Gold Standard or Case-by-Case:

Which Method Is Best for the Nonproliferation Regime?

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A Thesis in the Field of Government

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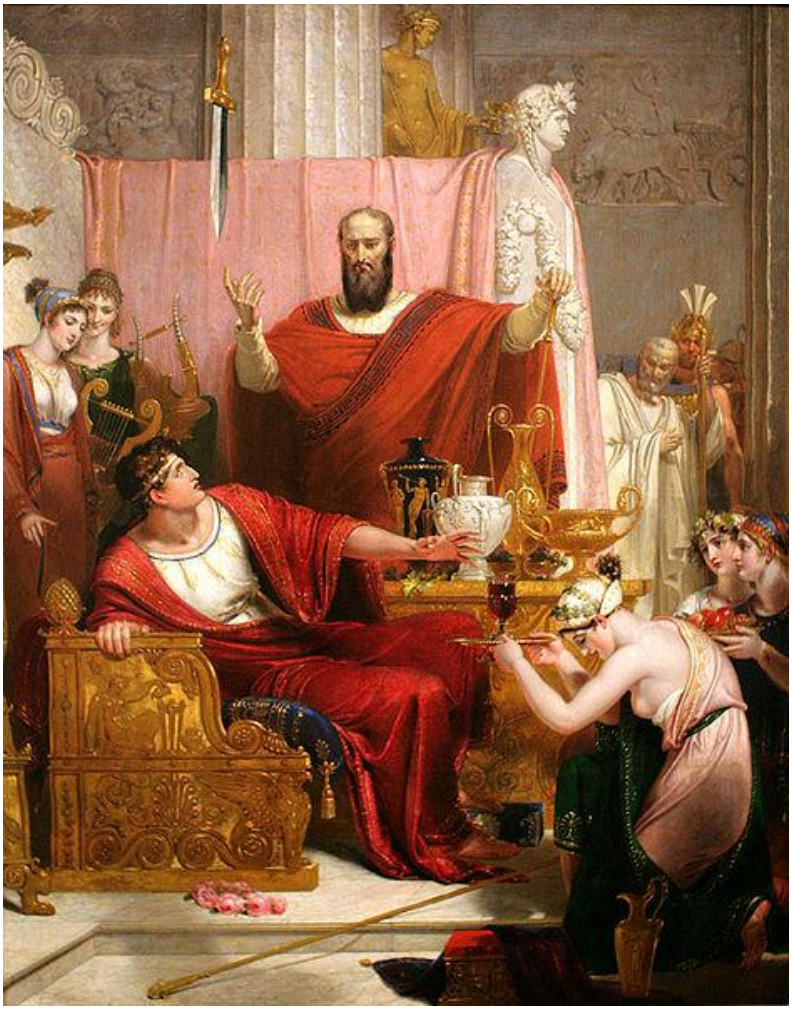
Abstract

With the Manhattan Project in the 1940s, U.S. nuclear technology created the first nuclear bombs, which promptly ended World War II. What to do with this new technology with regard to nuclear armaments never seemed hard to comprehend, as the world witnessed the advent of the nuclear arms race that led to the Cold War between the United States and the Soviet Union until almost the end of the 20th century. Since the dawn of this new atomic age however, the United States has wrestled indefinitely with how best to promote peaceful nuclear technology for nuclear energy programs around the globe, while at the same time curtailing the proliferation of nuclear weapons—what is known as the nonproliferation regime. The dual-use nature of peaceful nuclear technology has brought countries worldwide one giant step closer to acquiring nuclear weapons, which has posed great challenges to the progression of the nonproliferation regime. This study examines two distinct arms control policy approaches currently being contemplated for future bilateral nuclear cooperation agreement negotiations with countries interested in partnering with the United States. The case-by-case policy method is a negotiation between the United States and a country seeking nuclear energy technology and expertise and is a negotiation based on the foreign policy variables at the time of the nuclear contract. The gold standard policy method is a similar negotiation, with the additional caveat that the partnering country must give up its right to obtaining and creating indigenous nuclear fuel with these sensitive nuclear technologies. The advocates of the latter policy claim it is the most effective way to ensure that the country will not ultimately proliferate and build a nuclear arms arsenal. This study explores both

policy methods in detail. Using a case study methodology as the empirical part of the study, I then apply the merits of these arguments to numerous countries considering nuclear agreements with the United States. After the arguments for both policy methods are thoroughly vetted and then aligned alongside the potential individual bilateral nuclear partners, the research overwhelmingly found that the gold standard method's requirement that countries forego their right to explore and possibly obtain sensitive nuclear technologies and capabilities for peaceful nuclear energy programs, while an admirable aim, would nonetheless, weaken the nonproliferation regime, not strengthen it. This study found that the case-by-case method is the best method based on the evidence uncovered in this research. The United States, when approached by a country considering a nuclear agreement in exchange for nuclear expertise, brings to each negotiation the following items: a varying level of leverage depending on the country that has approached the United States, a declining domestic nuclear industry, and finally, the weight of hypocrisy on its back in that the United States has these sensitive nuclear technologies and the majority of the other countries in the world do not but feel that they possess these rights through their membership in the Nuclear Nonproliferation Treaty that is the bedrock of the entire nuclear regime. Therefore, based on a thorough analysis of the arguments and country case studies, the research supports the case-by-case method as the best method for U.S. nuclear policy makers to employ in future bilateral nuclear cooperation agreements. The case-by-case method is based in reality and the gold standard, while its aims are admirable, is not. The gold standard will therefore actually weaken the nonproliferation regime, rather than strengthen it.



Sword of Damocles

By Richard Westall in 1812

Today, every inhabitant of this planet must contemplate the day when this planet may no longer be habitable. Every man, woman and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident, or miscalculation, or by madness. The weapons of war must be abolished before they abolish us.[1]

John F. Kennedy

[1] Military Quotes, "John F. Kennedy Quotes," http://www.military-quotes.com/john-f-kennedy.htm. This quote was in Kennedy's address given before the General Assembly of the United Nations on September 25, 1961.

Dedication

To Laura,

Without whom this endeavor would have never been possible,

who encouraged me, helped me and believed in me,

and to whom I miss *dear*ly.

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It is with great admiration that I am afforded this opportunity to express my gratefulness to the following people. The support of these kind individuals allowed this thesis to come to fruition and I am forever indebted for their support.

First, I would like to thank my thesis director, Professor Steven Miller, for his willingness to come along on this long journey beside me, offering brilliant assistance, guidance and support the entire way; when others would not, Steve would and for that, I am forever grateful. Through his guidance, I learned an incredible amount; it was truly an honor to work alongside him.

And just as important in this endeavor was the support and encouragement of my research adviser, Dr. Donald Ostrowski. It can easily be said, "No Don, no thesis,"—that is how instrumental he was to the success of this project—from his motivation to construct, configure, and complete the thesis proposal to the binding of the final thesis itself, this literary house would never have been built—would have had no foundation, much less a roof —if it were not for his wholehearted support. I am forever grateful for his assistance not only throughout the thesis process but throughout the entire master degree's program. I thank him immensely for his steadfast support.

In addition to my thesis director and research adviser, I would like to thank Sarah Powell, an academic adviser and the current assistant director who has been with me through this entire journey; her door was always open to me and in addition to her years

of assistance, she was always good for a smile when I needed it the most and a high-five for victories along the way.

A unique thank you goes to Karen Wilson, an amazing teacher assistant in a course at the beginning of the graduate program. Karen allowed me to be me as a writer, treated me as an adult and not just another student on a list, and had faith that I would produce my best work when it was time for me to produce my best work, which proved extremely fruitful in the research paper I wrote for that particular course and also for this very thesis. When I was in the throes of absolute thesis-proposal-writing-hell over a year ago, it was this trust and confidence and motivation that Karen showed me years ago that I returned to for motivation. She gave it in spades and is to be commended for it by me.

At this juncture, I would like to give an exceptional note of thanks to four people, for whom without, absolutely none of this would have been possible: first, to my mother and stepfather, Gayle Drewer Shaw and David Wayne Shaw, who worked hard for many years, day and night, to afford me the opportunity to go to Elon College (now Elon University); I say today, an immense thank you to you both. Without an undergraduate degree I would never have been afforded this chance to work hard and earn a master's degree. I am forever in debt to you both and want you to know how much I credit the completion of this master's degree with your providing me the once-in-a-lifetime opportunity of an undergraduate degree two decades ago. It has opened up doors for me my entire life and will until the end. I am grateful to you both; thank you *immensely*.

Secondly, to my late grandparents, Joan Jester Drewer and John "Jack" Ellis Drewer, I offer this thesis as a posthumous gift of love, in the same spirit as to my mother and stepfather in the previous paragraph. My late grandfather and late grandmother

worked hard their entire lives—my grandfather in the fields as a potato farmer and my grandmother (like my mother) just as hard and just as important, at home as a homemaker— affording me the opportunity to go to Broadwater Academy, which, like Elon College tuition payments, was not easy on the family finances. Like my mother and stepfather, my late grandparents made financial sacrifices for my benefit to which I will never be able to repay and I will always be humbly in their debt. (And to my late grandfather, who told me in the foyer of my Queens Lake home in Williamsburg, Virginia, one evening when he was not doing well health-wise and my mother, grandmother and Laura and I were assisting him to the front door, he said, "Troy, finish that degree, it is important that you finish." Granddaddy, I finished.)

In addition, I would like to give a great deal of thanks to my other immediate family members for their support as well, all of whom provided comfort along the way and made the journey bearable: to my beloved sister Amanda, thank you for your encouragement and motivational emails and support; to my father, Thomas Edward Farlow, thank you for letting me be me and for all the late night phone calls when I felt like venting about the thesis process (or celebrating the small victories along the way!) or whatever else was on my mind (and a thank you to your lovely bride as well, Jean Farlow, for coming along for the Harvard-ride—one sweatshirt and red wine glass at a time!); to my brothers Chad, Jason, and George, I say a hearty thank you as well for your brotherly love and friendship and support; and finally, to my best friend, David McCaleb, whom I consider like family—your support on everything I do and dream is without end and, therefore, I am beyond thankful for your support, but most importantly, your friendship.

And finally, a special round of applause for a few of my friends: to Freeha Riaz, my classmate from day one, what a ride it has been for both of us—I am fortunate to have shared this experience with you (and by the way, "Where have you been with my car?!"); to Professor Joe Bond for believing in me throughout the years—you were always there to help me, guide me and I thank you immensely; to my friend Christopher Leopold, thank you for being a great friend who not only listened to me talk about the contents of this thesis until you turned blue in the face, but allowed me to talk through the points, develop the arguments, and, by doing so, allowed me to visualize in my mind what I was about to or had just put down on paper; and finally, to Margaret "Madge" Roberts, for being a dear friend—and yourself a fellow Harvardian—who day in and day out, witnessed me trek to Widener Library in Harvard Yard a thousand times, I thank you for your friendship and support. You have a kind heart the size of Texas.

In closing, I would like to thank all nuclear regime scholars across the board, far and wide. To all of the authors cited in this thesis—for example, those mentioned in the Harvard University Kennedy School of Government's Belfer Center Report that is often quoted throughout this thesis, the American Academy of Arts and Science report, and all the authors listed in the lengthy thesis bibliography—I say a colossal thank you. These academics and institutions too vast to list in their entirety, are to be commended for their dedication to finding better ways forward for a safer tomorrow for all of mankind. I owe an enormous debt of gratitude to them and welcome the reader to explore the vast array of knowledge that is at your fingertips because of their hard, selfless, often thankless contributions to knowledge. The world stands a better chance of being safer tomorrow because of their very efforts yesterday and today.

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Chapter I

Introduction

> The release of atomic power has changed everything except our way of thinking ... the solution to this problem lies in the heart of mankind. If only I had known, I should have become a watchmaker.[2]
>
> − Albert Einstein

What are known today simply as *123 Nuclear Cooperation Agreements*—named after Section 123 of the Atomic Energy Act of 1954 ("Cooperation with Other Countries")—can credit their origins to U.S. President Dwight Eisenhower's 1953 Atoms for Peace speech to the U.N. General Assembly. In attempting to bring the burgeoning nuclear arms race under control, Eisenhower wanted to secure a peaceful future given the enormous stakes of an atomic strike or a nuclear war. With the "atomic genie" out of the bottle, demonstrated by the U.S. bombing of Nagasaki and Hiroshima in August 1945, killing well over a hundred thousand people, Eisenhower was determined that the United States "devote its entire heart and mind to finding the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life."[3] Eisenhower recognized that the nuclear path many governments were embarking upon was sure to lead to a "dark chamber of horrors,"[4]—and hence, had the foresight to see

[2] About.com, "Quotes by Albert Einstein," http://history1900s.about.com/od/people/a/Einstein Quotes.htm.

[3] Dwight D. Eisenhower, *Atoms for Peace Speech by U.S. President Dwight Eisenhower*, 6, http://www.iaea.org/About/atomsforpeace_speech.html.

[4] Eisenhower, *Atoms for Peace Speech*, 3.

that "this subject [was] global, not merely national in character."[5] Despite the dangers ushered in by this nuclear era, hope for mankind also arrived. According to Eisenhower, "this greatest of destructive forces [could] be developed into a great boon, for the benefit of all mankind,"[6] but to ensure it was a boon, he added, "it must be put into the hands of those who will know how to strip its military casing and adapt it to the arts of peace."[7] Eisenhower knew that "the [nuclear] knowledge now possessed by several nations [would] eventually be shared by others, possibly all others."[8] And if this occurred, then what better way forward then than to cooperate? Thus, 123 Agreements between the United States and those seeking nuclear capabilities (ostensibly for peaceful purposes) was just the vehicle the United States needed to steer the world toward this envisioned peaceful nuclear reawakening.

But how to cooperate? What is the best way? That is the question facing U.S. policy makers today, more than a half century later. With the advancement of technology speeding across time, the "nuclear have-nots" (states without nuclear weapons) now want what the nuclear states have long had. Proving pivotal today, is what is known as ENR—the capability of the nuclear states to enrich uranium (EN) and reprocess (R) plutonium spent fuel—either fuel the very ingredient absolutely necessary to run a nuclear energy program. One might ask, Why are ENR capabilities (here after used in verb format) so guarded and secretive? The answer is simple: they are guarded due to the dual-uses of uranium and plutonium—for nuclear energy and for nuclear weaponry.

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[5] Eisenhower, *Atoms for Peace Speech*, 2.

[6] Eisenhower, *Atoms for Peace Speech*, 5.

[7] Eisenhower, *Atoms for Peace Speech*, 5.

[8] Eisenhower, *Atoms for Peace Speech*, 1.

Once on the road to a safer, more peaceful global nuclear regime (i.e., nonproliferation), U.S. policy makers and their current and potential foreign partners today are stuck in a traffic jam of difficulties on both sides of the negotiation table. Other nuclear exporting countries are willing to accommodate these foreign partners with less vigorous constraints in their pursuit of nuclear expertise. Is the U.S.'s resolute stance on no ENR capabilities being granted in 123 Agreements for the nuclear have-nots reached its threshold—or is it just what the nonproliferation regime needs at this very moment?

In short, the vehicle of cooperation (the 123 Agreement) is stalled because of these very important policy questions—and has been stalled for more than two years due to interagency wrangling in the United States as to what is the best way forward. With their own nuclear energy programs ever-expanding, countries that once never considered getting into the ENR business, are now, at a minimum, starting to think possibly joining the party—and these no ENR 123 Agreements just the roadblock that they are not interested in seeing.

Two paths of cooperation are dominating the political discussion on how to get back on the highway: one way forward, which pertains to all future 123 Agreements (and those up for renewal) is known as the gold standard method—which has become synonymous with agreements that do not allow countries to engage in ENR; the other way is simply known as the case-by-case method, in which each 123 Agreement is negotiated based on its own merits, with all the various geopolitical variables considered and taken into account—again, on a case-by-case basis.

While ENR and the two methods discussed are paramount to this thesis topic, they are not the research problem. Rather, this thesis aims to answer the following

question: Would the nonproliferation regime be strengthened or weakened if the United States ultimately adopts the gold standard approach or the case-by-case approach for negotiating all future nuclear cooperation agreements with foreign countries?

I hypothesize that not only is the gold standard method not the best way forward with regard to the future policy of negotiating 123 Agreements with foreign partners, but that if the United States chooses this approach, it will actually have negative consequences for the overall strength of the nonproliferation regime. The gold standard approach—primed at its core in an ostensible color yet while on the surface, possessing the glint of a benign and well-meaning bullion sparkle—is in truth, covered with merely a coat of faux paint, only nominally golden in composition. And though the case-by-case method has a polish of an opaque demeanor with many scratches throughout its coat, when the two surfaces are examined, the vast amount of roadblocks evaluated and the best routes forward calculated it will become apparent to policy makers that the case-by-case method is the best road by which to travel.

The evidence I will use to test my hypothesis will be drawn from an appraisal of the successes and failures of historical 123 Agreements, coupled with geopolitical considerations and present-day assessments of this important conundrum, primarily found and debated in peer-reviewed journal articles and academic settings by subject experts. I will consider the merits of each point. But lacking in this contemporary conversation is a strong inference as to why the gold standard should not be the policy of choice if the ultimate goal is to strengthen the nonproliferation regime. Beyond the basic, present foreign diplomacy arithmetic, the gold standard method's golden tassel of no ENR is choking the seemingly dated question of whether the nuclear cooperation agreements are

even working in the first place.[9] It is a variable that seems to be left out of the current discussion, albeit one that I hope to incorporate into this important policy question, and ultimately, support my hypothesis with.

The significance of my research is that there are two choices facing policy makers, each with broad implications and serious ramifications for all parties. This research can help U.S. policy makers better understand the two alternatives that are at the forefront of the Obama Administration's task in choosing the best path forward.

The ramifications of my hypothesis being wrong are many (meaning the future would record that the gold standard would have been the best way forward and should have been chosen but was not)—and this is exactly what makes the current situation a challenging puzzle indeed. In the case-by-case method, some countries are granted ENR capabilities (at the expense of frustrating and hampering the success of other 123 Agreements); there will be no standard policy in which to guide current and future generations of law-makers, policy makers, and governmental officials; countries will continue to accuse the United States of playing favorites; and on and on. The ramifications—the scratches in the case-by-case vehicle alluded to above—are not appealing at all. Yet, with the gold standard method, the United States is certain to suffer defeat in future nuclear cooperation agreements by being passed over for other tables at which foreign suitors will look to negotiate, with plenty of foreign nuclear exporters all too willing to deal a hand. Does it make any sense to forgo a partnership—even of weak decree—when, with the marching of time and ever-advancing technology, the nuclear

[9] Matthew Fuhrmann, "Taking a Walk on the Supply Side: The Determinants of Civilian Nuclear Cooperation," *Journal of Conflict Resolution* 53, no. 2 (April 1, 2009): 181-208, doi:10.1177/0022002708330288. Matthew Fuhrmann, discusses this point in further detail.

expertise will in due course, be available for all the global players regardless—just as Eisenhower predicted almost sixty years ago?

Yet if ultimately the dream of Eisenhower's *Atoms for Peace* initiative was for a safer world and these 123 Agreements are the vehicle to get us there—or at a minimum, the ones we are going to use in which to travel to that destination—then this thesis will help point policy makers toward the best possible road forward in pursuit of a world with diminishing nuclear weapons. The norm-establishing attribute of the gold standard method (in that no ENR would be allowed) is extremely intoxicating and tremendously righteous in appearance to a fault—which quite honestly could render my thesis an unpopular one. But the author is concerned that the gold standard is not a realistic approach to what the reality of the future will dictate and demand and will therefore ultimately lead to a weakened nonproliferation regime, a dead end. This is a roadmap no one should follow.

Thesis Structure

This thesis is contains eight chapters. The first is an introduction to the research problem, the hypothesis and the direction in which the research will corroborate (or refute) the research question. The second chapter reviews the background of the nuclear regime; in order to make the right decisions in the future, it is best that we understand the past. The third chapter dives further into the historical details of the current-day dilemma addressed at large in this thesis, so that we can delve deeper into the topic in following chapters. Chapter four explains the dilemma at the crux of the research problem. The thesis pivots on chapter five which presents six arguments where the author argues his

position, examines the critics' objective arguments to each and then completes each argument with a final counter argument to the critics' line of reasoning. In the sixth chapter, the six arguments are applied to individual country case studies for further analysis. It is with the explorations of chapters five and six and their combined discoveries that this thesis ultimately corroborates the hypothesis. The seventh chapter suggests positive ways forward with regard to the important research problem facing U.S. policy makers today on nuclear nonproliferation issues. And finally, the eighth chapter concludes with major findings and inferences that this thesis research presents, along with concluding remarks from the author regarding the importance of studying the entire nuclear regime and an invitation for scholars to continue this important research.

Chapter II

Background

> If you would understand anything, observe its beginning and its development.[10]
> − Aristotle

In order to make informed decisions about the future, one must not only have a solid understanding and respect for the events of the past, but also an absolute comprehension of the causeways and corridors that have brought us to the present. Therefore, before delving into the aforementioned research problem head on, it would behoove us at this particular juncture to take a few steps back, to better ensure that our decisions about the future rest on a strong foundation of knowledge, rather than on a bed of sand. Therefore, without further ado, following is an explanation of the beginning of the atomic age and the advent of this thesis' primary focal point: 123 Nuclear Cooperation Agreements.

A Brief History of 123 Nuclear Cooperation Agreements

To best understand, engage, and ultimately dive into the research question with all its vast variables, numerous nuances, and difficult decisions, it would bode one well to have at their ready as thorough an understanding of the history of the topic as possible. Below is just such a history to better equip the reader with a solid comprehension of the topic matter at hand.

[10] History News Network. "Quotes about History," http://hnn.us/article/1328.

A New Era—For Better or Worse

It is true: the beginning of an end was starting to foreshadow an atypical type of future soon to come. Something generally ushers in the end of something else. For instance, a scientific discovery, a romantic relationship, a technological breakthrough, a new public policy, a newly minted law—whatever the phenomenon may be—it usually paves the way, improves the hand, fosters and often times, encourages, for better or for worse, the beginning of something new. Call it the crux of change; something that torments the status quo, rattles the cage of this-is-how-it-has-always-been-done and instantaneously disintegrates foundations once thought strong; the changing of the guard; the end of business-as-usual because the advent of the dawn of a new day has arrived. Like it or not, the beginning of something's end even itself ends and the new beginning springs forth.

