliance fossil fuel consumption. And fourth, Jordan projects energy demand to rise between 4.5 to 6.2 percent per year between

101 Chen Kane, "Jordan's Nuclear Energy Program," (unpublished report, James L. Martin Center for Nonproliferation, August 2012) 74.

102 Abdullah bin Zayed, et al, "Why Go Nuclear," *Bulletin of the Atomic Scientists*, 64, no. 14 (Sept. 2009) 17.

103 Ibid

104 Ebinger and Squassoni, 91

105 Ibid, 91-92

through 2020; "meeting this demand would require an additional 4,000 MW at a cost of $4.2 billion to $5.2 billion."[106]

To meet the growing energy demand and provide both energy and economic security, Jordan has been seriously considering nuclear power production. Under its national energy strategy, the country hopes that by 2020, nuclear energy will contribute six percent of its overall energy mix nuclear; by 2030, Jordan hopes that 30 percent of its energy mix will come from nuclear and that the country will be a net energy exporter.[107] According to Jordanian planners, meeting these goals would require establishing one 750-1500 MWe reactor by 2020 and another by 2025.[108] However, the program is hampered by major challenges, including an insufficient electric grid size to meet the plant's needs; the inability to find an appropriate and safe site for the nuclear power plant; the desire, post-Fukushima, to contract for the safest reactor, which would necessitate using unproven technology; the questions that have arisen over Jordan's strategic uranium reserves, once measured to be at least 70,000 metric tons[109] and a key way to finance the program[110]; and the ability to find a partner to finance the program.[111]

Despite facing major challenges to the successful completion of a nuclear power program, Jordan remains invested in seeing through the development of a nuclear power

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106 Ibid, 91

107 Ebinger and Squassoni, p. 91 and World Nuclear Association, "Nuclear Power in Jordan," October, 2012.

108 World Nuclear Association, 2012

109 "New uranium mining projects -Jordan" http://www.wise-uranium.org/upjo.html, October 24, 2012 (accessed June 2, 2013).

110 Ebinger and Squassoni, p. 91

111 Kane (2012 B), 7

plant. In March 2013, perhaps to generate renewed interest in the stalled nuclear program, JAEC Chairman Toukan stated that Jordan had 150 years worth of uranium reserves located in central and southern Jordan, despite the French firm, AREVA, disputing the commercial viability of the uranium (which led Jordan to end its contract with the firm in 2012.)[112]

Jordan sees nuclear energy as an important alternative to maintaining reliance on imported fossil fuels, a major inhibitor of Jordanian economic growth. Jordanian officials estimate that no other alternative energy technology will provide the base load power necessary to meet the country's rapidly growing energy and water demands.[113] Even in the face of major program difficulties, Jordan is proceeding with the development of its nuclear program, providing further evidence that the country is serious about nuclear as a way to become more energy independent and grow its economy.

I also argue that Jordan's decision was based on its identity vis-à-vis the nonproliferation regime. While it is difficult to discern from publicly available information how Jordan identifies and wants to be identified by other countries, the Jordanians appear to be motivated to at once demonstrate a) their nonproliferation credentials to international audiences and b) their prioritization of nuclear sovereignty above all else to domestic and regional audiences. For instance, in 2007, Jordan became a member of the "Global Nuclear Energy Partnership," a Bush Administration initiative to "encourage nuclear cooperation while restraining the spread of enrichment and

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112 Taylor Luck, "Jordan, AREVA, part ways over uranium mining," *Jordan Times,* October 24, 2012.

113 Kamal J. Araj, "Plan for the establishment and development of the NPP owner/operator organization," power point presentation to IAEA meeting, October 2012, slides 2 and 3, www.iaea.org/...10.../09.Plan_for_NPP_Operator_Araj_Jordan.pdf (accessed on May 25, 2013).

reprocessing capabilities." Moreover, in 2008, Jordan signed a memorandum of understanding with the United States under which it agreed not to pursue indigenous uranium enrichment or spent fuel reprocessing.[114] At the same time, Jordanian officials, on numerous occasions, have publicly denounced the NCA terms. In 2010, Jordan Atomic Energy Commission (JAEC) Chairman, Khaled Toukan, said, "We believe in the universality of the NPT. Jordan does not agree on applying conditions and restrictions outside of the NPT on a regional basis or a country-by-country basis."[115] Ultimately, Toukan's statements appear to be genuine and add weight to the contention that Jordan is unwilling to change the international nonproliferation regime in a way that would require it to give up its sovereignty.