And so it was with the end of the Second World War, as *two* atomic bombs plunged from U.S. planes over Hiroshima and Nagasaki in August 1945. However horrendous this act was—two cities were razed, leaving an estimated 106,000 Japanese dead and another 110,000 injured,[11] all attesting in a morbid sea of red and horrific bed of ash as Exhibit A of a new beginning; a new atomic beginning, for better or worse, necessary or naught, the latter argument for another day.

The virginity of this new atomic decade that was thrust upon the world in the mid 20th century—was far from innocent right out of the gate; stagnant the atomic interest did

[11] Dwight D. Eisenhower Presidential Library, Museum and Boyhood Home. "Atoms for Peace," *Website Home Page*, http://www.eisenhower.archives.gov/research/online_documents/atoms_for_peace.html.

not lie. In 1948, the United States tested even bigger bombs and in ’49 the Soviet Union followed suit; in ’52 the United States tested a hydrogen bomb—with one bomb having the equivalent of several million tons of TNT (compared to the petite-in-comparison 23,000 tons of TNT of the Nagasaki bomb)—on the test island of Elugelab.[12] Never heard of the island of Elugelab, you say? That’s because it *no longer* exists.

Indeed, a new beginning had not only sprung, but was exploding, pun intended, exponentially. This beginning was geopolitically contagious; atomic weaponry would not be an American monopoly for long. Albert Einstein remarked in ’46, “The unleashed power of the atom has changed everything save our modes of thinking and thus we drift toward unparalleled catastrophe.”[13] This atomic daybreak was surely a beginning littered with red flags for mankind; this new era was ironically almost certain to regretfully beget its very own promise of a catastrophic ending for humankind. And since then, mankind’s own scientifically created atomic Sword of Damocles has dangled, as we calmly bide our time in distress for what could surely lead to the horrendous beginning of yet another ending.

Pronouncing this all-but-assured conviction, which has remained true for sixty-four years to this very day, Einstein darkened his sentiment in ’49, alluding to this dangerous atomic path that mankind was embarking upon hastily: “I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones.”[14]

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[12] Eisenhower, *Atoms*, home page.

[13] Lawrence M. Krauss, “Deafness at Doomsday,” *New York Times*, January 15, 2013, sec. Opinion, http://www.nytimes.com/2013/01/16/opinion/deafness-at-doomsday.html.

[14] Wikipedia, “World War III Albert Einstein Quote,” http://en.wikiquote.org/wiki/World_War_

A New Era Begins to Grapple with Reality—President Eisenhower's Atoms for Peace Speech

Indeed, something needed to be done to stop the atomic threat. Left to its own devices via the somewhat anarchical nature of international governments—even those with the best of intentions would eventually misstep. With government military branches rather than their civilian counterparts primarily at the helm of this atomic race, there was practically no public discourse or awareness of these powerful, but massively destructive scientific advances. Surely this was a one-way road to catastrophic destruction; with mankind departing from the type of warfare it was familiar with in the past, this past would indeed pale in comparison to what was rapidly becoming the likely atomic warfare of the future.

Enter center stage, where on December 8, 1953, speaking before the United Nations General Assembly, U.S. President Dwight Eisenhower, celebrated WWII general, attempted to turn the tides of this fearful atomic weapon to the more peaceful shores of atomic utility—a way forward for all of humankind to profit from this new scientific discovery, as opposed to trembling for fear of their potential annihilation. The speech titled "Atoms for Peace" could not have come a moment later with the nuclear armaments race unleashed and ultimately unchecked. The people of the world were about to share, for the first time, the stage front and center with what beforehand had been in essence a men's-only club of elite scientists, top military brass, and only those at the highest ranks of governmental chains of command. Rehearsal was over: the rapid

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III. (Note: This quote is often credited to Albert Einstein, but parts of the quote may have had origins to others beforehand.)

advancements of this new atomic age filled the auditorium to capacity not with just governors, but the governed.[15]

Speaking to the world, in Act One of his speech President Eisenhower stated, "I know that the American people share my deep belief that if a danger exists in the world, it is a danger shared by all… that the United States pledges before you, and therefore before the world, its determination to help solve the fearful atomic dilemma—to devote its entire heart and mind to finding the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life."[16] The world was trembling in this new atomic theater: "To stop there would be to accept helplessly the probability of civilization destroyed, the annihilation of the irreplaceable heritage of mankind handed down to us from generation to generation, and the condemnation of mankind to begin all over again the age-old struggle upward from savagery towards decency, and right, and justice."[17]

In Act Two of his Atoms for Peace speech, Eisenhower shifted from the horrors of the atomic arms race to the peace part, a call for change, cooperation, and commitment by the "contributing powers" that would lead to a better way forward—a turning of the tables on this new-atomic-beginning-gone-wrong. It was high time Eisenhower asserted that the United States, along with others,

> dedicate some of their strength to serve the needs *rather* than the fears of mankind…[and] allow all peoples of all nations to see that, in this enlightened age, the great Powers of the earth, both of the East and of the West, are interested

[15]Eisenhower, *Atoms for Peace Speech*, 6. (There is a line in Eisenhower's speech that reads "…be they governed or governors…" and hence, my wording and sentiment, while different, is taken directly from here, so, is cited.)

[16] Eisenhower, *Atoms for Peace Speech*, 6.

[17] Eisenhower, *Atoms for Peace Speech*, 3.

> in human aspirations first rather than in building up the armaments of war…So my country's purpose is to help us to move out of the dark chamber of horrors into the light, to find a way by which the minds of men, the hopes of men, the souls of men everywhere, can move forward towards peace and happiness and well-being…Against the dark background of the atomic bomb, the United States does not wish merely to present strength, but also the desire and the hope for peace.[18]

From this speech, probably Eisenhower's most famous and powerful given during his two terms, particularly in regard to the "fearful atomic dilemma"[19] "sprang a panoply of peaceful atomic programs."[20] One of these primary programs—the nuclear cooperation agreements between the United States and other countries with regard to the transfer of peaceful nuclear energy know-how—is at the core of this thesis proposal. The debate, discussion and aims of these nuclear cooperation agreements—since their introduction in 1954 to the present day—are at the forefront of discussion with regard to what is or isn't the best possible policy going forward for the safety of all mankind.

Eisenhower distinctively knew that while America might have had the quantitative lead in this nuclear weapons era beginning, America would not have a monopoly on the atomic era for long.[21] With this one speech, America "sought to solve this terrible problem by suggesting a means to transfer the atom from a scourge into a benefit for mankind."[22] And with this address to the UN, the Atomic Energy Act of 1946 was amended and became the Atomic Energy Act of 1954 (still intact to this very day), which incorporated the above-mentioned nuclear cooperation agreements, the creation of

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[18] Eisenhower, *Atoms for Peace Speech*, 6.

[19] Eisenhower, *Atoms*, home page.

[20] Eisenhower, *Atoms*, home page.

[21] Eisenhower, *Atoms for Peace Speech*, 2.

[22] Eisenhower, *Atoms*, home page.

the International Atomic Energy Agency and ultimately, a better equipped vehicle of progress forward for the atomic world in what was (and still is) a very trying and fragile moment in history. Eisenhower emphatically espoused that "the gravity of the time is such that every new avenue of peace, no matter how dimly discernible should be explored."[23] Equipped with the benefit of a military background himself, Eisenhower knew this all too well and was determined to pursue it.

The Atoms for Peace speech was just such an exercise, an exploration for a better way forward. In this speech, America had not only taken up the gauntlet of finding a better way forward with "the fearful atomic dilemma"[24] but had also thrown down the gauntlet nonetheless in that we could not address this atomic challenge alone. "It is not enough to take this weapon out of the hands of the soldiers. It must be put into the hands of those who will know how to strip its military casing and adapt it to the arts of peace."[25] It was a beck and call for assistance from all in which the global community now resided.

The New Era to the Modern Era—Acronym Soup: IAEA, NPT, NSG & the NWS vs. NNWS

No matter how small or how immense, with any new undertaking, business venture or era, organization is vital for success. Take for example, a common instrument of any type of establishment or industry, what is known in all facets of the business world and government arena as an *agency*—an organization that represents something.

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[23] Eisenhower, *Atoms*, home page.

[24] Eisenhower, *Atoms for Peace Speech*, 6.

[25] Eisenhower, *Atoms for Peace Speech*, 5.

Agencies come in different forms: agencies in business, agencies across industries, and agencies throughout governmental organizations.

Hence, Eisenhower's desire for a peaceful way forward with regard to all-things-atomic needed a permanent organization to monitor the international nuclear front and to stifle the nuclear arms race. So what did it do? The atomic arms race (trying to round the corner of benevolence on the heels of the Atom for Peace speech) got itself an *agency*. By 1957, the groundwork had been laid and the Atoms for Peace Agency was finally established, housed as an "independent international organization in the United Nations system,"[26] and was to report once a year to the General Assembly and when needed on matters of urgency, directly to the Security Council.[27] The agency was soon renamed (with the word "agency" officially rounding out the acronym) to what is known around the world today as the *International Atomic Energy Agency* (IAEA).

The IAEA is responsible for three primary functions: "Safety and Security, Science and Technology, and Safeguards and Verification."[28] In layman's terms, this means "inspection of existing nuclear facilities to ensure their peaceful use, providing information and developing standards to ensure the safety and security of nuclear facilities, and as a hub for the various fields of science involved in the peaceful applications of nuclear technology."[29] The agency is perpetually underfunded by member states and has been stressed for decades, always operating on an inadequate

[26] International Atomic Energy Agency. About the IAEA, http://www.iaea.org/About/about-iaea.html, homepage.

[27] IAEA, *About,* homepage.

[28] IAEA, *About,* homepage.

[29] Wikipedia, "International Atomic Energy Agency," http://en.wikipedia.org/w/index.php?title=International_Atomic_Energy_Agency&oldid=554475408.

budget due to its immense mandate, but it has demonstrated over the years to be an indispensable asset, a valuable tool, and watchdog for the nuclear energy, technology, and armament regime, ultimately a regime that would be far less safe today without its guidance and supervision.

This agency was and is very necessary, but with a global issue the size of the atomic challenge, what was truly needed was a pact of some sort for all to get behind. It was no longer sunrise on this new beginning, for the heat of the issue—with the nuclear energy and nuclear arms regimes ever expanding and the Cold War in full stride—was now hotter than ever and directly above, at high noon. It was time for countries big and small, all across the globe, from east to west, to get some skin in the game in the name of atomic adherence for all to follow. It was high time to try to get everyone across the regime to dance the same music; it was time for a treaty to lay down some finite goals and objectives toward a safer way forward.

And a treaty is what the world got—the Nuclear Non-Proliferation Treaty, often called the Nonproliferation Treaty (the NPT). It was open for signatures by willing countries approximately a decade after the Atoms for Peace agency had been formed, in 1968 and its eleven articles of acquiescence in full force by 1970.[30]

In a nutshell, the NPT has three goals: stop the proliferation of nuclear weapons, decrease the number of nuclear weapons that the countries with nuclear weapons possess—often referred to as Nuclear Weapons States (NWS)[31]—and the right of

[30] Wikipedia, "Treaty on the Non-Proliferation of Nuclear Weapons," https://en.wikipedia.org/w/index.php?title=Treaty_on_the_Non-Proliferation_of_Nuclear_Weapons&oldid=554476122.

[31] The United States, Russia, China, Britain and France are the five NWS (also the same five permanent United Nations Security Council members). These five countries are also members of the NPT. Four countries, that are not currently members of the NPT, which are assumed to have nuclear weapons are Israel, India, Pakistan and North Korea.

countries without nuclear weapons—often referred to as Non-Nuclear Weapons State (NNWS)[32]—to have the right to use nuclear energy peacefully, therefore having access to nuclear technology, nuclear materials, nuclear expertise, and nuclear assistance.

These three goals are ensconced in the eleven articles of the NPT. Articles IV and VI are the two most eminent of the eleven articles. Article VI requires the NWS to, over time, dismantle and, thereby, decrease their overall number of nuclear weapons. In return, the NWS consent to the NNWS the essence of Article IV—which the NNWS, by signing the NPT and thereby agreeing to not acquire nuclear weapons, in return have "the inalienable right…to develop research, produce and use nuclear energy for peaceful purposes without discrimination."[33] They represent the logrolling effort between the NWS and the NNWS—the synergy of both articles being the essence of what made the treaty work, what lured the NWS and the NNWS to the table for a favorable outcome for all—a safer international order on the nuclear weapons front. One article without the other would have certainly been an impediment for the NNWS's considering joining the NPT, almost a guaranteed barrier for the scores of NNWS. In short, the "haves" will reduce their arsenals and the "have-nots" agree to not acquire nuclear weapons, but have the right to nuclear technology and expertise to pursue and obtain all the privileges and

[32] Many NNWS, for multiple, varying reasons have not pursued a nuclear weapons program: 1) some countries believe that possessing nuclear weapons is a liability on the international stage of good-relations (Germany), 2) some countries simply never embarked on obtaining a nuclear weapons program (Netherlands), 3) some countries have pursued and obtained nuclear weapons to only ultimately decide to change course and abandon their nuclear weapon pursuits (South Africa, Brazil), 4) other countries, for emotional reasons that hit close to home, might have a dormant ability to obtain a nuclear weapons program but don't—what is also known as a dominant ability to make nuclear weapons if their government decided to go down that both, but to-date, have not (Japan) and 5) countries wary of the international scorn that would probably be heaped on them if they did attempt to acquire a nuclear weapons program (Iran, though Iran itself, some would argue, does not seem to be concerned about this international appearance). These are only a sampling of reasons and examples of why NNWS do not, to-date, possess nuclear weapons.

[33] United Nations Office of Disarmament Affairs, *Treaty Text*, homepage.

benefits of a peaceful nuclear energy program for their country's peaceful advancement—that is as equals in the peaceful atomic arena as the NWS.

The NPT is reviewed every five years,[34] with member countries taking turns hosting the month-long review including daily meetings; the next NPT Five-Year Review Conference will be in 2015. With the treaty in its fourth decade of existence, there are, naturally, skeptics of the NPT and growing concerns of its impedance in an ever-developing new world (for example, four countries that are not a member of the NPT have obtained nuclear weapons since the NPT was formed; while this is better than ten for example, it is certainly more than zero). Is the regime fraught with dangers, daggers and, now approaching nearly a half-century of wear-and-tear, perhaps some disappointments or tweaks—or even a re-write of sorts—that need addressing? Absolutely, but hardly anything is perfect and there is clearly immense value in the world's biggest and best-known nonproliferation instrument. Almost two hundred countries have signed the treaty over its forty-three years of existence and in short, its importance cannot be understated. As the UN Office for Disarmament Affairs states: "More countries have ratified the NPT than any other arms limitation and disarmament agreement ever, a testament to the Treaty's significance."[35] The NPT treaty coupled with the never-ending work of the IAEA, for all their short-comings, some self-imposed and others well beyond their powers of influence (the aforementioned budget shortfalls, for example), are still to this day, the backbone of the worldwide nuclear energy and nuclear weapons regime.

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[34] United Nations Office of Disarmament Affairs, *Treaty Text*, homepage.

[35]United Nations NPT Treaty. "NPT Treaty," *Treaty Homepage*, http://www.un.org/disarmament/WMD/Nuclear/NPT.shtml.

And finally, one other key organization involved, the Nuclear Suppliers Group (NSG), which defines itself as "a group of nuclear supplier countries that seeks to contribute to the non-proliferation of nuclear weapons,"[36] by primarily supplying "guidelines for nuclear exports and nuclear-related exports."[37] In a nutshell, the organization was founded in 1975, after India—a non-NPT signatory and supposedly NNWS—actually tested a nuclear weapon "which demonstrated that nuclear technology transferred for peaceful purposes could be misused."[38]

The Finer Details—Cooperation with Other Nations—Enter 123 Agreements

With the figurative historical-housecleaning of the atomic age by and large complete, let us now shift to the more intricate details of this atomic era. More specifically, how did the global community begin to communicate, cooperate, and conduct business in this unchartered, rapidly developing age?

As mentioned above, Eisenhower's Atoms for Peace speech was an attempt to usher in an adjustment to the horrid atomic gun barrel pointed at humankind; and hence, with this initiative, as mentioned earlier, the Atomic Energy Act of 1946 was amended and became the Atomic Energy Act of 1954. Front and center of this adjusted act was Section 123, Cooperation with Other Nations,[39] or the 123 Agreements—a nuclear cooperation agreement that lies at the core of this entire thesis proposal.

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[36] Nuclear Suppliers Group. *About the NSG*, http://www.nuclearsuppliersgroup.org/A_test/01-eng/index.php.

[37] Nuclear Suppliers Group, *About*, homepage.

[38] Nulcear Suppliers Group, *About*, homepage.

[39] U.S. Nuclear Regulatory Commission. "Text of the Atomic Energy Act (AEA) of 1954," *The Act*, http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0980/v1/sr0980v1.pdf.

The National Nuclear Security Administration sums up the essence of the 123 agreements are as follows:

> Section 123 of the U.S Atomic Energy Act (of 1954) requires the conclusion of a specific agreement for significant transfers of nuclear material, equipment, or components from the United States to another nation. Section 123 Agreements are important tools in advancing U.S. nonproliferation principles. These agreements act in conjunction with other nonproliferation tools, particularly the Nuclear Nonproliferation Treaty, to establish the legal framework for significant nuclear cooperation with other countries. Moreover, the agreements allow for cooperation in other areas, such as technical exchanges, scientific research, and safeguards discussions. In order for a country to enter into such an Agreement with the United States, that country must commit itself to adhering to U.S.- mandated nuclear nonproliferation norms.[40]

With most of the nuclear knowledge in America's hands from the outset, the stage was set for the advancement of peaceful nuclear energy for all and the 123 nuclear cooperation agreements were the exact props for performance that were needed to deliver this Eisenhower's atomic vision of the future. 123 Agreements were generated and signed in mass by many nuclear-aspiring foreign states. Every country wanted a piece of the nuclear energy (weapons) pie and a 123 Agreement with America…was the best nuclear expertise fast-track commodity to be found.

Canada was among the first to sign a 123 Agreement with the United States in 1955, directly following the AEA of 1954. The European Atomic Energy (Euratom) Community completed a 123 Agreement in 1958 that went into force in 1960; Euratom consisted of roughly twenty-seven countries in Europe, for example, Austria, France,

[40] National Nuclear Security Administration. "123 Agreements for Peaceful Cooperation," *States That Have Agreements*, http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/treatiesagreements/123agreementsforpeacefulcooperation . (For an extended overview of 123 Agreements, see the overview published by the Congressional Research Service titled "Nuclear Cooperation with Other Countries: A Primer," found here: http://www.fas.org/sgp/crs/nuke/RS22937.pdf).

Germany, Hungry, Poland, Spain, and the UK.[41] Many countries such as Brazil, Japan, Russia, South Korea, Thailand, and Turkey[42] followed in the coming decades and continue to this very day —again, these 123 Agreements are the central factor of this proposed thesis argument (which will be further discussed in detail in the forthcoming paragraphs.)

Eisenhower's Atoms for Peace initiative promised to make available to every country the entire atomic miracle if used for peaceful purposes. And one of the three cornerstones of the NPT was Article IV, discussed above, which afforded the inalienable right of countries to pursue peaceful nuclear energy programs. The 123 Agreements, along with the NPT's grand bargain,[43] were at the heart of America's nonproliferation objectives. With these instruments, it was America's hope that further proliferation of nuclear weapons could be curtailed and hence, the dangerous world eventually a lot less dangerous for humankind.

Soon, the celebrated 123 Nuclear Cooperation Agreements became a part of the atomic landscape. But would these all-important 123 Agreements carry water for America's nonproliferation ambitions a half century later in the modern era of the global nuclear regime?

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[41] National Nuclear Security Administration, *States*, footnote number 1 at the bottom of the home page (for a list of all twenty-seven Euratom countries).

[42] National Nuclear Security Administration, *States*, home page (for a list of states that have 123 Agreements for Cooperation with the U.S).

[43] Grand Bargain: the deal which essentially amounted to peaceful nuclear energy expertise in exchange for the NNWS agreeing to not pursue nuclear weapons. This term "grand bargain" per the author's recollection was read somewhere if his memory serves him well, so while a rather normal expression, the author would like to extend credit to this original source, albeit an informal citation until further reading and research can locate its use.

The Current Conundrum: Fast Forward to the 21st Century

In response to this very important question, Jessica Varnum, a project manager with the Nuclear Threat Initiative (NTI) and research assistant at the James Martin Center for Nonproliferation Studies (CNS) states that the current conundrum facing policy makers and the Obama administration—with regard to the best way forward for negotiating new and up-for-renewal 123 Agreements with countries—is "crafting a strategically coherent U.S. policy on nuclear cooperation that minimizes negative nonproliferation consequences."[44] But first, a brief overview of how this policy conundrum has come to fruition and how the once-coveted 123 Nuclear Cooperation Agreements impregnated with so much tension as of late is in order.

As was the case with the beginning of this atomic weapons story, this new beginning in the mid 20th century was brought about by scientific discoveries. The times, they were "a-changin'" then and it goes without saying that as the decades have rolled by in this narrative, they continue to do so as well. The atomic era has matriculated to a much more mature stage and therefore, the at-one-time, minor players on the international stage are now discussing, desiring, and ultimately demanding an invitation to the nuclear gathering—to which the IAEA, NPT, and previous 123 Agreements have all spot lighted again and again, is their "inalienable right" to pursue peaceful nuclear energy and expertise.

In other words, it is no longer high noon. The nuclear advances are transpiring at warp speeds and the NNWS want in on what has long been the only the domain of the NWS.

[44] Jessica Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?" *Nuclear Threat Initiative (NTI)*, http://www.nti.org/analysis/articles/us-nuclear-cooperation-nonproliferation-reforms-or-devil-you-know/.

The sticky situation though, arises at this juncture: the 123 Agreements, by and large, have stayed the course of their original purpose, but with negotiated terms and deals that are now no longer as favorable with the foreign countries. Many of the 123 Agreements that the United States has had since the second half of the 20th century are up for renewal, yet the terms once favorable in the 20th century are not so favorable in the 21st. And the same situation arises with new 123 agreements with states that want to sign an agreement with an exporter of nuclear technology, manufacturing and expertise—but with terms that are in accordance with the times, not what the norm was in 1954 and the few decades that followed. These countries are well aware of the nuclear topography today (the nuclear advancements of modern times) and are extremely hesitant to enter into any agreement that essentially catapults them back to yesterday. What country would want to enter into this type of archaic agreement?

The two primary drivers of this current challenge facing the Obama administration in regard to negotiating new and existing 123 Nuclear Agreements are as follows: 1) many *existing* 123 Agreement partners and many states looking to join the nuclear club with a cooperating nuclear-exporting state are desiring (and even demanding) the ability to enrich uranium and/or reprocess spent fuel, what is known in the industry as ENR capabilities. Both are the necessary fuels for any nuclear energy program (or nuclear weapons program) and have long been only conducted and, hence, provided by the United States and other approved nuclear suppliers (the four NPT approved NWS: Russia, UK, France and China)—a vital safeguard to the nonproliferation regime due to the dual-use nature of the nuclear energy/weapon regime), and, 2) the nonproliferation goals of the United States are affected by the terms

negotiated in 123 Agreements and could arguably be adversely affected if the new and/or renewed 123 Agreements allow *or* don't allow for ENR.

Herein lies the conundrum facing the Obama administration: with all the intricate challenges that come with so many players involved and so much as stake, which way is the best path forward? The Eisenhower days of Atoms for Peace and countries quickly jumping on the bandwagon of 123 Agreements with the United States are no longer as easy as 1-2-3.[45]

Gold Standard Agreements vs. Case-by-Case Agreements

Mark Hibbs, a Senior Associate for the Nuclear Policy Program at the Carnegie Endowment for International Peace and a respected expert on multiple facets of the nuclear energy and nuclear weapon regime, stated in August 2012 that progress in negotiating the 123 Agreements "has been held up because of a contentious two-year interagency debate in the United States over how to proceed in trying to limit the spread of uranium enrichment and spent fuel reprocessing capabilities worldwide."[46] This statement encapsulates the current conundrum of the 123 agreements. The days of the accepted norm being that only the NWS possess the right to ENR is no longer being blindly accepted—to which Hibbs notes "many countries [as they advance] are protesting

[45] This literary play-on-words (or rather numbers) and the coincidence of the corresponding section of the Atomic Energy Act of 1954 happening to also be 123—is to be credited to a title of an article by Dr. Jeffrey Lewis, who like Jessica Varnum, is also a member of the James Martin Center for Nonproliferation Studies. My verbiage of "no longer as easy as 1-2-3" in the above text is to be ultimately credited to Dr. Lewis' article titled "It's not as Easy as 1-2-3," which can be found here: http://www.foreignpolicy.com/articles/2012/08/01/it_s_not_as_easy_as_1_2_3.

[46] Mark Hibbs, "Negotiating Nuclear Cooperation Agreements," *Carnegie Endowment for International Peace*, http://carnegieendowment.org/2012/08/07/negotiating-nuclear-cooperation-agreements/d98z.

that this violates their rights to peaceful nuclear development,"[47] an argument and claim by all that at this point in the tale, with which the reader is now well familiar.

At the forefront of this challenging intersection are two divergent paths, best known in U.S. policy circles and the international domain as the "gold standard" method and the "case-by-case" method. The advocates of these two different approaches—as to the best-way forward in which to negotiate 123 Agreements—have now been at loggerheads since the middle of the first Obama administration and have hence caused a problem not only for the Obama Administration, but for the countries with a desire to form a 123 Agreement with the United States and for the countries that have a 123 Agreement with the United States but are up for renewal and the businesses that operate in the industries that support this worldwide nuclear regime.

The gold standard method's moniker was coined[48] after the celebrated 123 Agreement between the United States and the United Arab Emirates (UAE) negotiated at the end of 2008, in which the UAE "voluntarily forswore enrichment and reprocessing [ENR]"[49] activities in exchange for U.S assistance in developing a robust nuclear energy program. The gold standard has become synonymous with those in the Obama administration, Congress, and the nuclear community at large that think ENR, as a blanket provision, should not be allowed in any future 123 Agreements. The supporters

[47] Hibbs, "Negotiating Nuclear Cooperation Agreements," 1.

[48] Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?" footnote #5. According to the author of the article, Jessica Varnum, her article footnote #5 reads: "According to a CRS report, then-State Department Spokesperson P.J. Crowley coined the 'gold standard' term in an August 2010 press briefing. Paul K. Kerr, Mark Holt, Mary Beth Nikitin, "Nuclear Energy Cooperation with Foreign Countries: A Primer," Congressional Research Service Report for Congress, 11 July 2011, p. 17, www.fas.org."

[49] Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?" 1.

of the gold standard strongly believe that this approach is in the best interest of America's nonproliferation goals and ideals, given that it does not allow for NNWS to obtain ENR capabilities.

The case-by-case method of negotiating 123 Agreements, where each case is decided on its own merits, is just the opposite: the supporters of the case-by-case method believe that, like it or not, the reality is that each 123 Agreement is different, depending on which country the agreement might be with; and, therefore, the United States cannot simply insist on the one-size-fits-all gold standard approach. While it is a common belief that the fewer countries involved in the ENR business, the better, the supporters of the case-by-case method strongly believe that this approach is in the best interest of America's nonproliferation goals and ideals, even though the reasons might not be as apparent as the reasons for which the gold standard supporters espouse their method's strengths.

The pros and cons of each negotiating methods are plentiful. For example, the gold standard method could help create an important international norm, that ENR will not be allowed for NNWS, the supporters of this method tout—and in return, the nonproliferation regime would be strengthened—but what if because of this gold standard requirement, a foreign country instead enters a 123 Agreement with another country, such as France or Russia, that does not necessitate a no-ENR requirement in their agreements with foreign partners in exchange for nuclear expertise and rich business contracts, then America not only just missed out on an opportunity to enter into an important economic business partnership, but also the nonproliferation regime as a whole is weakened. And what happens with the case-by-case method when the United States

allows, for example, an ally to obtain ENR capabilities in one agreement, but a year later, with another foreign state, comes up with x, y, or z reasons why they cannot agree to allowing ENR capabilities—might the case-by-case method run the risk of looking like what "amounts to having no standard at all?"[50] And what if, for example, with the case-by-case method, the "United States allows (for example) Jordan, Vietnam…or Saudi Arabia to make nuclear fuel, [then] it can forget about preventing any other country, including Iran [for example], from doing so,"[51] says Henry Sokolski, a former Deputy for Nonproliferation Policy in the Office of the Secretary of Defense and well-known expert in the field. But, on the other hand, what if the United States decides to go with the gold standard policy approach for all future agreements, no matter what each individual negotiation circumstances might be. South Korea is one of the United States' closest allies, has a robust nuclear energy program in place with over twenty nuclear reactors up and running, has a belligerent neighbor to its north with nuclear weapons (and is not even a law-abiding member of the NPT), and was privy to the Bush Administration's allowing India to ENR capabilities and, again, India is not even a member of the NPT. And yet, even with all these variables, South Korea in its 123 Agreement that is up for renewal is not allowed to possess ENR capabilities simply because of a policy decision in Washington that would put it outside the mold? How are those 123 Agreement requirements of no-ENR allowances, again, given all the variables just mentioned—going to be received in Seoul?

[50] Jeffrey Lewis, "It's Not as Easy as 1-2-3," *Foreign Policy*, http://www.foreignpolicy.com/articles/2012/08/01/it_s_not_as_easy_as_1_2_3.

[51] Henry Sokolski, "Obama's Nuclear Mistake," *Nonproliferation Policy Education Center*, http://www.npolicy.org/article_file/Obamas_Nuclear_Mistake.pdf.

Indeed, the gold standard approach has an ostensible shine and the case-by-case method an opaque appearance. Yet when the surface of either method is peeled back, the vast amount of variables evaluated and the curtains pulled back, it becomes apparent long before the first interlude that the best way forward is no easy critique.

Conclusion

It is indeed true: the beginning of something's end—in this case, the end being the 123 Agreements that had worked so well following Eisenhower's Atoms for Peace era—now lays witness to the beginning of something indeed *new again*. Seven of these 123 Agreements are about to expire in 2015[52] and, hence, renewal negotiations necessary in the immediate future, coupled with the ever-growing list of countries that want in on the nuclear action. What should this new way forward look like? What approach will bestow the safest and securest environment for all species of the planet to inhibit? Again, should the new reform be uniform and *golden* in composition—or each case independent and idiosyncratically tented—or might there be another avenue yet revealed?

The pursuit of the answer to this question is the essence of this thesis. The strength and direction of the vitally important nonproliferation regime finds itself yet again at an ever-important crossroads of history.

[52] Nuclear Energy Institute. *Nuclear Cooperation Agreements*, http://www.nei.org/Public-Policy/Nuclear-Technology-Exports/diplomacy.

Chapter III

The Genesis of the "Gold Standard"

Any fool can make history, but it takes a genius to write it.[53]
− Oscar Wilde

At the heart of this thesis and core research question is whether or not the "gold standard" for negotiating "123 nuclear cooperation agreements" is the best approach to achieving the strongest possible nonproliferation regime. While the reader is now familiar with what the gold standard entails, it is imperative that the reader understand the genesis of the gold standard. This chapter describes, in detail, how, why, and when the gold standard came into being—so that the reader can be well versed when I discuss the dilemmas and policy debates that the gold standard bestows upon policy makers as discussed in this and forthcoming chapters.

As the Oscar Wilde quotation above makes clear, history will happen no matter what, but watching American presidents over the last half century find their footing and attempt to develop and enact the best policies possible so as to ensure the safest and most secure future for all of mankind actually pulling this off is undeniably, altogether another feat entirely. With this sentiment in mind, without further ado, the following is a chronological account of the genesis of the gold standard approach.

[53] History News Network. *Quotes about History*, http://hnn.us/article/1328.

India's 1974 Nuclear Test

An intersection, a turning point, a junction, a crossroads—whatever adage one wants to use—one can rest assured that India's testing of a nuclear weapon in 1974 marked "the spot," the genesis of what is today, known—and sought out in many US policy circles—as the gold standard method toward a stronger nonproliferation regime. It can be said that as a result of the all-too-likely-and-eventual fornication between temptation and the dual-use nature of nuclear energy technology (and outside the matrimonial parameters established under the Atoms for Peace sphere of approved peaceful transfer of nuclear technology), that the origins of the United States' desire to stem the transfer of enriched uranium and reprocessing spent plutonium technology rests squarely at the bottom of 100-meter-wide crater created on May 18, 1974, approximately 700 miles outside of New Delhi. The nuclear test was deemed only "partially successful,"[54] but rest assured, this 10-foot-deep crater "surrounded by a [fittingly] distinctive heart-shaped perimeter,"[55] was absolutely successful in crystallizing the critical crossroads of a new era—the way things had been apropos to the first two decades of the Atoms for Peace period and the way things were about to be directed in the next four decades to the present moment in time.

In an effort to shift from the era of nuclear secrecy ushered in under President Truman's Manhattan Project and his win-World-War-II-at-any-cost measures[56]—and with an equal

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[54] Federation of American Scientists. *First Nuclear Test at Pokhran in 1974−India Nuclear Forces*, http://www.fas.org/nuke/guide/india/nuke/first-pix.htm.

[55] Federation of American Scientists, *First*, homepage.

[56] Peter Lavoy, "The Enduring Effects of Atoms for Peace," *Arms Control Association*, http://www.armscontrol.org/act/2003_12/Lavoy#notes26.

dose of immense competition and pressure to prevent the Soviet Union from gaining the upper hand in providing the developing world with peaceful nuclear assistance first[57]—President Eisenhower "abandoned the policies of strict nuclear secrecy and technology denial"[58] by launching the new Atoms for Peace nuclear cooperation era. The tide of possibilities flowing from this shift from nuclear-armament-purposes to peaceful-purposes of supplying endless energy for all led Atomic Energy Commission chairman Lewis Strauss to optimistically state in a 1954 speech:

> It is not too much to expect that our children will enjoy electrical energy too cheap to meter—will know of great periodic regional famines only as a matter of history—will travel effortlessly over the seas and through the air with a minimum danger and at great speeds—and will experience a life-span far longer than ours, as disease yields and man comes to understand what causes him to age. This is the forecast for an age of peace.[59]

It was with this sentiment of hope and aspiration that this new age was ushered in with the Atoms for Peace initiative. At the doorstep of this new era among a score of countries was India. A 2013 Arms Control Association article points out that

> U.S. policy makers were especially eager to please India owing to their concerns that, following Joseph Stalin's death in March 1953 … the USSR and Communist China will [no doubt] focus increasing attention on India in an effort to insure [sic] at least its continued neutralism, and if possible to bring it closer to the Communist Bloc.[60]

And so it was that in the next two decades, the United States "became India's leading supplier of nuclear technology and materials … providing New Delhi with more

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[57] Lavoy, "The Enduring Effects of Atoms for Peace," 2.

[58] Lavoy, "The Enduring Effects of Atoms for Peace," 2.

[59] Lavoy, "The Enduring Effects of Atoms for Peace," 3.

[60] Lavoy, "The Enduring Effects of Atoms for Peace," 4. This article cites the following source for the quote: CIA, "Communist Courses of Action in Asia through 1957," National Intelligence Estimate 10-7-54, November 23, 1954, p. 12.

than $93 million in Atoms for Peace loans and grants."[61] This "optimism in the ability of U.S. technology to deliver prosperity and peace to the world did not abate until India's 1974 nuclear explosive test demonstrated [for the entire world] the dangerous potential of 'peaceful' nuclear technology."[62] With this one nuclear test—with an estimated yield of four to six kilotons, resulting from a detonation 107 meters beneath the surface[63]—the resulting crater paradigmatically shifted the landscape of peaceful nuclear energy, ushering in what was certain to be a new nuclear calibration from the prior Atoms for Peace era.

The Post-Eisenhower Era: Kennedy, Johnson and Ford

While the genesis of the gold standard movement—the desire of the United States to severely tighten and if at all possible, to discourage or even force countries to *not* create their own indigenous nuclear fuel supply for their (supposed) peaceful nuclear energy programs—has its concrete beginning starting in earnest with the Carter administration (as discussed below), it is only fair to look in the rear view mirror for just a moment at the administrations before Carter, to briefly review the positive efforts of the U.S. presidents between Eisenhower's second term and the end of Ford's term, even though some of their important accomplishments with respect to the nuclear containment regime may be discolored, again, by India's nuclear weapon test of 1974.

[61] Lavoy, "The Enduring Effects of Atoms for Peace," 4.

[62] Lavoy, "The Enduring Effects of Atoms for Peace," 3.

[63] Federation of American Scientists, *First*, homepage.

Following Eisenhower's new path, President John F. Kennedy strongly encouraged nuclear nonproliferation and advocated for the advancement of peaceful nuclear energy programs. However, Kennedy also famously acknowledged in 1963 his pessimistic view that upwards of 25 countries could acquire nuclear weapons capabilities as early as the 1970s,[64] which thankfully has not *yet* come to fruition but still could be all-too-possible in the coming decades.

Following Kennedy, President Lyndon B. Johnson—acutely aware of the dangers that were looming if the entire international community did not get on the same page regarding all-things-nuclear—presided over the formulation of the Nonproliferation Treaty (NPT).[65] Regardless of many shortcomings, the NPT remains the bedrock of the nuclear regime today. One author goes so far as to say that the "1968 nuclear Nonproliferation Treaty can [even] be seen as a refined, negotiated expression of Atoms for Peace."[66] Clearly, with the NPT, the Johnson administration played a key role in establishing one of the bedrocks—if not *the* bedrock—of the nonproliferation regime.

And finally, in what would be a strong pretext to the Carter administration's efforts on nuclear nonproliferation (culminating in President Carter's concrete steps to curb the all-too-lax distribution of sensitive dual-use nuclear technology), President Ford, in a policy statement issued on October 28, 1976, announced his Administration's position as follows:

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[64] Lavoy, "The Enduring Effects of Atoms for Peace," footnote 27 and 28 discusses the essence of what is discussed here regarding President Kennedy's acknowledgements in 1963.

[65] Lavoy, "The Enduring Effects of Atoms for Peace," footnote. Footnote 27 is where President Johnson is discussed.

[66] Lavoy, "The Enduring Effects of Atoms for Peace," 5.

> The reprocessing and recycling of plutonium should not proceed unless there is sound reason to conclude that the world community can effectively overcome the associated risks of proliferation…[and furthermore, with regard to the United States' own domestic nuclear activities] that the United States should no longer regard reprocessing of used nuclear fuel to produce plutonium as a necessary and inevitable step in the nuclear fuel cycle, and that we should pursue reprocessing and recycling in the future only if they are found to be consistent with our international objectives.[67]

With Kennedy's dire prediction of more than a score of new nuclear weapons states on the horizon, Johnson's NPT and the attempt to secure a safer nuclear world order and Ford's precursory admission at the suspension of reprocessing practices, change was surely in the wind. Two years earlier, in 1974, with India's nuclear weapon test, the die had been cast.

The Bona Fide Turning Point: Carter's Presidency

While the previous administrations fanned the flames of change, the Carter administration was determined, from day one, to initiate the genesis of this new gold standard by taking concrete, constructive action, once and for all.[68] Taking the reins from Ford on January 20, 1977, in the always-ever-so-analyzed-first 100-days-of-a-presidency

[67] Gerald R. Ford Presidential Documents, vol. 12, no. 44, pp. 1626-1627, 1976. (Also, see footnote 8 of CRS Report for Congress: Nuclear Fuel Reprocessing: U.S. Policy Development, Congressional Research Service, The Library of Congress.) Note: This Congressional Research Service (CRS) Report, by Anthony Andrews, is in the thesis bibliography under Andrews, Anthony.

[68] Even though the 'gold standard" moniker would not be officially coined for another thirty years, thereafter becoming part of the everyday nuclear-lexicon, the essence of the gold standard banner, as this chapter demonstrates, has its origins dating all the way back to the Carter administration. The origination of the moniker "gold standard" was alluded to in an earlier chapter in this thesis, but as a reminder to the reader, given that the "gold standard" name is so central to this thesis, the author provides the source of the moniker here again in this footnote: Author Jessica C. Varnum in footnote #5 of the following article, cites the exact person, a former U.S. State Department personnel named then-State Department Spokesperson P.J. Crowley, who in 2011 coined the term. Here is the source of this information: Jessica C. Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?," NTI: Nuclear Threat Initiative, http://www.nti.org/analysis/articles/us-nuclear-cooperation-nonproliferation-reforms-or-devil-you-know/.

(thereby signaling how serious he was regarding nonproliferation), President Carter announced, on April 7, 1977, in a Nuclear Power policy statement:

> There is no dilemma today more difficult to resolve than that connected with the use of nuclear power…. [T]he benefits of nuclear power are thus very real and practical. But a serious risk accompanies worldwide use of nuclear power—the risk that components of the nuclear power process will be turned to providing atomic weapons.... [W]e took an important step in reducing the risk of expanding possession of atomic weapons through the nonproliferation treaty…but we must go further. We believe that these risks would be vastly increased by the further spread of sensitive technologies which entail direct access to plutonium, highly enriched uranium, or other weapons usable material…we will continue to embargo the export of equipment or technology that would permit uranium enrichment and chemical reprocessing.[69]

In addition to this embargo on the export of sensitive nuclear technology, Carter was equally convinced that the advancement of nuclear power in America could continue successfully without further reprocessing of spent plutonium.[70] As Carter said in an April 7th speech:

> we have [also] concluded that a viable and economic nuclear power program [in the United States] can be sustained without such reprocessing and recycling….[T]he plant at Barnwell, South Carolina, [a large commercial reprocessing plant that had just begun construction in 1970[71]] will receive neither Federal encouragement or funding for its completion as a reprocessing facility.[72]

In addition to being gravely concerned about the further weakening of the nonproliferation regime brought on by the United States' export of sensitive nuclear

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[69] "Jimmy Carter: Nuclear Power Policy Statement on Decisions Reached Following a Review," http://www.presidency.ucsb.edu/ws/?pid=7316#axzz2i6ByBo2v. Emphasis added.

[70] David Rossin, "U.S. Policy On Spent Fuel Reprocessing," www.pbs.org/wgbh/pages/frontline/shows/reaction/readings/rossin.html, item 4.7, bullet point #4.

[71] Anthony Andrews, "Nuclear Fuel Reprocessing: U.S. Policy Development," *CRS Report for Congress*, http://www.fas.org/sgp/crs/nuke/RS22542.pdf, 4.

[72] American Presidency Project, "Jimmy Carter: Nuclear Power Policy Statement on Decisions Reached Following a Review," homepage.

technologies, it was also Carter's strong belief that the very actions that the United took on the nuclear front—here within the continental United States (i.e., reprocessing)—was also detrimental, not only to the nonproliferation regime as a whole, but to all the nuclear energy efforts with positive and peaceful aims. Carter's belief was that a populace comfortable with a safer and more secure nuclear energy regime at home (especially if it dealt with the growing global proliferation risk simultaneously) is also more likely to support the nuclear industry and all that it promised for mankind as a whole.[73]

Just as India's 1974 nuclear test marked the turning point of yet another nuclear era ("caus[ing] an agonized reappraisal of paths to proliferation"),[74] Carter's efforts to foster a strong, peaceful nuclear power future and strong nonproliferation regime marks the origins of the gold standard, the genesis of the movement that is still searching for its bearings, for better or worse, to this very day—and again, at the heart of this very thesis.

But, before concluding this brief summation of the genesis of the gold standard, a brief discussion of the 1978 Nuclear Nonproliferation Act (NNPA) and an equally succinct compilation of the efforts of the U.S. presidents following Carter are necessary for the reader to understand the entire gold standard domain to date.

An Opportunity Lost: The 1978 Nuclear Nonproliferation Act (NNPA)

Just as the Carter administration is seen as a turning point with regard to America's nonproliferation policies—essentially ushering in a new-*new* nuclear era following Eisenhower's Atoms for Peace era—the flawed, but altruistic 1978 Nuclear

[73] Rossin, "U.S. Policy On Spent Fuel Reprocessing," 7.

[74] Rossin, "U.S. Policy On Spent Fuel Reprocessing," 2.

Nonproliferation Act (NNPA) (enacted during the Carter administration) is also commonly cited as a turning point in America's nonproliferation initiatives. With regard to a primary component of my research question—whether or not gold standard 123 agreements are the best way to ensure the strongest nonproliferation regime—the NNPA is yet another signpost of the genesis of the gold standard approach, the desire to stop the precarious expansion of uranium enrichment and reprocessing of spent plutonium.