Alternative explanations

Domestic political influence

In 2011, State Department official Richard Stratford predicted, "Once the cabinet is reformed and things have settled down...I think we will be able to conclude the negotiation swiftly and Congress will be pleased when they see the outcome." This and other similiar comments appeared to indicate Jordanian officials wanted to avoid signing a nuclear cooperation agreement with the United States that would allow domestic political opposition to seize on Jordan's "pro-Western" inclinations as one of many challenges to the King's legitimacy. However, while Jordan does face opposition over several aspects of the program – whether site-specific, environmental, or financial

114 Mark Hibbs, "Jordan Holding off on agreeing to terms for cooperation with US" *Nucleonics Week*, May 7, 2009.

115 Ebinger and Squassoni, 93

concerns[116] – there is also softening support for Jordan's nuclear program among its most stringent opposition, the Muslim Brotherhood.[117] Jordanian officials themselves may appear to be attempting to quell the opposition with statements such as that by the JAEC's Khaled Toukan that Jordan "will not agree to sign any agreement that infringes on our sovereign rights or our international rights under any treaties."[118] However, the quote may indicate nothing more than a Jordanian official's desire to move forward with the nuclear program as seamlessly as possible, even (or especially) if that means stoking nationalist sentiments. Indeed, as Tobin argues, the Arab Spring-like protests were never a great threat to the status quo in Jordan. That is, Jordan's leaders were able to quell the opposition by providing cosmetic electoral reforms, real financial relief, and a sense that one only need look to neighboring Iraq to see that Jordan without King Abdullah would be much worse off than with him.[119] Given the reality on the ground currently in Jordan, where domestic opposition to the program itself is diffuse but limited, where Jordan appears in little danger of a revolution, and where Jordan has taken pro-Western decisions without regard to its opposition – such as allowing 200 American troops to be stationed near the Jordanian-Syrian border [120] -- the argument that domestic politics is the driving force behind its NCA decision is less persuasive.

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116 Chen Kane (2012 B), 62-68

117 "Jordanian Islamists to reconsider position on nuclear reactor" *BBC Monitoring International Reports*, Feb. 21, 2013.

118 Dyer and Reed

119 Sarah A. Tobin, "Jordan's Arab Spring: The Middle Class and Anti-Revolution" *Middle East Policy*, 19, no.1 (Spring 2013): 96-109.

120 Elizabeth Whitman, "Protesters March in Jordan Against Deployment of US Troops" Al Monitor, April 26, 2013, http://www.al-monitor.com/pulse/originals/2013/04/jordan-protests-us-troops-syria-chemical-weapons.html (accessed May 25, 2013).

External security concerns

Another hypothesis the paper considered is that Jordan is maintaining the option to develop sensitive fuel cycle technologies so that it may one day develop nuclear weapons to counter regional threats from Israel and/or Iran. For instance, one observers states, "Given Israel's military nuclear capability, there are clear geopolitical reasons why Jordan would be unwilling to forego the option of developing dual-purpose technologies…"[121] Following a 2007 interview with the Israeli newspaper *Haaretz* in which Jordanian King Abdullah II said "after this summer, everybody's going for nuclear programs," (including the Jordanians)[122] and "the rules governing the nuclear issue have changed in the entire region,"[123] an Israeli observer suggested that Jordan was simply reacting to the threat of a nuclearized Iran.[124] During that time international efforts to prevent Iran from enriching uranium were faltering and many were worried about Iran's influence in the region as the U.S. was stuck in the Afghan and Iraq wars.[125]

While one can never discount Jordan's potential intentions, there are two main reasons it is unlikely that Jordan's logic is related to external security concerns. First, Jordan has long demonstrated peaceful regional intentions, not only as one of two nations with a peace treaty with Israel, but also as a broker for Israeli-Palestinian peace

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121 Steve Thomas, *Global Insider*

122 Akiva Eldar, "King Abdullah to Haaretz: Jordan aims to develop nuclear power," *Haaretz*, January 19, 2007, 2007 http://www.haaretz.com/news/king-abdullah-to-haaretz-jordan-aims-to-develop-nuclear-power-1.210546 (accessed May 20, 2013).