But unfortunately, the vast majority of NNPA provisions never saw the light of day. Criticized from the very outset for its restrictive measures, the Act was complex to start with and never fully embraced.[75] In a 2008 Arms Control Association article that revisits the 1978 Act three decades after its initiation, the author declares: "Fundamentally, the NNPA sought to make the international nuclear cycle a less attractive platform from which to develop nuclear weapons."[76] This fit nicely with the United States' new technological denial strategy aimed at ensuring the future strength of the nonproliferation regime, but many of its objectives (e.g., an international fuel bank or international enrichment facilities) were never "pursued with any success, yet they are all [still] on today's agenda."[77]

And again: the 1978 NNPA "reveals a set of far-reaching goals that are frustratingly no closer to fruition today."[78] As this relates to future 123 nuclear negotiation agreements today, surely, the author ruminates, that a policy maker or

[75] Sharon Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," http://www.armscontrol.org/act/2008_12/lookingback_NPT, p.2.

[76] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 2.

[77] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 2.

[78] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 1.

administration, should at least be cognizant of the historical *fact* that a gold-standard-like approach that failed almost four decades ago is therefore bound to run up against these same challenges of this nuclear expertise containment, but on a scale exponentially larger than in 1978, given the excruciatingly fast speed at which technological advancements traverse in these modern times. But to discuss this at this juncture is to digress, for these policy arguments are discussed in forthcoming chapters. Therefore, we continue down the road of history for a short period longer, so as to capture the full genesis of the gold standard movement.

The Post Carter Era: Reagan, H.W. Bush and Clinton

Following the calamity of the 1978 Nuclear Nonproliferation Act, President Reagan, taking a different tact, "lift[ed] the indefinite ban which previous administrations [had] placed on commercial reprocessing activities in the United States."[79] The nuclear industry did not seem to follow suit though. Less than a decade later, in 1990, President George H.W. Bush, in a National Defense Authorization Act for Fiscal Year 1991, stated:

> [A]t the present time, the United States is observing a de facto moratorium on the production of fissile materials, with no production of highly enriched uranium for nuclear weapons since 1964. [Indicating that nonproliferation had always been riddled with geopolitics, Cold War sentiments, and economic interests, concerned with safety for all mankind, Bush stated in the very next sentence…] While the United States has ceased operation of all it reactors used for the production of plutonium for nuclear weapons, the Soviet Union currently operates as many as nine reactors for the production of plutonium for nuclear weapons.[80]

[79] Andrews, "Nuclear Fuel Reprocessing: U.S. Policy Development," 5.

[80] Andrews, "Nuclear Fuel Reprocessing: U.S. Policy Development," 5.

In a statement a year later, in 1992, George H.W. Bush, touting yet another nonproliferation policy position, stated:

> I have set forth today a set of principles to guide our nonproliferation efforts in the years ahead and directed a number of steps to supplement our existing efforts. These steps include a decision not to produce plutonium and highly enriched uranium for nuclear explosive purposes[81]

A year later, President Clinton, reflecting the mindset of the Carter administration,[82] issued a similar policy statement:

> [T]he United States does not encourage the civil use of plutonium and, accordingly, does not itself engage in plutonium reprocessing for either nuclear power or nuclear explosive purposes.[83]

And with that, the 20th century meandered towards an end. But first, as the final section of this chapter will briefly review before concluding, President George W. Bush (and the US-UAE 123 Nuclear Cooperation Agreement negotiated late in his second term and approved in the beginning of the Obama Administration) carried the seemingly ever-perpetual mantle that has become known simply as the gold standard across the 20th/21st century divide.

Crossing into the 21st Century: G.W. Bush, Obama and the US-UAE 123 Agreement

With President George W. Bush's unwavering position in the earlier years of his two terms in office, the continued-genesis of the gold standard movement marched forward, as prevalent in the current century as is was in the preceding 20th century. On

[81] Andrews, "Nuclear Fuel Reprocessing: U.S. Policy Development," 5 and footnote 15.

[82] Rossin, "U.S. Policy On Spent Fuel Reprocessing," 2.

[83] Andrews, "Nuclear Fuel Reprocessing: U.S. Policy Development," footnote 16.

February 12, 2004, President G.W. Bush sketched his administration's nonproliferation positions in what is known as the NDU Speech (named after where he gave it, the National Defense University), thereby planting the gold standard signpost in the 21st century:

> So today, as a fourth step, I propose a way to close the loophole. The world must create a safe, orderly system to field civilian nuclear plants without adding to the danger of weapons proliferation. The world's leading nuclear exporters should ensure that states have reliable access at reasonable cost to fuel for civilian reactors, so long as those states renounce enrichment and reprocessing. Enrichment and reprocessing are not necessary for nations seeking to harness nuclear energy for peaceful purposes.
> The 40 nations of the Nuclear Suppliers Group[84] should refuse to sell enrichment and reprocessing equipment and technologies to any state that does not already possess full-scale, functioning enrichment and reprocessing plants. This step will prevent new states from developing the means to produce fissile material for nuclear bombs. Proliferators must not be allowed to cynically manipulate the NPT to acquire the material and infrastructure necessary for manufacturing illegal weapons.[85]

And with that speech, the die for the gold standard had been cast in the 21st century. The development of the gold standard rambled onward.

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[84] Nuclear Suppliers Group, *About*, homepage. While chapter three of this thesis discusses the genesis of the gold standard and various presidential administrations' efforts to minimize enrichment and reprocessing, both home and abroad, it is also important to mention another primary outcome of the Indian nuclear test in 1974—the creation of the Nuclear Suppliers Group (NSG). Directly from the NSG's website homepage cited in this footnote is the following overview of the NSG's mission: "From the beginning of international cooperation in the peaceful uses of nuclear energy, supplier countries have recognized the responsibility to ensure that such cooperation does not contribute to the proliferation of nuclear weapons. Shortly after entry into force of the NPT in 1970, multilateral consultations on nuclear export controls led to the establishment of two separate mechanisms for dealing with nuclear exports: the Zangger Committee in 1971 and what has become known as the Nuclear Suppliers Group in 1975. The Nuclear Suppliers Group (NSG) is a group of nuclear supplier countries that seeks to contribute to the non-proliferation of nuclear weapons through the implementation of two sets of Guidelines for nuclear exports and nuclear-related exports."

[85] George W. Bush, "President Announces New Measures to Counter the Threat of WMD," President George W. Bush White House Archived Website, page 4, http://georgewbush-whitehouse.archives.gov/news/releases/2004/02/20040211-4.html.

And finally, towards the end of G.W. Bush's second term in office, the famed US-UAE 123 Agreement (to be discussed in forthcoming chapters) was negotiated and officially inked during the beginning of President Obama's first term on December 17, 2009. At the signing UAE Ambassador Yousef Al Otaiba, co-signing the deal with the United States' Department of State Under Secretary for Arms Control and International Security Ellen Tauscher, said:

> I am delighted to be here today as the agreement on peaceful nuclear energy cooperation between the United Arab Emirates and the United States enters into force. This agreement supports a new global gold standard for the development of peaceful, civilian nuclear energy, by countries that need nuclear energy for their economic development.
>
> The UAE nuclear energy program is peaceful-by-design, developed with international agencies and other responsible governments, including the United States. Our responsibility is to ensure that the UAE will be successful in meeting the country's growing need for electricity, while eliminating the risk of proliferation.
>
> The UAE has made a commitment not to enrich uranium or reprocess spent fuel. This means the UAE will not house these sensitive technologies. These commitments are enshrined in the agreement--the first time the United States has included them in a bilateral civilian nuclear agreement. We have also signed the IAEA's Additional Protocol, which ensures the most stringent inspections regime. We made these commitments to demonstrate our peaceful goals and to remove any ambiguity about our intentions. The UAE model will become even more important as the world grapples with how to enforce and strengthen the nonproliferation regime.[86]

The US-UAE agreement, dubbed the first official gold standard 123 agreement, was officially on the books but with a locomotive-sized loophole (more on this in forthcoming chapters).

And with that my fair-minded readers, the US-UAE 123 agreement marks the finale of this anthology of historical events with regard to the very essence of the genesis of what is known today as the gold standard method.

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[86] Embassy of the United Arab Emirates in Washington DC, "US-UAE 123 Agreement Enters into Force," *Website Homepage*, http://www.uae-embassy.org/media/press-releases/17-Dec-2009.

Closing Thoughts on the Genesis of the Gold Standard

Starting with the presidential administrations from Carter in 1976 to the present-day Obama administration, the majority of U.S. presidents have attempted, in one way or another, to enact policies aimed to curtail enrichment and reprocessing activities both here and abroad, so as to strengthen the nonproliferation regime.

But as the next chapter explains, while the United States may have thought it had found an answer to the every-expanding nuclear proliferation dilemma with its "technology denial strategy"[87] (in the words of nuclear terrorism expert Graham Allison of the Harvard University Kennedy School of Government: "It is a basic matter of physics: without fissile material, you can't have a nuclear bomb."[88]) in fact, beyond our shores, the excitement over this policy ebbs exceptionally quickly and ushers in an entirely new flow of challenges when upwards of 200 energy-thirsty (and security-concerned) countries around the globe have strongly opposing opinions (and ever-advancing nuclear technologies and know-how) on this important matter of enrichment and reprocessing technologies.

All things considered, it is apparent, that barreling through the depot of the United States' desire to stem sensitive enrichment and reprocessing technologies in the noble pursuit of a stronger nonproliferation regime, is a fast-moving train, bearing the name "Dilemma."

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[87] Lavoy, "The Enduring Effects of Atoms for Peace," 1. The term "technology-denial' is used frequently in Peter R. Lavoy's article. The author of this thesis, aware of the term and used by many, is unaware of who may have coined this term, but again, is giving credit and citing Lavoy and his article, where it has been used several times and is in print.

[88] Graham Allison, "How to Stop Nuclear Terror," *Foreign Affairs* 83, no. 1 (January 1, 2004): 64-74, doi:10.2307/20033829.

Chapter IV

The Dilemma

> There is no dilemma today more difficult to resolve than that connected with the use of nuclear power.[89]
> − President Jimmy Carter

Departing from the railroad station at the conclusion to the preceding chapter, practically the moment President George W. Bush finished his speech on February 2004 at the National Defense University—calling on all countries that do not currently possess enrichment and reprocessing capabilities (ENR) to forsake all future endeavors of such capabilities—Mohamed Elbaradei (then Director General of the International Atomic Energy Agency, described earlier in this paper as the international nuclear regime watchdog—and whom Graham Allison described as "one of the genuinely great leaders of his generation") stated in his best-selling 2011 memoir, "I could see the train wreck coming."[90] In his remarks, Bush had "propose[d] a way to close the loophole"[91] (the loophole was the allowance of the overall fuel cycle—which ENR is a part of—flourishing around the world under the pretense of peaceful purposes[92]), but in essence

[89] American Presidency Project, "Jimmy Carter: Nuclear Power Policy Statement on Decisions Reached Following a Review," homepage.

[90] Mohamed ElBaradei, *The Age of Deception: Nuclear Diplomacy in Treacherous Times* (New York: Metropolitan Books/Henry Holt, 2011), 125.

[91] Bush, "President Announces New Measures to Counter the Threat of WMD," homepage.

[92] Dr. Steven E. Miller of the Harvard University Kennedy School of Government speaks elegantly with regards to this "loophole" in his essay written in 2012 for the American Academy of Arts & Sciences—and also offers a follow up comment by Albert Wohlstetter on the same subject of this loophole created from the Atoms for Peace era (both full citations are at the end of this footnote, in respective order): "From the early days of the NPT regime, champions of nonproliferation were concerned that the permitted

(as we shall see shortly in this chapter with regard to Article IV of the NPT) Bush, while attempting to curtail this use of sensitive nuclear technology (SNT), "only exacerbated the political controversy"[93] that was swirling around this extraordinarily sensitive issue of enrichment and reprocessing capabilities.

A Reminder: While a Very Hot Topic Presently, This Is Not a New Dilemma

With a slight digression (for the greater part of this dilemma will be presented from the early 2000s to the present) it is important to remind the reader that, as the previous chapter explained in detail, juxtaposed alongside the genesis of the gold standard was the very creation of this damning dilemma facing us today. As Arms Control Association author Sharon Squassoni stated precisely in her article looking back on the Nuclear Nonproliferation Act of 1978:

> In the early 1970s, technically competent states in Asia and Europe sought to reduce their dependence on the United States as virtually the sole supplier of reactors and nuclear fuel by developing their own fuel cycle capabilities. The perceived need to diversify supply only grew stronger after the 1973 oil shock, which had two effects. First, states recognized the need to shift away from oil to generate electricity. Second, general concern about fuel supplies led states with nuclear power programs to conclude that reprocessing plutonium from spent nuclear fuel would ultimately be necessary to make the most of finite uranium supplies.[94] The oil shocks were a key impetus for states such as France and Japan,

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and legitimate spread of the nuclear fuel cycle was deeply problematic and had the potential to undermine the regime. This interpretation allowed, as Albert Wohlstetter's famous 1976 article suggested, bomb-making capability to spread without any rules being broken." Steven E Miller, "Nuclear Collisions: Discord, Reform & the Nuclear Nonproliferation Regime," A*merican Academy of Arts and Sciences*, https://www.amacad.org/multimedia/pdfs/publications/researchpapersmonographs/nonproliferation.pdf. Wohlstetter, "Spreading the Bomb without Quite Breaking the Rules," *Foreign Policy*, (Winter 1976): 144.

[93] Fred McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options" May 2011, http://belfercenter.ksg.harvard.edu/files/MTA-NSG-report-color.pdf, 21.

[94] Uranium, while not infinite, is none the less, not as "finite" as it was thought to be in the 1970s.

> which were greatly dependent on foreign resources for energy, to invest heavily in nuclear energy.[95]

Later in the article, Squassoni pointed out that our "French, German and Japanese allies were, unsurprisingly, very unhappy with the U.S. decisions [of wanting to curtail the expansion of E&R capabilities], particularly because they wanted to reprocess U.S.-origin spent fuel."[96] As David Rossin, in an article for PBS, states: "Jimmy Carter wanted a comprehensive policy that solved all proliferation problems. The goal was a leak proof regime, but that was unrealistic…" [and] it did not [unfortunately] change the minds of the other nations."[97]

As has been often stated in this thesis, the die of this dilemma facing us today was indeed cast several decades earlier and in fairness to President George W. Bush, long before his 2004 NDU speech.

At the Heart of the Dilemma: Article IV of the NPT

Essential to the formation of the international nonproliferation regime's bedrock accord, the Nonproliferation Treaty (NPT) is the pact between the nuclear "haves" and the "have-nots"; if the have-nots become signatories of this treaty and agree to not obtain or develop nuclear weapons, they will receive assurances of nuclear technology know-how for their peaceful nuclear energy programs, if and when they decide to create such a program (Article IV of the NPT); in exchange the have-nots will receive assurance from

[95] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 1.

[96] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 2.

[97] Rossin, "U.S. Policy On Spent Fuel Reprocessing," 8.

the haves, that over time the haves will work toward disarmament (Article VI of the NPT). Article IV of the NPT is as follows:[98]

> 1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.
> 2. All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also co-operate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.[99]

Nuclear energy and nuclear weapons expert Steven Miller of Harvard University's Kennedy School of Government, in his 2012 essay for the American Association of Arts & Sciences (AAAS), states with regard to Article IV:

> This expansive language is widely taken to mean that member states are entitled, if they so choose, to acquire the full panoply of technology associated with civilian nuclear power, including those elements of the nuclear fuel cycle that have inherent weapons applications and implications.[100]

While the haves may view the NPT as primarily a vehicle for no new nuclear states (and perhaps, a rather furtive reassurance that the small club of nuclear-haves remains just that—small), the have-nots (who are not naïve about the small "haves club") view the NPT as primarily being a vehicle for the eventual disarmament of the haves and a medium in which their right to peaceful nuclear know-how (from reactors to nuclear

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[98] United Nations Office for Disarmament Affairs. *Non-Proliferation of Nuclear Weapons (NPT)*, http://www.un.org/disarmament/WMD/Nuclear/NPT.shtml.

[99] Author's note about Article IV: Legal scholars debate exactly how granted these Article IV rights are for NPT member signatories. While NNWS always point to their "inalienable rights", on a legal front, when Article IV is read word for word and juxtaposed with other NPT Articles, these "inalienable rights" are possible not absolute.

[100] Miller, "Nuclear Collisions: Discord, Reform, & the Nuclear Nonproliferation Regime," 22.

expertise to enrichment and reprocessing capabilities) is absolutely and supremely enshrined.[101] Regardless of which side one is on, the sine qua non is that Article IV was ultimately what brought the NPT to fruition and which the Non Nuclear Weapons States (NNWS/the have-nots) are all too quick to point out especially with regard to the prickly topic of ENR technologies and the US's promotion of the gold standard method.

Article IV is the basis of why the have-nots deplore America's technology-denial-like strategy (which in their eyes may as well be deemed the Article IV-denial strategy) that has been brewing sense the Carter days and today is being advocated for whole-heartedly with the advent of America's budding desire in some policy circles of both the present and prior Administration for gold standard 123 nuclear cooperation agreements. The dilemma—once again, surely to be part of the argument in the forthcoming chapter on what is the best nuclear cooperation method going forward, the gold standard or the case-by-case method?—remains essential to understanding the dilemma before getting to that debate. In the same AAAS article, Miller quotes a few lines from a famous 1976 article by Albert Wohlstetter that delivers with great authority the dynamics at the crux of the formulation of this dilemma with regards to the have-nots and the NPT's Article IV:

> If an activity that brings a country very close to a nuclear weapon, and that stops just short of assembly, is legitimate, then by assumption there is nothing wrong with it. The government of that country has not violated the agreement. [And to add to this thought, Miller adds another line in his footnote #58 of the AAAS Essay] Continuing, Wohlstetter says, "Moreover, it is the application of sanctions by the supplier that would be a violation of the agreement.[102]

[101] Miller, "Nuclear Collisions: Discord, Reform, & the Nuclear Nonproliferation Regime," entire report. For an thorough account of both sides of this argument—how the nuclear "haves" view the NPT and how the nuclear "have-nots" view the NPT—see, Miller's AAAS article cited here, for an in-depth discussion.

[102] Miller, "Nuclear Collisions: Discord, Reform, & the Nuclear Nonproliferation Regime," 22. (Note: footnote referenced in the AAAS article is Footnote #58 of Miller Essay).

While the forthcoming chapter will argue, debate, and ultimately either corroborate or refute this very geopolitically charged conundrum—which is the better way for U.S. policy makers to proceed in future nuclear cooperation agreements?—rest assured that even though the gold standard is altruistic in its aims for a stronger nonproliferation regime (and even preferable when obtainable), the prickly point created by the have-nots sticking lock-stock-and-barrel ("clandestine" pun intended) to their perceived "inalienable rights" granted in Article IV will be front and center of every future 123 nuclear cooperation agreement negotiation.[103]

Leading the Opposition towards America's Gold Standard Denial Strategy: The NAM

At the center of this conflict between the U.S.'s desire to restrict the expansion of ENR capabilities and the have-nots opposition to this strategy (based, again, on what they see as their Article IV rights) is the Non-Aligned Movement (NAM), which consists of 120 states—all signatories of the NPT—and 17 observer states. In a substantial composition (herein after in the paper referred to as the Belfer Center report) titled

[103] It should be noted here that while the vast majority of the "have-nots" view Article IV as their "inalienable rights" to the entire nuclear fuel cycle, that is not how ever legal interpreter of the NPT's Article IV reads the text. For this paper's purpose and for the reader to understand the essence of Article IV so as to objectively look at the arguments presented in chapter five, Article IV and the dilemma presented in chapter four is a solid starting ground, a basis of Article IV and the broad dilemma it presents. But, for a further in-depth look into Article IV, the author is providing in this footnote an essay to access further study. Miller, in his AAAS essay, states at the bottom of page 23: "However, the 'inalienable right' to peaceful nuclear technology, they argue, does not necessarily imply assured access to the entire nuclear fuel cycle." At which point, Miller then refers his readers of that line in the article to his footnote #64, which I am providing verbatim so that any reader of my thesis can know where to look for further information on this discussion of Article IV from a legal standpoint: "Concern about Article IV and associated export control issues has given rise to elaborate legal discussions of what rights are actually conferred by Article IV and how the NPT can be properly interpreted. For a good example, see Ford, "Nuclear Technology Rights and Wrongs," 237−283, which argues in great detail that Article IV does not provide or imply a right to purchase the entire fuel cycle. Another detailed analysis of this question, also arguing that Article IV does not confer an automatic right to the full fuel cycle, is Robert Zarate, "The NPT, IAEA Safeguards and Peaceful Nuclear Energy: An 'Inalienable Right,' But Precisely to What?" in Falling Behind: International Scrutiny of the Peaceful Atom, ed. Henry Sokolski (Carlisle, PA: U.S. Army Strategic Studies Institute, 2008), 221−290."

"Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options" (written by scholar Fred McGoldrick, along with contributions from nuclear regime experts Matthew Bunn and Martin Malin and former Bush Administration official William Tobey—all writing under the aegis of the Project on Managing the Atom housed at the Belfer Center for Science and International Affairs at Harvard University's Kennedy School of Government), the authors state: "For the NAM, the issue has been one of discrimination and what they view as a denial of rights that are specifically set out in the NPT to the peaceful uses of nuclear energy." The report, with regard to NAM's rejection of any and all arguments based on the sensitivity of any transfer of SNT, points to a 2009 NAM statement:

> The Group, in principle, reiterates its strong rejection of any attempts aimed to discourage the pursuit of any peaceful nuclear technology on the grounds of its alleged "sensitivity."
>
> The Group is of the view that any proposal for the assurance of supply should not be designed in a way that discourages States from developing or expanding their capabilities in the area of the nuclear fuel cycle, nor to hamper research and development and international cooperation in the field of peaceful nuclear activities. The Group reiterates that it is the sovereign right of all States without discrimination to develop or expand their capabilities in the field of peaceful nuclear activities including the nuclear fuel cycle.
>
> The Agency should not lose its main focus on promoting the peaceful uses of nuclear science and technology, including national fuel cycle capabilities, through national capacity building and transfer of technology.[104]

And following this statement, NAM issued a Working Paper at the 2010 NPT Review Conference, stating:[105]

[104] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 21.

[105] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 21-22. This sentence is paraphrased from a sentence in the McGoldrick report that is

> Para. 42. To emphasize that the Treaty does not prohibit the transfer or use of nuclear equipment or material for peaceful purposes based on their "sensitivity", and only stipulates that such equipment and material must be subject to full-scope IAEA safeguards.

It also states that:

> Para. 43. To reiterate that the issue of assurances of nuclear fuel supply is a very complex and multi-dimensional concept with technical, legal, commercial and economic implications. In order to reach a consensual conclusion, it is premature for this issue to be considered before undergoing extensive, comprehensive and transparent consultations. In this context, reject, in principle, any attempts aimed at discouraging certain peaceful nuclear activities on the grounds of their alleged "sensitivity"; and emphasize that any ideas or proposals, pertaining to the non-proliferation of any peaceful nuclear technology, which are used as a pretext to prevent the transfer of such technology, are inconsistent with the objectives of the NPT.[106]

If history is any indication, along with NAM's emphatic argument, that the right of the have-nots to peaceful nuclear energy technologies is absolutely enshrined in Article IV of the NPT, so it was too that the most recent 2010 NPT Review Conference's final document (which represent NWS and NNWS alike) "affirmed the inalienable rights of parties to the Treaty to nuclear energy for peaceful purposes,"[107] and that, "each country's choices and decisions in the field of peaceful uses of nuclear energy should be

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the lead in to the NAM statement that is also from the report. The author of the thesis is merely acknowledging and crediting the authors of the McGoldrick report for everything here, so as to provide too much citation rather than not enough.

[106] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 22.

[107] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 22.

respected without jeopardizing its policies for international cooperation agreements and arrangements for peaceful uses of nuclear energy and its fuel cycles."[108]

In short, it is apparent that any meddling with what the NNWS see as their "inalienable rights" to peaceful nuclear energy technological assistance enshrined in their steadfast Article IV is sure to create an immediate situation with undesirable alternatives for all parties present at the nuclear cooperation negotiation table.[109]

Discrimination and Nuclear Colonialism

Unfortunately, discrimination between the haves and the have-nots is exactly what the have-nots saw in relation to Bush's famed NDU speech of 2004 and later with his administration's continued "no ENR" position with regard to the Nuclear Supplier Group's (NSG) regulations on nuclear technological export controls. In all fairness to President Bush, the author acknowledges that this continued pursuit of no ENR expansion that started in the Carter period decades earlier was merely business-as-usual for the United States, but only with President Bush bringing it to the forefront once again, essentially with a megaphone unheard of in recent years. Agreeing, the authors of the Belfer Center report referenced earlier stated "President Bush's proposal of 2004 really

[108] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 22.

[109] For another scholarly discussion and similar essence of the NAM section of this chapter, see the aforementioned Miller essay, specifically the NAM points on page 24 and 25. Also note: while the above excerpts from the NAM sections are rightfully cited McGoldrick et al., Miller also cites the NAM Working Paper in his AAAS essay, to which, for continued citation purposes, I recognize here for further access if a reader desires to find the NAM papers directly: the NAM citation is footnote #15 of Miller' AAAS essay: "Working Paper Presented by the Group of Non-Aligned States Parties to the 2010 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons, 2; hereafter referred to as NAM Working Paper."

meant formalizing a moratorium that NSG members had quietly adhered to in practice for some time."[110] Regardless though, the authors pointed out that the "U.S. proposals produced widespread perceptions that the United States was trying to establish a new global fuel cycle regime that would be highly discriminatory in nature intended as an effort to divide the world into nuclear haves and have-nots, and designed to deprive NPT parties of their rights to the nuclear fuel cycle."[111] The have-nots "view such initiatives as fundamentally discriminatory in nature."[112]

Further aggravating the conundrum and raising the bar of the dilemma, it is important for the reader to also understand that developing states are not the only NNWS that are opposing this advancement of a no-ENR regime. Referring to the Belfer Center report once again, the authors point out that

> [i]t bears emphasis that opposition to the proposals on E&R transfers came not just from developing countries but from advanced states and even from states with a long history of strong support for the nonproliferation regime, such as Canada and the Netherlands, whose opposition stemmed not only from commercial interests but from concerns that states compliant with the NPT obligations should not be denied enrichment and reprocessing options;[113]

[110] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 45.

[111] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 24.

[112] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 24.

[113] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 21.

To which the authors again state later in the report: "Developing countries in particular hold to the view that they have an inalienable right to make energy choices and view efforts to restrict E&R as a form of nuclear colonialism."[114]

Elbaradei, former Director of the IAEA, makes the same point (regarding developed countries opposition) in his memoir The Age of Deception, saying of the aggravation during these Bush proposals in the mid-2000s, "Canada, Italy, and Australia, for example, countries that did not have a full fuel cycle but that wanted to keep their options open for the future."[115] He indicates that even developed countries were not pleased with the no-ENR stance, especially since it comes from a hypocritical NWS, which possesses these technological capabilities.

The Intersection of Article IV and a No-ENR Regime: The Dilemma

Evident at this point on the path to a stronger nonproliferation regime, at the doorstep of this noble cause of pursuing a no-ENR regime, which the United States has been championing for almost a half century is a discontented name of the train introduced at the end of Chapter 3, "Dilemma." This author, while full-heartedly supporting the goal of a no-ENR regime as a means to strengthen the overall nonproliferation regime for a safer and securer future, nevertheless questions, as we shall see in the forthcoming chapter, whether the gold standard 123 method is the best way to this.

The NNWS see the no-ENR strategy not as a way to strengthen the nonproliferation regime, but as merely a way to further divide the have and the have-

[114] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 45. Emphasis added.

[115] ElBaradei, *The Age*, 125.

nots—hence the magnitude of the described dilemma. As Elbaradei points out, "the distrust between the nuclear haves and the have-nots, already palpable, was exacerbated,"[116] with the Bush initiatives of the 2000s; "the countries without advanced nuclear technology came to view each subsequent proposal with suspicion—as a series of ruses designed to rob them of their rights."[117]

Final Thoughts on the Current Dilemma

The Merriam-Webster dictionary defines dilemma "as a situation in which you have to make a difficult choice…an argument presenting two or more equally conclusive alternatives against an opponent."[118] The crux of the dilemma presented in this chapter—the argument being advocated by the U.S. and fought primarily by the have-nots—is a dilemma that is certain to wash over the impending case studies in chapter six like a tsunami cascading over an archipelago of NNWS.

With an understanding of the history of the atomic era since the two horrific atomic bombs ended World War II and the genesis of the gold standard since the Carter years, along with the dilemma that both sides of the nuclear negotiating table face, the writer now asks the following question: Is the gold standard method of negotiating 123 nuclear cooperation agreements, however golden they may seem, truly better or at the end of the day, worse than the case-by-case method, with regard to the ultimate goal of strengthening the nonproliferation regime?

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[116] ElBaradei, *The Age*, 125.

[117] ElBaradei, *The Age*, 125.

[118] Merriam-Webster. Dilemma−Definition, http://www.merriam-webster.com/dictionary/dilemma?show=0&t=1383097294.

Chapter V

Arguments for Why the Gold Standard Is Not the Best Way Forward

It's not as easy as 1-2-3[119]
− Jeffrey Lewis

Ultimately, the issue at the heart of this thesis is how to achieve the strongest possible nonproliferation regime for the safety and security of future generations. Given that the reader is now knowledgeable with the nuclear realm beginning in the mid-20th century, is acquainted with the genesis of the gold standard movement, and understands the dilemma that current policy makers face, the author can now expound on the thesis without further delay.

In this chapter I argue that the gold standard method is not the best method to use in present and future 123 bilateral nuclear cooperation agreements and that the case-by-case method is (with regard to 123 Agreements) the better method to ultimately achieve the strongest, most viable nonproliferation regime humanly possible for the betterment of all humanity and future generations. Some readers, policy makers, and nonproliferation experts believe that the case-by-case method will weaken the nonproliferation regime, they insist that the gold standard method is the best way. I, however, argue that the case-by-case method is the better method to achieve a stronger nonproliferation regime and that the gold standard method that will weaken the nonproliferation regime.

[119] Jeffrey Lewis, "It's Not as Easy as 1-2-3," *Foreign Policy*, August 1, 2012, http://www.foreignpolicy.com/articles/2012/08/01/it_s_not_as_easy_as_1_2_3. (Note: The Quote is the title of the article itself.)

Finally, to help the reader better understand the logic of the arguments presented here, I present a roadmap of the six arguments put forward in this thesis. The first argument is the primary argument, and addresses the crux of the primary dilemma presented in the prior chapter. For all six arguments that follow the author's premise is given, followed by its development and explanations of why the author defends this argument. The critics' objective argument, along with the development of their evidence to support their position, follows the author's argument. Following each of the six arguments is the author's counter argument and its refutation along with developmental evidence for this counter argument to the critics' objective argument—in short, why the author thinks that the critics' position is wrong and the author's position is right.

Finally, as we shall see in the following chapter, these premises are applied to actual 123 bilateral nuclear cooperation agreements presently being negotiated and future likely negotiations. While the author's premises are argued and supported, it is the author's intention that the thesis will ultimately be corroborated or refuted through their application to real-life situations as is carried out in the following chapter's case studies. The author's hypothesis is that if the United States requires gold standard 123 agreements for all future bilateral nuclear cooperation agreements, the nonproliferation regime will be weakened, not strengthened.

Argument #1: A No-ENR Regime and International Norm is Not Possible

The gold standard method, regardless of its admirable aims to strengthen the nonproliferation regime, is unable to create a No-enrichment and reprocessing (ENR) regime and international norm against enrichment and reprocessing activities and for

those reasons, will ultimately weaken, not strengthen, the nonproliferation regime. With regard to 123 agreements,[120] the case-by-case method is the better method of the two often-discussed methods to ensure the strongest nonproliferation regime possible.

Author's Primary Argument

At the foundation of this dilemma, vis-à-vis which 123 agreement method will ensure a stronger nonproliferation regime, is the gold standard advocates' argument[121] that their method can more effectively create a No-ENR regime. While a stronger No-ENR regime is altruistic and would greatly enhance the strength of the nonproliferation regime if it were obtainable, the author asserts that in reality it is not.

The dilemma discussed in the preceding chapter regarding Article IV of the Nonproliferation Treaty (NPT), the "inalienable right" to peaceful nuclear energy (in which signatory countries adamantly consider ENR capabilities as part of their "inalienable right") is indisputably the primary friction between countries considering entering into a 123 agreement with the United States, if and when the United States demands the gold standard approach in these negotiations. But as authors Matthew Bunn, Martin Malin, and William Tobey of the Kennedy School of Government at

[120] As the reader has seen and will see continue to see throughout this thesis chapter and especially chapter seven concerning "Ways Forward for a Safer Future," there are other institutions, instruments, and U.S. policy avenues that can be used to pursue a stronger nonproliferation regime, but with regard to the topic of this thesis—123 bilateral nuclear cooperation agreements—the author feels the case-by-case method is better. Since that is the basis of this thesis, it is what is being addressed and argued; examining other safety instruments and avenues that concern the nuclear nonproliferation regime are ripe for further study by other academic scholars.

[121] The thesis will recognize and directly address the critics' objective argument in the paragraphs to follow.

Harvard University, along with co-author Fred McGoldrick, state in a 2011 report for the Belfer Center for Science and International Affairs' Project on Managing the Atom program: "The key to progress is keeping the limited problem of enrichment and reprocessing transfers in perspective, focusing on constructive outcomes instead of abstract principles."[122] The gold standard method is neither practical, nor is it based in reality.

Parallel to this dilemma of partnering countries' Article IV claims is NPT's vital importance to the entire nonproliferation regime. Long-time nuclear regime experts Mark Hibbs and Frederick McGoldrick, in a 2013 Carnegie Endowment for International Peace article, state:

> Even if states have no plans to acquire these facilities or [ENR] capabilities, U.S. demands for additional restrictions on their declared nuclear activities strike most NPT parties as unfair…. Pursuit of legally binding no-ENR terms for all U.S. peaceful nuclear cooperation agreements would inevitably diminish U.S. influence within the NPT regime and weaken the already-fragile bonds that hold the treaty together.[123]

In support of the case-by-case approach for negotiating 123 agreements with partnering countries, Hibbs states later in the same article, "Washington's policy on bilateral cooperation needs to be based on a clear and realistic appreciation of the particular circumstances of each country,"[124] in other words, on a case-by-case basis. In clear opposition to the gold standard method, Hibbs concludes: "There is no compelling

[122] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," v.

[123] Mark Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," *Carnegie Endowment for International Peace*, accessed October 18, 2013, http://carnegieendowment.org/2013/10/15/realistic-and-effective-policy-on-sensitive-nuclear-activities/gqeu.

[124] Mark Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities,"4.

reason for the United States to reject its long-standing differentiated approach [the case-by-case method] on ENR in favor of a one-size-fits-all-recipe [the gold standard method]."[125]

The Unites States, as the world's main superpower, has a responsibility to lead with regard to the nonproliferation regime. As we will see in the principle counter argument of the gold standard advocates, this idea of leadership is indeed, the crux of the gold standard's primary aim. But, as the first point of this argument points out, altruistic aims are not enough, and with regard to leadership concerning the nonproliferation regime, the gold standard method is based in "abstract principles."[126] Says Hibbs in the Carnegie article:

> The U.S. government should not require all foreign countries with which it concludes new nuclear cooperation agreements to legally commit themselves not to enrich uranium and reprocess spent fuel. Requiring countries to do this in all future U.S. peaceful nuclear cooperation agreements would seriously challenge the credibility of the United States to demonstrate global nonproliferation leadership.[127]

Opponents' most powerful objective argument #1. The most powerful argument presented to the author's thesis is that the gold standard method is the best method to prevent further escalation of ENR capabilities. The critics' logic is simple, straightforward, and meritorious: with fewer countries around the globe engaged in enrichment and reprocessing activities, the more unlikely it is that countries that do not currently possess these capabilities will decide (and hence, be in a position) to obtain nuclear weapons in the future. Therefore, these opponents of the case-by-case method

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[125] Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 5.

[126] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," v."

[127] Mark Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 1.

contend that since a gold standard contractual agreement with the United States would require that a partnering country give up its right to ENR pursuits in order to enter into an agreement with the United States in exchange for peaceful nuclear energy program technologies and assistance, the gold standard method is the best 123 agreement method to ensure that countries are less likely to proliferate.

In short, as stated before this objective argument, it is for this reason that the opponents of the gold standard method advocate for a no-ENR regime and, hence, feel that the gold standard method is the best way to strengthen such a regime. On September 20, 2012—in response to a letter submitted earlier on January 10, 2012 to Congress by U.S. Department of Energy Deputy Secretary Daniel B. Poneman and U.S. Department of State Under Secretary for Arms Control and International Security Ellen O. Tauscher advocating that the policy for 123 agreements use the case-by-case method[128]—multiple congressmen, congresswomen, and nuclear nonproliferation policy experts signed a letter to President Obama beseeching him to do the opposite and make the gold standard the policy of choice going forward with all 123 agreements. The letter, in concluding, states:

> Defining the nonproliferation conditions the United States intends to place on its civil nuclear cooperation in general is essential to protecting U.S. interests, and we believe requiring that the "Gold Standard" be met in all U.S. nuclear cooperative agreements with states that lack nuclear weapons is the necessary set of conditions to achieve that end.
>
> Indeed, we believe our government should not only support such requirements, but actively encourage other nuclear supplier states to do so as well. Therefore, we urge you to end the ambiguity that has arisen concerning this vital issue and to clearly state that it is U.S. policy to apply the "Gold Standard."[129]

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[128] Nonproliferation Policy Education Center. "State-Energy Letter Tells Hill Obama Will Abandon Tight Nuclear Nonproliferation Rules," http://www.npolicy.org/article.php?aid=1139%26tid=5.

[129] Nonproliferation Policy Education Center. "Gold Standard Letter to the President," http://www.npolicy.org/article.php?aid=1196&tid=4.

And while these six arguments presented in this chapter will be applied to individual country case studies in the following chapter, Henry Sokolski, the executive director of the Nuclear Policy Education Center and a current fellow at Harvard University's Kennedy School of Government, adds just a sampling of things to come, stating sharply in a 2013 article: "If the U.S. lets Jordan, Vietnam or South Korea make nuclear fuel, you can kiss any attempt to persuade Iran or any other state to forgo fuel making goodbye."[130]

At the heart of the critic's objective argument against the case-by-case method is that the gold standard method is the best 123 method to create an international norm that would ultimately bring into being a strong no-ENR regime, hence, a stronger nonproliferation regime overall.

Counterargument to the opponent's objective argument #1. The author understands this point of view and at first, like many, was admittedly smitten with the altruistic goals of the gold standard. However, after a thorough examination of the topic, this author disagrees with proponents of the gold standard method. After numerous complex and intricate variables are considered, it became clear that the gold standard is not the best way forward for numerous reasons, detailed later in this chapter. It is true that the gold standard would be the best way to ensure that a no-ENR regime could develop if it were achievable but it is not and therefore, would ultimately, no matter how altruistic, in the end weaken the nonproliferation regime.

[130] Jay Solomon, "U.S. Shifts Policy on Nuclear Pacts," *Wall Street Journal*, http://online.wsj.com/news/articles/SB10001424052970203806504577181213674309478, 3.

Several arguments either corroborate or refute the author's thesis follow, but first, numerous counter arguments of why the opponent's primary objective is erroneous are presented.

First refutation: a no-ENR regime by means of a gold standard method is not possible. While it may be true that a no-ENR regime and a norm established to prevent and limit enrichment and reprocessing capabilities is ideal, in reality, creating this norm via a gold standard method approach is not realistic. It is important to note that the author would support the pursuit of this norm wholeheartedly if it were obtainable through gold standard agreements, but it is not. As Hibbs points out:

> Using U.S. bilateral agreements as a lever to limit the spread of ENR may sound like a good idea. But for a number of reasons, insisting that all countries legally forgo ENR for all future U.S. peaceful nuclear cooperation agreements risks undermining U.S. nonproliferation interests.[131]

As stated in the author's primary argument above, pursuit of these gold standard agreements would reduce the United States' control over the entire nonproliferation regime, thereby ensuring a weaker nonproliferation regime at the same time it would be trying, with dubious measures, to strengthen the nonproliferation regime.

Second refutation: In further support of the above counter argument that a norm of no-ENR is highly unlikely to come to fruition, especially if the U.S. pursues gold standard 123 agreements with future partners, is the issue of leverage. U.S. leverage is not what it used to be. As we will see when we review individual country case studies, the U.S.'s leverage to persuade potential partners (i.e., to accept an agreement with or without ENR capabilities) varies with different countries. Where it is possible, the author agrees with the critics, in that where obtainable, a gold standard agreement is indeed,

[131] Mark Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 2.

preferable. But to think that we can do this as a one-size-fits-all method via the gold standard method is again, unrealistic at best and dangerous policy at worst. Because of the vast array of geopolitical variables and the numerous 123 agreements that the United States already has with a vast amount of countries that do not have a no-ENR requirement, requiring future countries to accept a gold standard agreement is not only unfair (which we will discuss in depth below), but in terms of our leverage to even do so if we wanted to, not realistic. Hibbs, in his recent article for Carnegie titled "A Realistic and Effective Policy on Sensitive Nuclear Activities" comments on which 123 agreement is realistic and which is not: "Forcing countries to abandon their future fuel cycle options has no chance of becoming a global norm and thus of achieving the objectives supporters of that proposed policy [the gold standard] seek."[132]

In conclusion, refuting the critics of the thesis's main argument, Matthew Bunn, et al., address the dilemma ensconced in the gold standard method (the Article IV dilemma) in the Belfer Center report: "In other words, it makes more sense to offer attractive incentives and opportunities as an alternative to national enrichment and reprocessing than to propose schemes or proposals that openly seek to deny what countries consider their sovereign rights."[133]

The opponent's position that the gold standard is the best method to ensure a no-ENR regime and therefore the best method to create an international norm is unworkable. The gold standard method, when brought to the negotiating table as the only method for which the United States is willing to incorporate to reach a nuclear deal with potential

[132] Mark Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities,"3.

[133] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 47.

bilateral nuclear partners will in the real world with which these negotiations are conducted fail; therefore, the gold standard method will ultimately weaken the nonproliferation regime, not strengthen it.

Argument #2: The Prestige Argument

Requiring a gold standard based on the faulty premise that partnering countries will do practically anything to seal an agreement with the United States actually risks alienating countries that would otherwise have entered into an agreement with the United States.[134]

Author's Argument

The prestige of the United States with regard to being a nuclear exporting powerhouse is not what it used to be over the first several decades of the atomic era and, therefore, the best way to ensure the strongest possible nonproliferation regime is to hold realistic expectations. The case-by-case method by ensuring that the U.S. has at least some control over a partnering country's peaceful nuclear energy programs is better than the gamble that is essentially the gold standard method, where the U.S. is very likely (as will be born out in the case-country analyses in the following chapter) to end up with no agreement, thereby forsaking any nonproliferation control whatsoever. As the adage asserts, 10% of something is better than 100% of nothing. Is the case-by-case method

[134] The reader should note that the argument #2 prestige/leverage argument is in addition to the author's counter argument given to the critics' objective argument in argument #1; i.e., argument #2 could be used to build evidence in support of the author's counter argument given in argument #1 as well, thereby strengthening his argument #1 stance even further. There will be instances in chapter five where the six arguments sometimes overlie.

ideal, perfect and without shortcomings?—Absolutely not. But the gold standard method, based on a rickety foundation of American brashness and wavering leverage is worse.

While this author is not one to beat the drums of America declining hegemony, which seems to be the topic de jour in many circles around the globe, there is no doubt that in fact the U.S.'s international stature has been waning in the nuclear exporting business. As Jay Solomon writes in a 2012 *Wall Street Journal* article: "U.S. companies once controlled at least 50% of the world market for building nuclear reactors. This share has dwindled to around 20%...with Russian, French and South Korean companies gaining dominance."[135] And quoting an undisclosed senior U.S. official in the same article, Solomon cites the very essence of the danger that befalls on this prestige argument: "To the extent we [the U.S.] lose market share, we lose nonproliferation controls."[136]

America's declining prestige will be further analyzed in the author's counter argument below, but the reader can rest assured that while the critics' altruistic, but fault-ridden argument of a no-ENR regime is admirable and understandable, in the end, the prestige argument resides in shallow waters.