123 "Jordan's King Abdullah II wants his own nuclear program," *USA Today*, January 19, 2007.

124 Ibid

125 Cirincione (2009).

negotiations. Second, Jordan has strong nonproliferation "bona fides."[126] It is party to all International Atomic Energy Agency safeguards agreements, including the voluntary "additional protocol," is a strong supporter of a Middle East nuclear weapons free zone, and is a participant in global nonproliferation initiatives, such as GNEP.

Conclusion

This section argues that Jordan has decided not to sign an NCA with the United States because it would require Jordan to give up its sovereign right to develop and exploit its uranium reserves. Because Jordan does not have many options to finance the program, disallowing the possibility of indigenous enrichment would undermine the program's rationale. That is, without this option, Jordan would need to find a different way to become more economically autonomous and therefore, ultimately gain relative power– given all of the challenges the program faces, it would not make economic sense to move forward. Contrary to expectations, Jordan's alliance with the United States does not provide enough incentive to sign the NCA. However, an area for further research would be to what extent the United States is actively pursuing the conclusion of the agreement.

126 Amy Seward, Carrie Mathews, and Carol Kessler, "Evaluating Nonproliferation 'Bona Fides' in *Nuclear safeguards, security, and nonproliferation: achieving security with technology and policy*, ed., James Doyle, (Amsterdam; Boston: Elsevier/Butterworth-Heinemann, 2008), 265-283.

Chapter Four: Policy implications and recommendations

Overview

This paper attempted to answer the research question: what motivates states to sign nuclear cooperation agreements (NCA) with the United States that would require them to give up rights to enrich uranium and reprocess spent fuel? The question itself is driven by a desire to understand how the international community could mobilize support for an internationalized nuclear fuel cycle – that is, an arrangement where states would give up sovereign authority over the production of civil nuclear fuel for domestic power use. Using a most similar systems design, I examined the cases of Jordan and the United Arab Emirates in their nuclear cooperation with the United States. Jordan has not agreed to terms of a U.S. NCA while the UAE has. The cases provided an interesting puzzle because they represented the reverse of the expected outcome: given that the U.S. has greater leverage over Jordan than the UAE, it was puzzling that Jordan has not signed.

I found that Jordan and the UAE were motivated by their desires to gain or maintain their relative power within the international system. Jordan, as a developing state, has less leverage over the terms of international economic exchange than the UAE, which as a member of OPEC, is among the wealthiest countries on the planet. Jordan is thus more compelled to engage in trade that would further its economic independence. Given Jordan's ability to finance its nuclear program, signing an NCA with the United States would ultimately keep it in the same relative power position.

Jordan, ultimately, has not agreed to the terms of the U.S. NCA because it has natural uranium reserves that it wishes to exploit. While Jordan had hinted that it might be willing to give up its fuel cycle rights, I argue that the terms of the NCA would need to be much more accommodative to Jordan's economic position. While a U.S. government official has stated that the U.S. may be willing to change the terms of the agreement so that Jordan's enrichment and reprocessing prohibition would last for only 10 years, after which time the contract could be renegotiated,[127] two factors are probably obstructing even this more relaxed deal from moving forward: first, the U.S. Congress, where the Gold Standard approach appears to be one of few issues enjoying bipartisan support; second, Jordan's unwillingness to risk the difficulty of 10 years hence renegotiating conditions of an agreement that it has very little incentive to make in the first place, given its options for nuclear cooperation with other nuclear suppliers.

The United Arab Emirates, with its enormous wealth, could make a different strategic calculation. The country recognized its long-term economic interests were at stake not only because its oil and gas reserves may one day expire, but also because its growing energy demand would strain the country's ability to provide its citizens rents vis-à-vis employment, subsidies, and outright bribes. Nuclear energy provides a way to prolong the country's "ruling bargain;" thus, to overcome international consternation over the UAE's history of proliferation laxity, the country adopted a strategy that would demonstrate the program's singularly peaceful purposes. When it came time to negotiate

127 Author interview with government official

terms for and sign the NCA[128], the UAE needed to oblige the U.S. terms; if they had not, they would not have been able to receive nuclear transfers from any of the three consortia from whom they had solicited tenders.

The nuclear renaissance and nonproliferation

A primary motivation for undertaking this study was to understand why states would agree to an internationalized nuclear fuel cycle arrangement, as has been proposed by a number of actors including the International Atomic Energy Agency.[129] In order to do so, it is important to understand better the challenges facing the nonproliferation regime and why such an arrangement is important.

As has been noted, the control of nuclear trade is shifting from a small, concentrated number of states to larger group. A shift in the market is corresponding with what some have termed a nuclear "renaissance."[130] Whereas nuclear power was once the purview of the developed world, increases in energy demand and recognition of the climate change effects from traditional fossil fuels has led existing and new nuclear states alike to look more closely at meeting their energy needs with nuclear. As of March 2013, there were 66 new nuclear reactors under construction, 160 on order or planned for operation by 2030, and another 319 proposed for operation by 2030. Of the new reactors under construction, only one is in a country with no nuclear power capacity – the UAE. Of the 160 planned reactors, 30 come from new nuclear states, and of the 319 proposed,

128 The agreement was signed on May 29, 2009, Kane (2012 B)

129 U.S. Library of Congress, CRS, *Managing the Nuclear Fuel Cycle* by Anthony Andrews, Mark Holt, and Mary Beth Nitikin, CRS Report RL34234. (Washington, DC: Office of Congressional Information and Publishing) Oct. 19, 2012, 18-27.

130 Charles K. Ebinger and John P. Banks, "Introduction: Planning a Responsible Nuclear Energy Future" in *Business and Nonproliferation*, eds. John P. Banks and Charles Ebinger, 1-14 (Washington, DC: The Brookings Institution) 2.

67 come from new nuclear states.[131] Most of the new nuclear capacity will emanate from the Middle East and Southeast Asia. While some of these states have already made commitments not to develop enrichment and reprocessing facilities, many have not, including Jordan and Vietnam. Moreover, influential rising powers such as South Africa and Brazil have not endorsed proposals to adopt a multilateral approach to the nuclear fuel cycle (where implicitly states would forgo full fuel cycle development), reflecting "their lingering distrust of the major powers and a determination to exercise full sovereignty in developing the capability to produce nuclear energy."[132] Such a response by these countries, it should be noted, is consistent with the argument I have made regarding states' ultimate interest in controlling the means of economic production and distribution within the international system.

While the United States has responded by introducing more stringent proliferation measures in its bilateral cooperation agreements, the rest of the nuclear suppliers are more hesitant to make nuclear trade contingent on fuel cycle restrictions. For instance, the Nuclear Suppliers Group (NSG) opposed a Bush Administration proposal to allow the sale of reprocessing equipment and technologies to only those states already in possession of enrichment and reprocessing technologies. Importantly, the proposal would have placed restrictions directly on NSG members themselves and ultimately was rejected. Non nuclear weapons states also opposed the proposal because it further

131 World Nuclear Association, "World Nuclear Power Reactors & Uranium Requirements" http://world-nuclear.org/info/Facts-and-Figures/World-Nuclear-Power-Reactors-and-Uranium-Requirements/#.UfQGND5gZ69, (accessed June 1, 2013).

132 David Cortright and Raimo Vayrynen, *Towards Nuclear Zero*, (London: International Institute for Strategic Studies, 2011), 40.

perpetuated discrimination in the NPT regime.[133] Some states, including advanced industrialized suppliers, are more concerned with the gains from nuclear trade than with nonproliferation efforts.[134]

The question for nonproliferation today is the same as the one Eisenhower had in trying to promote Atoms For Peace: how to prevent the spread of nuclear weapons while promoting nuclear energy. One factor, arguably, provides a greater incentive for cooperation: the threat of terrorist organizations gaining access to the necessary materials and technology to a build primitive, and one day more advanced, nuclear devices.[135] While such a scenario is likely far off, globalization has changed the international economy, as demonstrated by Pakistani scientist, AQ Khan's vast transnational nuclear supply network, which assisted in enabling new nuclear states such as North Korea, Libya, and Iran.[136] There are growing concerns that even with the exposure of Khan's network, globalization has facilitated the emergence of parallel global economies.