Opponents' objective argument #2. Critics of the case-by-case method admittedly argue that because of the prestige of the United States around the globe due to its status as the only remaining sole superpower and because of its nuclear know-how, the United States is in a unique position to demand that all future 123 agreements be of a golden color. These critics argue that this unique prestige that the U.S. has will ensure that countries

[135] Solomon, "U.S. Shifts Policy on Nuclear Pacts," 2.

[136] Solomon, "U.S. Shifts Policy on Nuclear Pacts," 2.

will still want to enter into a gold standard agreement, regardless of losing the right to pursue peaceful ENR technologies for peaceful nuclear energy programs.

Nuclear regime specialist Jessica Varnum in discussing the pros and cons of the 123 agreement conundrum in a 2012 article for the Nuclear Threat Intuitive (NTI) organization, points out that, "[m]any proponents of reform [those who want to switch from the case-by-case method to the gold standard method] … believe there would still be strong demand for 123 agreements—primarily because of countries' desire for positive relations with the United States and the value associated with a U.S. stamp of approval."[137]

In fairness to the opponents who think the United States' leverage is still of significant heights, it is important to point out that while export sales of U.S. nuclear reactors are declining, this is not the case with regard to the nuclear fuel trade. Nuclear nonproliferation expert Henry Sokolski, speaking about the declining nuclear industry argument as support for the U.S. decline in leverage, states in a 2012 *National Review* article, that this position is a "misreading of the nuclear market."[138] Sokolski points to two developed countries, Russia and France, that are "eager to penetrate this market [of nuclear fuel]."[139] It is probably with this passable position, steeped in the minutia of the nuclear industry and supported by a respected nuclear expert, that the critics have located their most viable counter argument to the prestige argument.

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[137] Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?" 6.

[138] Henry Sokolski, "Obama's Nuclear Mistake," *National Review Online*, http://www.national review.com/articles/290330/obama-s-nuclear-mistake-henry-sokolski, 2.

[139] Sokolski, "Obama's Nuclear Mistake," 2.

Furthermore, building on this logic of the rest of the world's countries hoping for a bilateral nuclear cooperation agreement with the "U.S. stamp of approval", the critics of the case-by-case method point to the first-ever U.S. gold standard 123 agreement in 2009 with the United Arab Emirates (UAE) and the possible renewal of the existing 123 agreement with Taiwan that is currently underway. The gold standard advocates point to these two bilateral nuclear cooperation agreements as proof positive that the gold standard method has legs and can establish a norm and therefore strengthen the nonproliferation regime.

Counterargument to the opponent's objective argument #2. As this author will point out in the explanations that support this counter argument and in the individual country case studies that follow, this argument of prestige and supreme leverage put forth by gold standard advocates is not only weak (unlike the admirable, but mistaken primary argument), but naïve and therefore an extremely dangerous argument at best. The critics' primary examples of hope—the US-UAE and the US-Taiwan agreements (both of which are weak)—are merely red herrings to what the future is likely to resemble in reality in relation to the nuclear exporting landscape.

While the author agrees with his opponents that where the gold standard is obtainable, it is indeed preferable, this is surely not the case with the majority of present and future partners looking to forge a 123 nuclear agreement with the United States. Countries that do not want to give up their perceived right to ENR technologies and processes will be more likely to forgo this U.S. prestige, this U.S. stamp of approval, and go elsewhere for partnerships to obtain the nuclear technology expertise to help them achieve peaceful nuclear goals. As Varnum points out in the 2012 NTI article regarding

the U.S. nuclear industry's declining strength (and therefore declining prestige and overall leverage with these deals), "[T]he role of U.S. industry in the global nuclear market has declined precipitously in recent decades—to such an extensive degree that U.S. industry is heavily import dependent."[140] Varnum further points out:

> Some analysts argue that this sharp drop in global market share does not bode well for the Gold Standard. According to this reasoning, U.S. industry's minor role in global supply implies a declining marginal benefit to nuclear cooperation with the United States. Thus if the United States increases prerequisites for 123 agreements, it will have many fewer 123 partners and reduced leverage over fuel cycle decision-making. Assuming the United States remained the only nuclear supplier to require the Gold Standard, U.S. restraint would have questionable nonproliferation utility, because it would not prevent countries from finding alternative suppliers.[141]

Who might these alternative suppliers be that would be all-to-happy to trump this supposed prestige that gold standard advocates deem the United States possesses in spades? As Hibbs points out in a Nuclear Energy Brief for the Carnegie Endowment for International Peace in 2012, "Nuclear newcomers today don't need to buy American." Crucial to the very core of the argument in support of the entire thesis, Hibbs continues:

> The vendor field is populated by firms in Argentina, Australia, Canada, the European Union, Japan, Kazakhstan, Namibia, Niger, Russia, and South Korea, and in the future they will be joined by others in China and India. Governments in these countries do not seek to establish a no-ENR requirement as a condition for foreign nuclear cooperation. Some of them, Australia and Canada for example,

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[140] Varnum, "U.S. Nuclear Cooperation as Nonproliferation," 4. For further information and indication of the declining U.S. Nuclear exporting industry, Varnum, in her footnote #23, quotes the following: "According to the GAO, the U.S. "share of global exports of nuclear material, reactors, and components has declined in the last 15 years. …the amount of U.S. exports of sensitive nuclear material such as natural and enriched uranium remained stable, while the U.S. share of global exports for these materials decreased significantly, from 29 percent to 10 percent, from 1994 through 2008. The United States also imports sensitive nuclear materials, nuclear reactors, major components and equipment, and minor reactor parts from other countries. GAO found that in sum, the United States was a net importer of nuclear components and materials, which may indicate a lack of comparative advantage in this industry." U.S. Government Accountability Office, "Nuclear Commerce: Government wide Strategy Could Help Increase Commercial Benefits from U.S. Nuclear Cooperation Agreements with Other Countries," GAO-11-36, November 2010, from preface "What GAO Found," www.gao.gov.

[141] Varnum, "U.S. Nuclear Cooperation as Nonproliferation," 4.

> have strong nonproliferation track records. Countries now seeking to form foreign industrial partnerships to set up nuclear power programs have numerous options and they will favor arrangements that provide them the most freedom and flexibility.[142]

With regard to Sokolski's argument in the objective argument that the case-by-case method advocates are, in part, misreading the decline of the nuclear industry, while the nuclear fuel business might be ripe for business in the near future, his two examples merely show not only two developed states, but two nuclear weapons states (NWS) at that, France and Russia. Whether this nuclear fuel market will be booming in the future between France and Russia and the United States matters little to the no-ENR dilemma that is front and center to future bilateral 123 agreements with less developed countries around the world looking to get into the peaceful nuclear energy mix. Therefore, the critics' position that rests on the laurels of what is in reality not a strong industry but a declining U.S. nuclear export industry is therefore dangerous to the truth of the times. Future nuclear 123 partners have other vendors than the United States to turn to for nuclear expertise and equipment and to think otherwise based on the leverage and prestige of a "U.S. stamp of approval" is misguided.

On this point of countries going elsewhere to achieve their nuclear goals, Hibbs, again, notes the crux of the NPT, and supports the author's prestige premise put forth with argument #2:

> When the NPT was negotiated in the 1960s, countries joining the treaty followed the United States on nonproliferation because the United States led the world in the development of nuclear technology. They believed they would tangibly benefit from uniquely U.S. know-how. Today, and increasingly into the future, NPT parties can attain their nuclear power goals by cooperating with others. If the

[142] Hibbs, "Negotiating Nuclear Cooperation Agreements," 4.

> United States aims to compel these countries to restrict their activities without offering incentives, they won't be interested.[143]

At the end of the day, advocates of the gold standard who want to dangle the carrot of American prestige in front of future nuclear partners in an attempt to persuade them to give up what they feel is their "inalienable right" to peaceful nuclear energy technologies, are simply naïve and promote an absolutely dangerous policy. Requiring a gold standard method risks alienating countries that desire an agreement with the United States; therefore is not the correct 123 method to pursue. The opponent's position based on the prestige and leverage of the United States that the gold standard is the best method will weaken, not strengthen the nonproliferation regime.

Argument #3: The "Don't Rock the Boat" Argument (The Superfluous Argument)

Requiring a gold standard 123 nuclear cooperation agreement risks upsetting the existing, unwritten moratorium that countries that do not already have a basis for ENR technologies are not receiving them anyway; to insist that this dormant 30-year norm be shattered by placing countries in a corner to formally forsake their Article IV rights by having to sign a gold standard agreement is superfluous—i.e., "rocks the boat" unnecessarily—and will ultimately weaken, not strengthen the nonproliferation regime.

Author's Argument

At the heart of this argument is the reality of current transfers of ENR technologies—or actually, the lack thereof of transfers of ENR technologies. As Bunn, Malin, Tobey, and McGoldrick point out in their 2011 Belfer Center report on limiting

[143] Mark Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 3.

ENR technologies: "With the exception of some reported enrichment assistance by Russian entities to Iran, no members of the Nuclear Suppliers Group (NSG) have transferred enrichment or reprocessing technology since the 1970s to states that did not already possess such technology."[144]

We can look at recent history for a telling example of what would likely happen if we "rock the boat" of this dormant norm by insisting on a gold standard agreement; we need look no further than the "train wreck"[145] that IAEA Director General Mohamed Elbaradei predicted after President George W. Bush's 2004 NDU speech (described in Chapter three). In fairness to President Bush and his attempt at stemming future ENR transfers, Bunn, et al. astutely observe that "Bush's proposal of 2004 really meant [just] formalizing a moratorium that NSG members had quietly adhered to in practice for some time."[146] In other words, Bush's gold standard objectives, while praise-worthy with regard to *attempting* to strengthen the nonproliferation regime, merely rocked the boat unnecessarily (and harshly and unfairly in the eyes of hundreds of NNWS), causing an out-roar amongst the international community. "Rocking the boat"—especially with a nonproliferation tool such as the gold standard method that is likely to fail —to what is essentially an established, unwritten norm does not seem the prudent road to a stronger nonproliferation regime.

Therefore, alienating future 123 agreement partners by pushing countries that do not possess ENR capabilities (and that are not interested in pursuing them) into a corner

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[144] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 45.

[145] ElBaradei, *The Age*, 125.

[146] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 45.

with the gold standard agreement, will "rock the boat" unnecessarily and ultimately weaken the nonproliferation regime. Echoing Bunn, et al., Hibbs in a 2013 article, seems to agree:

> For over three decades, with extremely few exceptions, no member of the Nuclear Suppliers Group has transferred such technologies to countries that did not already possess these capabilities. During this period, the only countries that have launched enrichment and reprocessing programs have done so through clandestine means.

Building on this point of the dormant norm (and the entire list of premises presented in this thesis), Hibbs continues:

> Using U.S. bilateral agreements as a lever to limit the spread of ENR may sound like a good idea. But for a number of reasons, insisting that all countries legally forgo ENR for all future U.S. peaceful nuclear cooperation agreements risks undermining U.S. nonproliferation interests.[147]

Opponents' objective argument #3. On the back of arguments #1 and argument #2, the critics of the case-by-case method argue that to ultimately prevent an ENR regime from forming and thereby ensuring an international norm that enrichment and reprocessing is not acceptable and will not be tolerated—the gold standard method is the best way forward with future bilateral agreements. As we have seen over and over, the opponents of this thesis continue to voice their explanation for this position primarily by pointing to the fallacy of the prestige argument and by highlighting their primary, but weak example of the US-UAE gold standard agreement. The merits and shortfalls of this are explored in greater detail in the country-case analysis in the forthcoming chapter.

In fairness to the critics on this point, it is important to point out that their opposition on the "don't rock the boat" argument is that if there ever were a time to "rock the boat" in order to establish a norm, now is the time. The authors of the Belfer Center report fairly acknowledge this objective argument and point out: "Since few states have a

[147] Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 2.

firm stake in acquiring E&R facilities, it may prove an opportune time to win broad agreement on strengthened international norms to discourage the spread of enrichment and reprocessing plants."[148]

Counterargument to the opponent's objective argument #3. Still, while the author understands that the gold standard advocates aim to develop a no-ENR regime, nonetheless, the author finds it admirable and worthwhile only if it were achievable. However, norms are not easy to establish and the potential costs of creating this norm could be quite expensive. Anything worth fighting for is never easy, but the realities of the current international playing field with countries adamantly holding onto their Article IV rights make "rocking the boat" to bring about this commendable norm too expensive. The cost of creating this norm will likely come at the expense of losing the vast majority of future bilateral nuclear partnerships, thereby weakening the overall nonproliferation regime, not strengthening it.

Furthermore, in addition to the NNWS's iron-tight grasp of their Article IV rights and the dangerous gamble of the gold standard method unnecessarily rocking the boat is the issue of consistency. Future bilateral partners are well aware of the fact that countries that have existing 123 agreements with the United States will not be held to the same standards as they would be if they sign a gold standard agreement. Varnum addresses this consistency challenge in her 2012 NTI article:

> Various reform scenarios, including universalization of a Gold Standard, would hypothetically introduce consistency. But it is unclear how such future policies could be reconciled with the large number of existing "exceptional" agreements. Turkey and Egypt have 123 agreements with the United States that do not hold them to the "gold standard." How, therefore, can nearby countries such as Jordan be held to a different standard? India, Euratom, and Japan all have agreements

[148] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 45.

> with the United States permitting them to reprocess U.S.-obligated materials, yet a consistent U.S. policy [the gold standard method] would withhold this consent from all future partners. Because many older agreements are indefinite or self-renewing, it is unlikely true consistency would ever be an achievable goal.[149]

As was discussed in the dilemma chapter four, it is likely that the Non-Aligned Movement (NAM) and its 120 member states would certainly have something to say about this issue of consistency and would surely claim that this practice is unfair and discriminatory in nature (another argument discussed below).

In all matters of politics, a stagnant status-quo often forms the forefront of a new era. The opponents of the author's "don't rock the boat" argument proclaim with their altruistic endeavors to form a no-ENR regime, their prestige argument and their lone gold standard agreement of 2009 that the status quo of the case-by-case method, if continued, will weaken the nonproliferation regime. However, at the crux of this author's "don't rock the boat" argument are the facts. As discussed, there already is a no-ENR regime in place; three decades of practically no-ENR transfers do not lie. As we will see in the forthcoming chapter that discusses various ways forward, there are better ways than the gold standard method to ensure a stronger nonproliferation regime with regard to ENR transfers. While not a perfect solution, the steady-as-it goes way of doing business with the current case-by-case agreements is the best method as it is steeped in reality and therefore will ultimately lead to the stronger nonproliferation regime.

And finally, further evidence in support of the author's premise to not "rock the boat" is the fact that most states do not pursue ENR capabilities, nor do they have the

[149] Varnum, "U.S. Nuclear Cooperation as Nonproliferation," 7. Also, see Varnum's footnote #34 for more commentary on this point.

financial or technological resources to do so. Bunn, et al. in the Belfer Center report, address this point best:

> In addition, most states with civil nuclear power programs do not pursue E&R capabilities. A country would have little economic or programmatic incentive to build E&R facilities to service a small number of nuclear reactors and would face serious technical challenges in developing E&R capabilities that are commercially viable.[150]

The opponent's "gold-standard-or-the-highway" stance unnecessarily "rocks the boat" of what is an already dormant moratorium-like, no-ENR regime, thereby threatening the strength of the current nonproliferation regime. Rocking the boat in the name of change for a better way forward, whatever the topic may be, is not only often-times warranted, but admirable; but rocking the boat to the point that it sinks the ship is not only foolish, but counterproductive. The gold standard method will ultimately weaken the nonproliferation regime, not strengthen it.

Argument #4: The Bad Policy Argument

The gold standard method is bad policy and therefore will ultimately weaken the nonproliferation regime, not strengthen it.

Author's Argument

As with all of six of these arguments offered in this chapter—the arguments supporting the thesis, the critics' objective arguments and the author's counter arguments—the points made on both sides of the arguments can often be applied not only to just one argument, but a multitude of the arguments. A case in point is the bad policy

[150] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 2.

argument presented here: the author could easily have used this argument as a counter to the critics' objection to the primary argument #1, which is the crux of the entire thesis, that using the gold standard method in pursuit of a no-ENR regime and international norm will ultimately weaken the nonproliferation regime, not strengthen it, as is aimed. Surely, the premise here in Argument #4, the bad policy argument, could have been ripe for discussion on both sides of the argument, with the gold standard camp arguing that it is good policy and the case-by-case camp arguing that it is bad policy.

But the author believes that this bad policy argument, while a secondary component of the bigger argument (for argument #1), deserves to stand on its own merit, primarily if for no other reason than to point out to the importance of this very point. In short, for those trying to ascertain whether the case-by-case or the gold standard is better, this bad policy argument needs to be thoroughly explored.

The author believes, therefore, gold standard, however altruistic its aims, is still bad policy. A plethora of factors (e.g., all of these arguments and numerous foreign policy variables that we explore in reviewing the conflicting and inconsistent dynamics of each potential nuclear partner in the next chapter) ultimately renders the gold standard a foolish choice when one considers the reality in which U.S. 123 negotiators find themselves in at the negotiating table. Hibbs, in a 2013 article for Carnegie, addressing this point:

> Requiring that all nuclear cooperation partners formally abandon their ENR options is not smart policy. The U.S. Atomic Energy Act lays down a range of requirements for all U.S. peaceful nuclear cooperation agreements. While all U.S. agreements contain these requirements (with the exception of the pact with India), the United States has always followed a case-by-case approach to its handling of enrichment and reprocessing. That approach depends on a number of factors, including a country's overall relationship with the United States, the size and

> nature of the country's nuclear program, and the country's nonproliferation commitments as well as regional security concerns.[151]

Opponents' objective argument #4. The critics could not disagree more and feel that the case-by-case method is not only bad policy, but in essence, no policy at all.[152] In a 2012 Foreign Policy article, author Jeffrey Lewis, discussing the various nuances of the 123 method quandary, points out that the case-by-case approach "amounts to having no standard at all,"[153] in essence, alluding that with the case-by-case approach, each 123 agreement is potentially different from the next, giving U.S. nuclear policy makers no fixed 123 agreement guidelines to follow. While this bad policy argument, from the author's point of view is juxtaposed across the collective premises presented here, to the gold standard camp, this argument is central to their entire position. Jodie Lieberman, a strong advocate for the gold standard method, explains in a 2011 Foreign Policy Association blog why the case-by-case method is bad policy:

> If you are serious about preventing the spread of technologies that can be used in a covert nuclear weapons program, then facilitating trade in technologies that can easily be used to produce weapons-grade uranium or separate plutonium is probably not a great idea.[154]

Another counterargument with strong merit is the critics' argument that the case-by-case method often creates a situation where the U.S. nonproliferation camp shows up a "day late and dollar short" in U.S. negotiations with individual nuclear partners. For

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[151] Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 3.

[152] Lewis, "It's Not as Easy as 1-2-3," 1. Lewis has a quote to this effect, used earlier in this thesis.

[153] Lewis, "It's Not as Easy as 1-2-3," 4.

[154] Jodi Lieberman, "House Foreign Relations Action to Help Make U.S. Nonproliferation Policy Consistent," Foreign Policy Blog, http://foreignpolicyblogs.com/2011/05/05/house-foreign-relations-action-to-help-make-u-s-nonproliferation-policy-consistent/, 2.

example, U.S. State Department country desk officers are constantly working directly with foreign partners to advance diplomacy, to make deals that are specific to a particular country (and which the final results are based on the amount of U.S. leverage or lack thereof, on our foreign policy objectives, and so forth). The critics of the case-by-case argument claim, with good reason, that if the gold standard was America's absolute approach, the nonproliferation advocates would, in essence, be present at the negotiating table during the entire process, ensuring that the nonproliferation objectives of the United States were not coming in a distant second, with regard to diplomatic considerations as a whole.

Counterargument to the opponent's objective argument #4. While Lieberman's sentiment in line with the entire gold standard camp that "facilitating trade in technologies that can easily be used to produce weapons-grade uranium or separate plutonium is probably not a great idea"[155] is absolutely true, regardless, it just isn't that easy. The author, as well as the entire camp of nonproliferation experts cited in this entire thesis, side with the gold standard camp: when obtainable, the gold standard is preferable. But in reality and for the multitude of reasons cited (e.g., NNWS Article IV claims, the No-ENR regime norm is not obtainable, the prestige argument is weak) the gold standard is simply not a policy that is based in reality.

To be fair to the gold standard on one objective premise presented above—the U.S. State Department country desk example—the gold standard method would perhaps help alleviate this problem, hence, it is an example where the gold standard would be preferable over case-by-case method—but only on this isolated case. While it is true that

[155] Lieberman, "House Foreign Relations Action to Help Make U.S. Nonproliferation Policy Consistent," 2.

the gold standard might level the playing field with regard to these internal quarrels within U.S. policy circles, the case-by-case method is, in reality, the best way forward to ensure that an agreement is made. It will be up the U.S. State Department, the U.S. Energy Department, high-level officials of the Executive Office and other crucial U.S. government departments to ensure that the U.S. positions on nonproliferation efforts are represented.

The primary counterargument to the critics' argument that the gold standard is the best policy is often overlooked. In the strongest refutation to the gold standard, the author reminds the readers that the case-by-case method is of a very high standard. In a 2012 Global Security Newswire article, acting U.S. undersecretary of State for Arms Control and International Security Rose Gottemoeller commented, "You know, I really don't like this term, the 'gold standard,'"[156] to which Gottemoeller continued:

> In my view, our nonproliferation policy overall is always pursuing the highest standards with regard to driving forward our national policy efforts to prevent the proliferation of weapons of mass destruction. The notion that somehow everything else we're doing already is not served by our policy with regard to the [123] agreements does not sit well.
> Everything we do is to a very high standard. There's not a single item that is the gold standard; everything we do is to prevent proliferation of weapons of mass destruction. We're paying attention to it every single day.[157]

The author understands, respects and when possible, even agrees with the gold standard advocates; however, based on the juxtaposition of the premises presented prior to this bad-policy premise, the author still strongly believes that because of these positions, the gold standard advocates' position is wrong. Hibbs states this in a nutshell:

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[156] Elaine M. Grossman, "U.S. Envoy Takes Issue with Nonproliferation Lingo for Nuclear Trade Pacts," *NTI: Nuclear Threat Initiative*, http://www.nti.org/gsn/article/us-envoy-takes-issue-nonproliferation-lingo-nuclear-trade-pacts/, 1.