Implications

Different trajectories to meet the challenges to the nonproliferation regime include continuing the path of bilateral cooperation while relying on a patchwork nuclear export regime, harmonize the export control regime, or internationalizing the fuel cycle. The first and third options appear more likely than the second in that the first would maintain

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133 McGoldrick (2010)

134 Early, 263

135 Moises Naim, *Illicit* (New York, NY: Anchor Books, 2005) Chapter 3.

136 See Gordon Corera, *Shopping for Bombs: Nuclear Proliferation, Global Insecurity, and the Rise and Fall of the A.Q. Khan Network*, Oxford: Oxford University Press, 2006.

the status quo and the third would require consensus by all regime players, not just suppliers -- whose reform efforts have been met with rebuke within and outside of the NSG. Thus, these two options will be assessed based on the findings of this study. I support internationalizing the nuclear fuel cycle in light of the growing strain on the nonproliferation regime.

A. The Gold Standard vs. case-by-case debate within the U.S.

In view of the fact that there is no near-term effort to create a new international nuclear fuel agency, it is important to understand the U.S. policy debate surrounding nuclear trade. Lawmakers, academics, and policy influencers disagree over whether the U.S. should be pushing for the Gold Standard – i.e. the approach of the U.S.-UAE NCA. In 2012, the House Committee on Foreign Affairs, one of the relevant oversight committees responsible for approving NCAs reported a bill out of its committee that, among other things, would prohibit that the United States from engaging in nuclear trade without an agreement similar to that with the UAE, unless Congress did not adopt a joint resolution of disapproval within 60 days of its signing.[137] The bill was intended to create a higher standard than currently exists for approving nuclear trade with other countries.

Within the Obama Administration itself, the debate regarding the best course of action continues. As reported by the online magazine *Foreign Policy*, there are two camps within the administration: for the most part, the State department backs the implementation of the Gold Standard while the Department of Energy does not.[138]

137 Nikitin, p. 11

138 Josh Rogin, "Is the Obama administration retreating from its nuclear non-proliferation promise?" *Foreign Policy*

However, even within the State Department, there have been mixed signals. In the beginning of 2012, the State Department sent a letter to Congress stating that the U.S. would negotiate NCAs on a case-by-case basis. Then, it was reported the then-Secretary of State, Hilary Clinton, was reexamining this decision.[139]

Outside of Congress and the Administration, prominent voices from different ideological positions have suggested that the United States should not squander the victory of the UAE agreement by allowing other countries, particularly those in the Middle East, to enrich and reprocess. Henry Sokolski of the right-leaning Nonproliferation Education Policy Center, has argued that with the State Department letter, President Obama is going back on the example he set in Prague, in 2009, when he made a major speech calling for the eventual elimination of all nuclear weapons. Sokolski also suggested that the tradeoff between having leverage in the nonproliferation regime and engaging in nuclear trade was a false choice because of the miniscule amount of direct trade the U.S. does overseas. Rather, he suggested that the United States has leverage only with regard to nuclear suppliers that wish to do business within the United States: should they wish to engage in commerce within the United States, the U.S. should insist that they abide by a stricter supply criteria, similar to that of the UAE NCA provisions.[140]

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http://thecable.foreignpolicy.com/posts/2010/10/07/is_the_obama_administration_retreating_from_its_nuclear_non_proliferation_promise, October 7, 2010 (accessed on May 29, 2013).

139 Kane, 41 (2012 B)

140 Henry Sokolski, "Obama's Nuclear Mistake," *The National Review Online* http://www.nationalreview.com/content/obama%E2%80%99s-nuclear-mistake/page/0/1, February 7, 2012 (accessed May 29, 2013)

Joseph Cirincione, President of the liberal zero nuclear weapons movement foundation, Ploughshares Fund, has argued that allowing *any* nuclear trade in the Middle East would necessarily lead to a Middle East arms race. He suggested that the case-by-case approach is a mistake because it inserts politics into nuclear trade. Enemies do not get to trade with the United States while allies are "rewarded" with favorable treatment – as evidenced by the U.S.-India nuclear deal that allowed India to reprocess spent U.S.-origin nuclear fuel for civilian production even though doing so would be expressly against stated U.S. policy and the agreed-policy of the NSG regarding non-States parties to the NPT.