[157] Grossman, "U.S. Envoy Takes Issue with Nonproliferation Lingo for Nuclear Trade Pacts," 3.

> U.S. credibility and interests vis-à-vis its international partners are better served by reducing the potential conflicts in these policy objectives than by imposing an ENR ban on its future cooperating partners.
>
> Washington's policy on bilateral cooperation needs to be based on a clear and realistic appreciation of the particular circumstances of each country with which it negotiates a civil nuclear cooperation agreement. In some cases, such as with countries in areas of political instability or of high proliferation risk, this may prompt the U.S. to negotiate new agreements containing legal commitments to abstain from enrichment and reprocessing [author's long standing position that were obtainable, gold standard is preferable]. But in some instances the United States will not be able to persuade countries to forgo or forswear future nuclear fuel cycle options [prestige and leverage arguments]. In other cases, countries may be more willing to abstain from ENR if the United States works with them to lease or take back their spent nuclear fuel, or if the United States effectively promotes the establishment of multilateral fuel cycle enterprises [gold standard qualities, but delivered via a case-by-case approach, so as not to create an environment where the U.S. loses the opportunity to have any deal at all]. Either way, there is no compelling reason for the United States to reject its long-standing differentiated approach on ENR in favor of a one-size-fits-all recipe.[158]

The opponent's position that the gold standard is the best policy is incorrect because it overlooks the realities of the real world in which future nuclear 123 agreements will be negotiated and therefore, will ultimately lead to the weakening of the nonproliferation regime, not the strengthening of it.

Argument #5: The Unstable Region Argument

The gold standard method is too great a gamble with countries in unstable regions, for example, countries in the Middle East that are considering a bilateral nuclear deal or might want to consider one with the United States in the future. The United States cannot risk losing out on a potential bilateral nuclear agreement with a country in an unstable region, thereby maintaining some level of oversight (the "10% of something is better than 100% of nothing" rule) because that country ultimately decided to obtain

[158] Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 4.

nuclear expertise from another bilateral nuclear partner simply because of the United States was demanding a gold standard agreement.

Author's Argument

The author agrees with the critics of the thesis that the gold standard's no-ENR pledge should be obtained (and is preferable), but only when possible. Hibbs agrees: "In some cases, such as with countries in areas of political instability or of high proliferation risk, this may prompt the U.S. to negotiate new agreements containing legal commitments to abstain from enrichment and reprocessing."[159] But Hibbs follows with the all-too stark reality, "But in some instances the United States will not be able to persuade countries to forgo or foreswear future nuclear fuel cycle options."[160]

Again, where obtainable, a pledge of no-ENR from any country especially in an unstable region is preferable. The premise of this argument is not to refute that a gold standard-like no-ENR pledge is ideal for countries in unstable regions, but only to point out that however altruistic, the gold standard method is entirely too risky of an approach, especially with regards to partnering countries that may be in unstable regions.

The author, advocating for the case-by-case method, aptly acknowledges that this "unstable region" argument of why the gold standard method will ultimately weaken the nonproliferation regime is counterintuitive. Surely, given the heightened issues of nuclear terrorism and subpar nuclear safety regimes in regions of instability, the United States would want to be absolute in its no indigenous nuclear fuel activities' stand. But this is where the inverse logic befalls to the case-by-case method, thereby corroborating

[159] Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 4.

[160] Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 4.

this "unstable region" argument. Given the NNWS Article IV tenets, the varying levels of leverage, and the prestige that the United States may or may not have with certain countries in unstable regions, if the United States insists on an our-way-or-the-highway gold standard approach, it risks relinquishing any amount of control whatsoever. If the United States insists on a gold standard method or nothing at all, it could force a potential partner to take its business elsewhere, thus if only a case-by-case nuclear agreement is acceptable then offering this option is better than no agreement and oversight.

Opponents' objective argument #5. Critics of the case-by-case method argue that if there is any one reason whatsoever that a gold standard should be the best policy going forward for all future 123 agreements, surely the unstable region argument is a gleaming example of why a gold standard is needed. Opponents of the case-by-case method argue that because of the increased risk of nuclear terrorism and the likelihood of a less-than-stellar nuclear safety regime in unstable areas, in addition to the sensation that adding a nuclear component to an unstable region would be akin to pouring fuel on the fire, that a gold standard agreement is by far, better able to strengthen a nonproliferation regime than a 123 agreement negotiated on a case-by-case basis.

Counterargument to the opponent's objective argument #5. However, it is because of these reasons—1) the likelihood of increased risk of nuclear terrorism in unstable regions, 2) the likelihood of a less-than-stellar nuclear safety regime in these unstable areas, and, 3) the reality-based sensation of adding a nuclear component to an unstable region would be akin to pouring fuel on the fire—that the United States cannot afford not to be in the mix in these unstable regions.

The stark reality is that a modicum amount of control in an unstable region is better than no nuclear jurisdiction whatsoever. And this point is most poignant considering recent history. More and more countries are considering nuclear energy programs. Bunn, et al., in their Belfer Center report, point out:

> Many states that had no interest in nuclear energy in the past are developing plans to initiate civil nuclear power programs, and some have already begun to arrange for the purchase of reactors on the international market. Some of these countries are located in regions of political instability or areas of proliferation concern.[161]

The United States—being on the wrong side of Article IV and up to its neck in haves verses have-nots hypocrisy—cannot rest on its false laurels of prestige and its often limited leverage, and still insist that all future bilateral nuclear partners in unstable regions do as we say or else no nuclear deal. Requiring the gold standard agreement for all future 123 agreements, especially in the context of partners in unstable regions, is entirely too risky and not based in the reality of the times at all.

The opponent's position that the gold standard is the best policy for unstable regions is wrong. Coupled with the NNWS Article IV's inalienable rights argument, the leverage argument and the "don't rock the boat" argument, insisting on the gold standard method or bust approach to all future 123 agreements is bad policy and will ultimately weaken the nonproliferation regime, not the strengthen it.

Argument #6: The Fairness and Discrimination Argument

Most Nonproliferation Treaty members see the gold standard method as extremely unfair and highly discriminating. Therefore, by potentially losing out on future

[161] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 2.

agreements based on this premise alone, the gold standard method will weaken the nonproliferation regime instead of strengthening the regime.

Author's Argument

The thesis premise presented here, which argues that the gold standard method is a rather "hard-lined approach"[162] to 123 nuclear cooperation agreement negotiations, is aligned with the thesis' primary premise presented with the first argument. The gold standard is viewed as downright unfair and discriminatory by the vast majority of potential nuclear partners of the United States and given the importance of this argument to the entire thesis, it deserves a final seat at the table to best enable the reader to decide which method is the better way forward.

In short, as was discussed in the primary argument, Bunn, et al. state: "For NAM [the 120 plus NPT countries that have reservations about the gold standard], the issue has been one of discrimination and what they view as a denial of rights that are specifically set out in the NPT to the peaceful uses of nuclear energy."[163] When discussing the political and institutional constraints of the no-ENR dilemma, they continue:

> [T]he language used to describe these U.S. proposals produced widespread perceptions that the United States was trying to establish a new global fuel cycle regime that would be highly discriminatory in nature, intended as an effort to divide the world into nuclear haves and have-nots, and designed to deprive NPT parties of their rights to the nuclear fuel cycle.[164]

[162] Lewis, "It's Not as Easy as 1-2-3," 1.

[163] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 21.

[164] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 21.

Building on the erroneous hard-line position of the gold standard camp, the authors continue:

> The proposals to limit the spread of E&R technology have encountered significant obstacles that stem from the political and commercial interests of states with existing or aspiring nuclear power programs. They have provoked angry charges of discrimination and a spirited defense of the rights of non-nuclear-weapon states and developing countries to pursue peaceful nuclear programs and to make their own nuclear fuel cycle choices. The reactions have occurred in both the NSG and the wider international community.[165]

And again, to the issue of discrimination, the authors opine: "Proposals to limit the spread of enrichment and reprocessing technology are inherently discriminatory."[166]

Simply put, the premise presented here is that the gold standard method is unfair and that the deal embedded in the NPT between the NNWS and NWS is being breached with gold standard 123 nuclear cooperation agreements. Hibbs, in his 2013 Carnegie Endowment article, "A Realistic and Effective Policy on Sensitive Nuclear Activities," asserts that developing countries

> charge that such regulations break a bargain that the United States and other nuclear-armed powers made with non-nuclear-weapon states in negotiating the treaty. By insisting that countries legally commit themselves to abandon ENR, Washington would be telling NPT parties who play by the rules that the United States will supply nuclear items to them only if they further restrict their sovereign rights enshrined in the NPT to acquire nuclear facilities or capabilities that are dedicated for peaceful use and put under International Atomic Energy Agency safeguards.[167]

As we saw in the primary argument of this thesis, the position of the United States to require a gold standard agreement or else no agreement at all in nuclear 123 agreement

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[165] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 19.

[166] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 45.

[167] Hibbs, "A Realistic and Effective Policy on Sensitive Nuclear Activities," 3.

negotiations is inherently unfair and, therefore, stands to potentially alienate future partners from entering into nuclear agreements that are crucial to the strength of the nonproliferation regime.

Opponents' objective argument #6. Critics seem to be silent on whether the gold standard is fair or discriminatory on this distinct but vitally important argument that forms the crux of the dilemma. Consequently, the author admits the following: constructing an objective argument to their opponents' premise of unfairness is difficult at best.

Nonetheless, the author surmises that the opponents of this unfair premise feel that—based on all of their objective arguments given in this entire chapter—for starters, what other countries see as an unfair and discriminatory practice with regards to the gold standard method, is nonetheless, not a tight spot with which the United States has to worry about on our side of the negotiation table. Jodi Lieberman, in a 2011 blog posting for the Foreign Policy Association surmised, "If the U.S. is serious about preventing the proliferation of WMD, then we need a bit more horizontal enforcement, and we need to up the embarrassment factor."[168] In other words, in Lieberman's opinion, instead of working and negotiating with carrots of diplomatic prowess with potential countries in good standing within the NPT, the best way to ensure a strengthened nonproliferation regime is with sticks of domineering power by a sole superpower.

[168] Lieberman, "House Foreign Relations Action to Help Make U.S. Nonproliferation Policy Consistent | Foreign Policy Blogs," 1. In fairness to Lieberman, this statement was used in context while discussing measures that a particular U.S. Congressional bill would take to strengthen the nonproliferation regime, albeit the points were analogous to the broad themes with which the gold standard advocates, therefore, the essence of the comment is fitting with regard to her overall position presented in her blog posting and to the essence of the critics' objective argument present here in argument #6.

Another supposition may be that the critics of the fairness argument consider that a gold standard agreement, despite the fact that it does not allow for ENR capabilities, is still reasonably fair with regard to what the partnering country stands to gain with a deal with the United States.

Counterargument to the opponent's objective argument #6. It may be true that there are certain qualitative assets that a country stands to gain with a nuclear pact with the United States, however, the author implores the reader and/or opponents of the fairness premise to find a single country[169] that is willing to sing kumbaya with regard to the gold standard stipulation of future exploration of enrichment and reprocessing endeavors. Demanding that countries sing this song of golden unity and forever hold their peace, given all of the complex variables is unfair and discriminatory.

As for upping the embarrassment factor as a means to convince countries to "sign here", the gold standard method—given all the reality-based geopolitical hurdles that exist and cannot be merely swept under the rug—is, more appropriately, an embarrassment to the U.S.'s nuclear leadership. Former IAEA General Director Mohamed ElBaradei crystallizes this point: "Unilateral preemption should not in any way be the model for how we conduct international relations." The gold standard, regardless of its altruistic aims to strengthen the nonproliferation regime, continues to be an unfair, discriminatory and selfish route to a stronger nonproliferation regime.

The second objective premise—that a gold standard agreement is fair because regardless of the forfeiture of ENR endeavors, the majority of the deal is great—seems at least less offensive to our future bilateral nuclear partners. However, it goes against most

[169] A single country that does not have backdoor escape hatch, e.g., the U.S.-UAE Agreed Minute stipulation, which will be discussed and presented in the following chapter.

arguments presented in this entire chapter. The reality is that these nuclear gold standard deals are fair and nondiscriminatory and can therefore work is simply not the case.

Developing countries see the gold standard as unfair. Bunn, et al., state that developing countries

> view such initiatives as fundamentally discriminatory in nature. Developing countries in particular hold to the view that they have an inalienable right to make energy choices and view efforts to restrict E&R as a form of nuclear colonialism.[170]

Juxtaposed against the "don't rock the boat" argument, is the stark reality that "only a small number of countries have the resources, the infrastructure or nuclear power programs that would justify the acquisition of enrichment and reprocessing capabilities."[171] In other words, the United States' gold-standard-way-or-the-highway approach is pushing many developing countries into a corner, leading them to fight for their rights based on principle rather than on what is realistic to achieve. This is neither smart policy nor intelligent leadership with regard to America's nonproliferation objectives for a stronger nonproliferation regime.

The issue of fairness and discrimination goes beyond developing countries. Developed countries see the gold standard as unfair and discriminatory as well. Just as with developing countries, developed countries see this dilemma as an issue of principle as well, as is detailed in the individual country case analyses. Furthermore, they see it as an unfair obstacle to explorations of these capabilities in the future.[172]

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[170] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 45.

[171] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 46.

[172] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 5. (Note: This is the essence given on page 5 at the beginning of the report.)

Building on this point of developed countries seeing the gold standard method as unfair, Dan Joyner, writing in a 2012 Arms Control Law blog, points out the primary point, one that has been evident from the very first thesis premise presented at the beginning of this chapter:

> [W]hat developing states do care about, and this has been reiterated in NAM statements time after time, is not being pressured by supplier states to give up what they correctly view as their legal rights to have ENR capabilities if they choose to have them. It's a matter of principle and sovereign independence that matters to many developing states.[173]

The opponent's position that the gold standard is fair and nondiscriminatory is not only weak, but nearly non-existent. Unlike the other objective arguments presented above, on this premise with regard to fairness, the opponents basically do not acknowledge the point, even though at the end of the day, it is the proverbial elephant in the room of this entire dilemma. An overwhelming majority of the countries that are members of the Nonproliferation Treaty see the gold standard method as extremely unfair and highly discriminating; therefore, the author concludes that the gold standard method will weaken the nonproliferation regime instead of strengthening it.

An Invitation to Apply These Six Arguments to Real-world Country Case Studies

While it is natural at this juncture to offer a summary of the above arguments, a conclusion if you will, the author in continued fairness to the thesis's critics and their objective arguments will hold fast on a summation of why his arguments deserve to be

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[173] Dan Joyner, "Gold Standard Policy Under Review - Again," *Arms Control Law*, http://armscontrollaw.com/2012/07/25/gold-standard-policy-under-review-again/, 2.

corroborated. In short, a conclusion is best suited for a final discussion after these premises are applied to real-world case studies.

While the author's position is clear—the case-by-case 123 method is the best way to strengthen the nonproliferation regime—holding judgment for now will afford the reader a final opportunity to decide (and offer the author a final opportunity to provide evidence for why his thesis should stand) whether the author's premises are valid when applied to case studies.

In the next chapter, we review the global landscape of countries that have been or are likely to enter into bilateral nuclear cooperation agreements with the United States in the coming years. On an individual basis and based on the arguments of this chapter, we are now well positioned to discuss the merits of the arguments presented and, therefore, in a stronger position to ascertain (e.g., very likely, likely, not likely, or highly unlikely) whether a gold standard method approach will lead to a stronger nonproliferation regime or will not.

Finally, it is important to note that at the heart of this thesis is something far more important than who is right or who is wrong. Each argument has strong merits and clearly, the advocates of both the case-by-case method and the gold standard method seek in earnest the strongest possible nonproliferation regime possible for a safer world for all living beings on Earth. The author has agreed with the gold standard's position of no-ENR in future cooperation agreements as highly preferable, where obtainable. The friction between the two camps merely comes to a head when ascertaining whether the gold standard method is a realistic approach and if it is pursued, what the fallout could be.

This leads us to ask, Does the gold standard method pose too great of a risk to pursue with the strength of the nonproliferation regime hanging in the balance?

Without further ado, I invite you to a review of the individual case studies.

Chapter VI

Country Case Studies

> We always have hoped that American diplomacy deploys itself in dialogue and persuasion rather than by ultimatums. That is the path we want in international relations.[174]
>
> − Mahmoud Abbas

The United States has 123 bilateral nuclear cooperation agreements with numerous countries worldwide. Twenty-five countries[175] have signed 123 agreements with the United States and another twenty-seven European states have a multiparty agreement through what is known as the European Atomic Energy Community (Euratom).[176] The United States also has an agreement with the International Atomic Energy Agency (IAEA).[177]

This chapter examines several 123 agreements that are not only pertinent to the dilemma presented in this thesis, but also 123 agreements that are timely. All of the individual country case analyses discussed in this chapter are widely discussed in the news media today with regard to nuclear energy and nuclear weapon concerns, thereby

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[174] Brainy Quote. "Quotes by Mahmoud Abbas," http://www.brainyquote.com/quotes/quotes/m/mahmoudabb179721.html.

[175] Wikipedia, "123 Agreement," http://en.wikipedia.org/wiki/Section_123_Agreement.

[176] National Nuclear Security Administration. "123 Agreements for Peaceful Cooperation," *NNSA*, http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/treatiesagreements/123agreementsforpeacefulcooperation, homepage. For a list of all 27 Euratom countries, see footnote #1 on this NNSA home page.

[177] National Nuclear Security Administration, "123 Agreements for Peaceful Cooperation," homepage.

making ideal case studies in which test the author's arguments and counter arguments presented in the preceding chapter.

The chapter unfolds as follows: First, given that it is the gold standard advocates' sole case in point to the template that they would like the United States to adopt for all future 123 nuclear cooperation agreements, I review the U.S.-UAE 123 Agreement finalized in 2009; second, I review two 123 agreements that are up for renewal (South Korea [ROK] and Taiwan) and the variables each of these negotiations will confront; third, I review agreements and potential agreements with three Middle East nations (Jordan, Turkey and Saudi Arabia) that range from a country with an existing 123 agreement (Turkey, 2008), a country considering an agreement (Jordan) and a third country that might be consider an agreement with the United States in the future (Saudi Arabia); fourth, I look at one country in South Asia that is currently in the middle of a 123 negotiation (Vietnam) and is awaiting U.S. Congressional approval; and fifth, I review the cases of several countries that are constantly in the news, making waves at the Nuclear Suppliers Group (NSG) and coloring discussions with regard to the dilemma of this thesis, such as China, India, Iran, Italy, Australia, Brazil, Argentina and Canada.

I begin with two important points: 1) Some cases, for example, the U.S.-UAE gold standard agreement and the U.S.-ROK renewal in 2016, will garner more details than other 123 agreement discussions, but this does not mean that a single, short point with regard to a country that might only be briefly discussed should be weighted as more or less important; that is, the weight of a variable's singular importance should stand on its own merit in support or denial of a particular argument, and, 2) many arguments in chapter five will be applicable to multiple country case studies, ultimately either

corroborating or refuting the hypothesis, and thereby, runs the risk of making for a lengthy and repetitive case study discussion; to eliminate this excessive repetition, the reader should know that when this is the case, a condensed version of an applicable argument (an analogy the likes of what is known in citation studies as “ibid”, a repeating of the prior citation) will be presented so as to not to repeat the exact arguments to the detriment of being redundant and losing the audience.

Individual Case Studies

In each country case examined below, the basics are presented first. Following is a corresponding table that discusses each of the six arguments presented in chapter five in relation to each country being examined. Following this table is a continuation of the exploration of the arguments and overall observations. Finally, each country-case study concludes with two questions posed and answered by the author. The questions are as follows: What is the likelihood that the country being examined will sign a gold standard 123 Agreement and what is the likelihood that a deal with that country will persuade other countries to sign a gold standard 123 agreement? Four choices for each question are presented—very likely, likely, unlikely and very unlikely—to assist the author in providing a quantifiable weight of final judgment concerning each country individually and with regard to the nonproliferation regime as a whole.

United Arab Emirates (UAE)

- Existing U.S.-UAE 123 Agreement: Yes
- U.S.-UAE 123 Agreement up for renewal: No
- New U.S.-UAE 123 Agreement possible in the near future: No* (Unless the Agreed Minute clause is activated by another country in the region signing a non-gold standard 123 nuclear cooperation agreement.)

Table 1. Country case study.

Thesis Argument	Argument Description	Partnering Country: UAE
Argument #1	Is a deal that is possible to get approved (by the partnering country and by the U.S. Congress) likely to assist with forming a No-ENR Regime/International norm?	Given that the U.S.-UAE deal is a gold standard agreement, yes, but with one major caveat which will be discussed in the commentary section—the Agreed Minute clause, which weakens the critics' Argument #1 claim in that the UAE deal will truly help create a no-ENR regime and norm.
Argument #2	Would the prestige and leverage of the United States be enough to convince this country to sign a gold standard 123 agreement and not go elsewhere for a better deal with another nuclear supplier?	Yes. This gold standard agreement was approved by the UAE and by the U.S. Congress.
Argument #3	Does the "rock the boat" argument apply to negotiations with this country and will it push this country into an unnecessary corner?	No. But again, the Agreed Minute "loophole" allows the UAE a certain safety-valve if other 123 agreements in the Middle East don't agree to a gold standard agreement based solely on the "don't rock the boat" argument (don't sign a gold standard based on their being pushed into a corner and not signing one based on principle and their declared rights of Article IV of the NPT.)
Argument #4	Does the gold standard appear to be bad policy with regard to a deal with this country?	No. The author of this paper sides with the critics in that when a gold standard agreement is possible, it is preferable.
Argument #5	Is this country in a region that can be considered an unstable region?	Yes. The Middle East is considered an unstable region with regard to the other Middle East countries that may possible want to enter into a nuclear agreement with the United States.
Argument #6	Does this country view a gold standard 123 deal as unfair and discriminatory in nature?	No. The UAE is pleased with their deal with the United States. But again, the Agreed Minute is insurance for the UAE, in that if another Middle Eastern country signs a deal that is not a gold standard agreement, then the UAE would feel that that is unfair and discriminatory—and hence, again, has the Agreed Minute to fall back on as an out.