On the other side of the debate, former state department officials have vehemently argued against the Gold Standard policy.[141] I adhere closer to these points-of-view, based on the findings of the study. It seems as though some of the Gold Standard proponents have missed the forest for the trees. They may have valid arguments if there were no such thing as the NPT and Article IV inalienable rights to the full nuclear fuel cycle. This norm appears to be very strong for countries, like Jordan, that are part of the developing world and also would see a tangible material benefit from maintaining its fuel cycle options, should its uranium prove commercially feasible. As Fred McGoldrick argues with regard to the Gold Standard, the United States should heed this advice: "Look over your shoulder now and then to be sure someone's following you."[142] If, as Sokolski suggests, the United States doesn't have skin in the international nuclear trade industry,

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141 For instance, McGoldrick (2010) and Carnegie Endowment for International Peace, "Nuclear Energy Brief: Negotiating Nuclear Cooperation Agreements," by Mark Hibbs August 7, 2012, http://carnegieendowment.org/2012/08/07/negotiating-nuclear-cooperation-agreements/d98z (accessed April 25, 2013).

142 McGoldrick (2010)

then it certainly makes little sense for it to insist on a policy that would make doing business with the United States even harder, especially when "other major suppliers are simply not going to impose the UAE model on their cooperating partners."[143]

B. Internationalization of the Nuclear Fuel Cycle

As a 2005 IAEA study found, there are potential economic and obvious nonproliferation benefits to adopting an international nuclear fuel cycle approach. Regional supply centers, for instance, could "provide the benefits of cost-effectiveness and economies of scale for whole regions, or smaller countries or for those with limited resources." Moreover, the study found that such an approach "can provide enhanced assurance to the partners and to the international community that the most sensitive parts of the civilian nuclear fuel cycle are less vulnerable to misuse for weapon purposes."[144] Yet, given the difficulty for the United States to persuade even its closest allies to agree on giving up sovereignty on nuclear fuel cycle rights, I argue that the internationalization of the nuclear fuel cycle must be a truly international effort. The case of Jordan has shown that states will not easily relinquish their Article IV NPT rights.[145] There is a way to make any new internationalized fuel cycle approach voluntary but still effective, as the NPT itself has demonstrated. The key would be providing not only for states to reap the benefits they would if they were to develop a fuel cycle indigenously, but also for an "out clause" for states whose sovereign rights are legitimately being violated.

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143 Ibid

144 International Atomic Energy Agency Information Circular 640, "Multilateral Approaches to the Nuclear Fuel Cycle: Expert Group Report submitted to the Director General of the International Atomic Energy Agency," February 22, 2005, 13-14.

145 IAEA (2005)

Limitations

There are three main areas where the forgoing study may have been improved. First, additional sets of dyads that allow for similar comparison would provide greater weight to the conclusions here. Second, there was a disappointing amount of detail regarding the UAE's decision on nuclear cooperation with the U.S. Particularly, given that the UAE hired most American lobbyists to assist with strategy for civilian nuclear energy development, it was hard to discern where motivations bled into public relations "speak". In a related way, this study could have benefited from a closer examination of the UAE's engagement of lobbyists as a driver of its nuclear cooperation choices in contrast with Jordan's strategy. Finally, it was also difficult to gauge U.S. involvement in these deals. For instance, I would have liked to find out how much pressure did the U.S. put on the UAE vs. Jordan. Even after an interview with a current government official, the answer to this question was not any clearer.

Conclusion

This study provides an initial approach to analyzing states' decisions within one aspect of the nuclear nonproliferation regime – the nuclear fuel cycle. It reinforced what some longtime policymakers have known, states are sensitive to their Article IV rights. Using a Realist lens, I found that Jordan and the UAE made decisions based on their desire for relative economic gains. The international nonproliferation regime facilitates an equal playing field because players in the regime agree to its principles and norms. As a result, Jordan is able to resist pressure from the U.S. to sign an agreement that Jordan does not find favorable. If the global nonproliferation community, including U.S.

policymakers, wish to adopt a multilateral nuclear fuel cycle approach, this study finds they would be wise to work within the confines of the NPT's basic tenet: in the area of nuclear trade sovereignty trumps all other considerations.

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