This table applies the six arguments discussed in Chapter 5 to the UAE case.

Commentary on UAE. The hypothesis as outlined in the preceding chapter (and with further in-depth analyses of the country case studies in this chapter) is that the gold

standard method is not the best method to pursue in present and future 123 bilateral nuclear cooperation agreement negotiations to ensure the strongest possible nonproliferation regime. On the opposite side of the coin, at the heart of the critics' argument is that the gold standard method is the best method in order to achieve the strongest possible nonproliferation regime.

The critics' foremost example is the U.S.-UAE 123 agreement that originated in President George W. Bush's second term and was finalized in 2009 during President Barrack Obama's first term. The United States agreed to supply the UAE with nuclear technology and expertise for a peaceful nuclear energy program; in exchange, the UAE agreed not to enrich uranium or reprocess plutonium from spent nuclear fuel to use in their nuclear reactors. The gold standard method advocates heralded this as the first-ever gold standard agreement and consider the U.S.-UAE deal an exemplar gold standard 123 agreement. The critics' main line of reasoning is that the United States was able to enter into a successful gold standard agreement with the UAE, so therefore the United States can do it again, with every future 123 agreement.

The good news about the U.S.-UAE deal is that it satisfies both the author and the critics' shared belief that where possible the no-ENR stance of the gold standard preferable. But that is where the good news stops with regard to the unenthusiastic feelings of the majority of other countries party to the global nonproliferation regime.

Where the problem comes into play is when the critics try to use the UAE deal as an indication that other countries will follow suit. When the arguments are applied to the UAE deal by itself, they are reinforced, but when the merits of the UAE negotiations are

applied to other 123 nuclear negotiations, they quickly dissipate into arguments that are not supported by evidence and, therefore, not possible.

Here is a quick review of the why the author's arguments are substantiated: with regard to the ability of the UAE deal to create an international norm, the author notes that one deal hardly constitutes a norm; with regard to the prestige and leverage argument, the United States does not have as much of either with a majority of other countries for multiple reasons, mainly because other countries have different geopolitical variables than the UAE, as demonstrated in the following individual country case studies; with regard to not rocking the boat, the UAE seemed to relish this agreement, but that does not mean that other countries will give up their Article IV rights; and with regard to the bad policy and fairness arguments, the author readily concedes, the gold standard method is best where possible and when obtainable.

However, the author postulates that the primary reason that the U.S.-UAE 123 gold standard agreement is weak at best is that the deal has a no-ENR capabilities escape hatch, a clause known as the Agreed Minute.[178] The Agreed Minute stipulates that if other countries in the region (i.e., the Middle East) enter into a 123 agreement that has

[178] The Agreed Minute in the U.S.-UAE 123 agreement is as follows: "The Government of the United States of America confirms that the fields of cooperation, terms and conditions accorded by the United States of America to the United Arab Emirates for cooperation in the peaceful uses of nuclear energy shall be no less favorable in scope and effect than those which may be accorded, from time to time, to any other non-nuclear-weapon State in the Middle East in a peaceful nuclear cooperation agreement. If this is, at any time, not the case, at the request of the Government of the United Arab Emirates the Government of the United States of America will provide full details of the improved terms agreed with another non-nuclear-weapon State in the Middle East, to the extent consistent with its national legislation and regulations and any relevant agreements with such other non-nuclear weapon State, and if requested by the Government of the United Arab Emirates, will consult with the Government of the United Arab Emirates regarding the possibility of amending this Agreement so that the position described above is restored." Note to the reader: this Agreed Minute can be found in the U.S.-UAE 123 Agreement, but the author copied it from footnote #10 of the Belfer Center Report by McGoldrick et al., cited several times throughout this thesis.

more favorable terms (translation: other 123 agreements do not require the gold standard), then the UAE can renegotiate their own gold standard agreement.

In the social sciences, attempting to prove a hypothesis, while hard—observing different phenomenon and ultimately formulating an accurate, reasonable behavior is difficult at best—is still possible. But even more important when striving to corroborate a thesis with solid evidence is the ability to reject the null hypothesis. Refuting a claim—in this case, the crown jewel of the gold standard advocates' movement, the UAE deal—in conjunction with providing evidence to substantiate the main hypothesis and the arguments that support it is the most advantageous outcome that any researcher can hope to discover in a scientific experiment. The UAE deal is the only 123 gold standard agreement in existence, yet with the Agreed Minute clause, it too even has a release-valve to allow for future ENR capabilities if a less restrictive agreement is signed with another country in the region. As we will see in a few cases discussed below, this is all too likely to happen in the coming years.

Matthew Bunn, Martin Malin, Fred McGoldrick, and William Tobey, in their aforementioned Belfer Center report, capture the essence of my argument: "[I]t is highly questionable whether the U.S.-UAE peaceful nuclear cooperation agreement will serve as a model for other agreements in the Middle East or elsewhere."[179] Bunn, et al., go even further reflecting the author's position that negotiators, nonproliferation experts and policy makers need to

> [r]ecognize the limited application of the U.S.-UAE model of discouraging the spread of E&R. The UAE model that the United States has been promoting for the Middle East will face considerable obstacles in winning acceptance by other

[179] Fred McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 30.

> states both in the region and elsewhere. Moreover, other suppliers are highly unlikely to follow this model. Thus the utility of this approach to preventing the spread of E&R may be limited to a very few countries at most, and the prospects of it serving as a more general model are dim.[180]

The gold standard U.S.-UAE 123 agreement is a fleeting anomaly in nonproliferation negotiations. The UAE deal stands a minimal chance at best of creating a no-ENR regime or an international norm and yet it is the most powerful example that the critics have to argue their case. For the critics to claim that the gold standard is the best way forward is not only imprudent, but undermines the strength of the nonproliferation regime.

Questions put forward:

- Likelihood that the UAE will sign a gold standard 123 Agreement (very likely, likely, unlikely, and very unlikely): The UAE is the only country that has signed a gold standard 123 agreement and the only gold standard 123 agreement that the U.S. Congress has officially approved.
- Likelihood that the UAE agreement will persuade other countries to sign a gold standard 123 agreement (very likely, likely, unlikely, and very unlikely): Very unlikely.

[180] Fred McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 49.

Taiwan

- Existing U.S.-Taiwan 123 Agreement: Yes
- U.S. Taiwan 123 Agreement up for renewal: Yes
- New U.S. Taiwan 123 Agreement possible in the near future: Yes

Table 2. Country case study.

Thesis Argument	Argument Description	Partnering Country: Taiwan
Argument #1	Is a deal that is possible to get approved (by the partnering country and by the U.S. Congress) likely to assist with forming a No-ENR Regime/International norm?	No. While the gold standard advocates point to this deal with Taiwan as the second case in point that a gold standard norm can be created and is therefore possible, the leverage with which the United States has with Taiwan is far more than the United States has with the other numerous countries seeking a nuclear deal. Therefore, a Taiwan gold standard is important, but an anomaly at best.
Argument #2	Would the prestige and leverage of the United States be enough to convince this country to sign a gold standard 123 agreement and not go elsewhere for a better deal with another nuclear supplier?	Yes. Taiwan is a long-standing ally and the United States has unprecedented leverage with regard to this nuclear deal.
Argument #3	Does the "rock the boat" argument apply to negotiations with this country and will it push this country into an unnecessary corner?	No. Taiwan is not likely to push back if the United States demands—which it probably will—a gold standard agreement.
Argument #4	Does the gold standard appear to be bad policy with regard to a deal with this country?	No. A gold standard agreement is preferable where obtainable. In Taiwan's case, it is obtainable, therefore is the best deal to strengthen the nonproliferation regime.
Argument #5	Is this country in a region that can be considered an unstable region?	For the purposes and topic of this thesis, no.
Argument #6	Does this country view a gold standard 123 deal as unfair and discriminatory in nature?	While perhaps the officials of this country personally feel that it is unfair or discriminatory, it does not appear a battle with which they are willing to engage in.

This table applies the six arguments discussed in Chapter 5 to the Taiwan case.

Commentary on Taiwan. The thesis observations on the U.S.-Taiwan 123 agreement that is currently up for renewal are succinct: the new Taiwan 123 agreement is very likely to follow the UAE gold standard method primarily because of one variable: leverage. The United States has a strong relationship with Taiwan; thus, the amount of leverage is practically without precedent. As Mark Hibbs, writing in a 2012 Carnegie Endowment

for International Peace blog, states, "Nowhere in the world does the U.S. government have as much leverage over a foreign country's nuclear activities as it does in Taiwan."[181]

The critics of the main thesis, desperate to build momentum beyond their lone U.S.-UAE gold standard 123 agreement, eagerly point to the Taiwan 123 agreement, which would technically be the second gold standard agreement ever. As the author pointed out in the UAE commentary above, one case is hardly a solid precedent; but with the possible Taiwan gold standard agreement, its advocates could point to these two examples, bolstering their case that a no-ENR regime and international norm would be created.

However, while it is true that two is greater than one, the case for the UAE and Taiwan gold standard agreements being an indicator for how other countries will likely react during their own 123 agreement negotiations is extremely weak. The UAE deal, the best the critics can produce as evidence, even has its own escape clause; and the Taiwan deal, while praiseworthy in that it prevents ENR technologies from spreading, is highly unlikely to be as uniformly welcomed and accepted by other potential bilateral nuclear partners. The negotiating landscape will be vastly more challenging for the United States with these other countries because the United States' bargaining position will not be as strong as it is with Taiwan.

Again, while the gold standard is best when obtainable (which it is with Taiwan), nonetheless the gold standard advocates are extremely negligent to point to a renewed gold standard 123 agreement with Taiwan as proof positive that because of this deal, on the back of the UAE deal, a norm is being formed and, therefore, all future 123

[181] Mark Hibbs, "Taiwan and the Gold Standard," *Carnegie Endowment for International Peace*, http://carnegieendowment.org/2012/07/23/taiwan-and-gold-standard/czys, 1.

agreements should demand the gold standard method or nothing at all. Jeffrey Lewis, writing in a 2012 for *Foreign Policy* magazine, writes: "You would see Taiwan in the same way you see the UAE—a sui generis case unlikely to be replicated [and] that creates a misleading impression about U.S. leverage over certain partners."[182] Building on this sentiment, in a 2012 article, Hibbs states: "Taiwan therefore does not serve as a model for global application of the 'gold standard,' regardless of what some pundits …say,"[183] and he continues: "Taiwan's resolve not to enrich or reprocess has nothing to do with the "gold standard" and nearly everything to do with U.S. leverage over Taiwan's security arrangements."[184] Following this he adds, "a somewhat watered down argument might also be made for the UAE [deal]."[185]

With Taiwan, the United States has an unprecedented amount of leverage that will be absent in other negotiations with countries considering a nuclear agreement with the United States. To reiterate, Hibbs again says it best: "A new Taiwan agreement will not serve as a precedent for any of the agreements the United States is currently negotiating with other states because the United States enjoys for less leverage, and may have overriding policy goals, in these [other] cases."[186]

From a narrow standpoint, the Taiwan deal can be celebrated but from a broader perspective, touting the U.S-Taiwan gold standard agreement as proof that the Taiwan gold standard agreement strengthens their position is extremely weak.

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[182] Lewis, "It's Not as Easy as 1-2-3," 5.

[183] Hibbs, "Taiwan and the Gold Standard," 1.

[184] Hibbs, "Taiwan and the Gold Standard," 1.

[185] Hibbs, "Taiwan and the Gold Standard," 1.

[186] Mark Hibbs, "Negotiating Nuclear Cooperation Agreements," 2.

Questions put forward:

- Likelihood that Taiwan will sign a gold standard-like 123 renewal agreement (very likely, likely, unlikely, and very unlikely): Very likely.
- Likelihood that the Taiwan agreement will persuade other countries to sign a gold standard 123 agreement (very likely, likely, unlikely, and very unlikely): Very unlikely.

South Korea (ROK)

- Existing U.S.-ROK 123 Agreement: Yes
- U.S.-ROK 123 Agreement up for renewal: Yes
- New U.S.-ROK 123 Agreement possible in the near future: Yes

Table 3. Country case study.

Thesis Argument	Argument Description	Partnering Country: South Korea (ROK)
Argument #1	Is a deal that is possible to get approved (by the partnering country and by the U.S. Congress) likely to assist with forming a No-ENR Regime/International norm?	No. ROK is highly unlikely to sign a gold standard agreement—for reasons discussed in the commentary section. The two-year extension to the renewal date and ROK's robust nuclear reactor industry are only two exhibit-As of why this is so.
Argument #2	Would the prestige and leverage of the United States be enough to convince this country to sign a gold standard 123 agreement and not go elsewhere for a better deal with another nuclear supplier?	Yes and no. The U.S. has leverage with ROK in that it is one of our closed allies in Southern Asia—but the flip side of this very coin, is that ROK therefore has the same leverage with the U.S. Any U.S.-ROK 123 deal is going to come down to the fact that we are both strong allies and how much does the U.S. want to strain this important partnership because of a gold standard requirement?
Argument #3	Does the "rock the boat" argument apply to negotiations with this country and will it push this country into an unnecessary corner?	Yes. ROK, with its belligerent neighbor to the north and with a thriving nuclear export industry, will view a U.S. requirement of a gold standard as rocking the boat. ROK sees other U.S. allies that have the right to ENR capabilities and therefore, will consider a gold standard deal as unfair.
Argument #4	Does the gold standard appear to be bad policy with regard to a deal with this country?	If ROK would miraculously accept a gold standard agreement, then it would be considered good policy; but, if the ROK does not and goes elsewhere for nuclear know-how, then the gold standard would most definitely be considered bad policy for the U.S.
Argument #5	Is this country in a region that can be considered an unstable region?	No…not in terms analogous to such regions as the Middle East, but nonetheless, it is in South East Asia, with the problematic non-declared nuclear North Korea to the north.
Argument #6	Does this country view a gold standard 123 deal as unfair and discriminatory in nature?	Absolutely. As alluded to in the "rock the boat" argument, ROK is all-too aware of the U.S.-India deal, Euratom deal and other 123 agreements with developed countries that have access to ENR technologies and that are allies of the U.S. as well.

This table applies the six arguments discussed in Chapter 5 to the South Korea (ROK) case.

Commentary on South Korea. The U.S.-South Korea 123 nuclear cooperation agreement is up for renewal and is fraught with all the dynamics that the arguments of this thesis present. An entire essay could be written on this case study, but to be succinct, the key

issues in this case study are: the leverage and prestige argument, the fair argument and to a strong extent, with North Korea bordering it, the issue of regional security and hence, the unstable region argument.

A summary statement from the 2011 Belfer Center report by Bunn, et al., explains the crux of the dilemma that will likely arise if the United States demands a gold standard agreement with South Korea:

> The United States will likely face resistance if it seeks to require that the Republic of Korea for swear enrichment and reprocessing as it negotiates a new peaceful nuclear cooperation agreement with the Republic of Korea (ROK) to replace the existing agreement that expires in 2014. The ROK is expected to press the United States to provide the same kind of advance, long-term consent to reprocessing used nuclear fuel subject to the new U.S.-ROK agreement as it has given in the cases of its agreements with Japan and EURATOM. However, the U.S. has long opposed reprocessing on the Korean Peninsula. Moreover, Under Secretary of State Ellen Tauscher stated in written answers to the Senate Foreign Relations Committee, in connection with her nomination hearings, that, "the existence of a reprocessing plant in the Republic of Korea would be inconsistent with the commitments made in the 1992 Joint Declaration." That declaration provides that: "The South and the North shall not possess nuclear reprocessing and uranium enrichment facilities." Now the North Koreans have both technologies. The South Koreans, on the other hand, are likely to press the point that North Korean reprocessing and enrichment, and its nuclear weapons tests, both constitute a violation of the two countries' 1992 denuclearization agreement. This, they will argue, renders null and void the South Korean commitment in that agreement not to possess enrichment or reprocessing capabilities and further that the ROK has the right to engage in reprocessing as long as it is abiding by its NPT obligations. The ROK will also likely make the case that it has the right to engage in reprocessing as long as it is abiding by its NPT obligations.[187]

In short, considering the weakness of the UAE and Taiwan gold standard agreements ability to form an international norm of no-ENR, we need look no further than the dilemma presented with the U.S.-ROK 123 renewal negotiations. South Korea, with a belligerent, nuclear neighbor to its north, along with a robust nuclear industry at

[187] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 23.

home,[188] and coupled with the knowledge that other U.S. allies (e.g., India, Japan and the Euratom consortium[189]) have ENR privileges, is surely in no rush to sign a gold standard 123 agreement. As for the United States' side of the negotiating table, it is worth asking if requiring a gold standard agreement is worth a bruising collision with our long-time ally, especially given that a gold standard agreement is highly unlikely to come to fruition in the first place.

How contentious is the U.S-South Korea 123 agreement originally due for renewal in 2014? One need look no further than the *New York Times* article earlier on April 24, 2013, "South Korea and U.S. Fail to Reach Deal on Nuclear Energy," where the opening paragraphs state:

> South Korea and the Obama administration delayed the deadline for a deal that Seoul had hoped would allow it to begin making its own fuel for its civil nuclear energy program, but that the United States feared would undermine its attempts to curb nuclear proliferation. It had appeared that a deal might be reached this year, but officials in both countries said the deadline would slip until 2016.[190]

The South Korea 123 renewal is the primary exhibit of the author's thesis that the gold standard is not based in reality and therefore, is certain, if required of all future agreements, to weaken the nonproliferation regime, not strengthen it.

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[188] Mark Hibbs, "Global Insider: South Korea's Civil Nuclear Industry," *Carnegie Endowment for International Peace*, http://carnegieendowment.org/2010/06/22/global-insider-south-korea-s-civil-nuclear-industry/3hub. In reference to ROK's nuclear industry, Hibbs points out, "Seoul has mastered nuclear-plant design, equipment manufacture, and construction, and wants this development reflected in new diplomatic and commercial arrangements [aka, in a new 123 renewal agreement]." Page 1.

[189] Jessica C. Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?," *NTI: Nuclear Threat Initiative*, http://www.nti.org/analysis/articles/us-nuclear-cooperation-nonproliferation-reforms-or-devil-you-know/. Varnum, on page 3, points out the precedent problem with which the U.S. would have to acknowledge with regards to negotiating with ROK: "Controversial "blank consent" exceptions to this rule—EURATOM, Japan, and India—creat[e] problematic precedents that countries such as South Korea are now seeking to follow."

[190] Choe Sang-hun, "South Korea and U.S. Fail to Reach Nuclear Energy Deal," *New York Times*, http://www.nytimes.com/2013/04/25/world/asia/south-korea-and-us-fail-to-reach-nuclear-energy-deal.html.

Questions put forward:

- Likelihood that South Korea will sign a gold standard renewal 123 Agreement (very likely, likely, unlikely, and very unlikely): Between Unlikely and Very Unlikely
- Likelihood that the 2016 South Korea renewal agreement will persuade other countries to sign a gold standard 123 agreement (very likely, likely, unlikely, and very unlikely): Very unlikely. (However, the author acknowledges that if the ROK surprises the world and signs a gold standard 123 agreement, then the answer to this question would be shifted to somewhere between Unlikely and Likely, as an ROK gold standard agreement would give gold standard advocates a much stronger reason to build their case than by trying to build it on an insular Taiwan gold standard agreement, for example.)

Jordan

- Existing U.S.-Jordan 123 Agreement: No
- U.S.-Jordan 123 Agreement up for renewal: No
- New U.S.-Jordan 123 Agreement possible in the near future: Yes

Table 4. Country case study.

Thesis Argument	Argument Description	Partnering Country: Jordan
Argument #1	Is a deal that is possible to get approved (by the partnering country and by the U.S. Congress) likely to assist with forming a No-ENR Regime/International norm?	No. Jordan has already signaled that based on its rights granted in Article IV of the NPT, it has no intention of giving up this right, regardless of the fact that, for example, the UAE did.
Argument #2	Would the prestige and leverage of the United States be enough to convince this country to sign a gold standard 123 agreement and not go elsewhere for a better deal with another nuclear supplier?	No. Same comments as given in Argument #1 of this Table 4.
Argument #3	Does the "rock the boat" argument apply to negotiations with this country and will it push this country into an unnecessary corner?	Yes. Based on their declared rights of the NPT, Jordan seems to have no intention of signing a gold standard agreement, hence, if the United States does require the gold standard, it most definitely will "rock the boat" and likely lead Jordan to look for a nuclear deal with an alternative nuclear supplier.
Argument #4	Does the gold standard appear to be bad policy with regard to a deal with this country?	Yes. For all the reasons stated in the prior three arguments of Table 4.
Argument #5	Is this country in a region that can be considered an unstable region?	Yes. The Middle East, for the arguments in this thesis, is absolutely considered an unstable region.
Argument #6	Does this country view a gold standard 123 deal as unfair and discriminatory in nature?	Absolutely. Jordan is adamant about the fact that the gold standard is 100% unfair, based on their Article IV NPT rights to peaceful nuclear assistance.

This table applies the six arguments discussed in Chapter 5 to the Jordan case.

Commentary on Jordan. Aside from the UAE, the three case countries in the Middle East currently applicable to my hypothesis and, hence, discussed in this chapter are Jordan, Saudi Arabia, and Turkey. All six of the author's arguments for the case-by-case method and in opposition to the critics' gold standard method are relevant to the discussion of 123 agreements with these three countries.

With Jordan, again, all six arguments are relevant; Amman's primary concern about signing a gold standard agreement with the United States is the Article IV issue and

therefore, the fairness and discriminatory argument as well. On this, Ted Jones of the Nuclear Energy Institute writes in a 2013 Arms Control Wonk blog:

> Insistence on the gold standard has broader negative implications for the global nonproliferation regime. Countries such as South Korea, Vietnam, Jordan and Saudi Arabia are reluctant to accept the gold standard for legitimate reasons that have nothing to do with intentions to proliferate nuclear technology. As non-nuclear-weapon states, they have already forsworn nuclear weapons; as a matter of principle, they are loath to renounce also the right to make nuclear fuel. Some countries, such as Vietnam [and Jordan], take this position despite having no dreams of acquiring E&R capabilities. These states properly consider E&R [analogous to the acronym ENR which this thesis uses] to be within their rights to peaceful nuclear technology as provided in Article IV of the NPT. If the United States demands that they renounce E&R rights as a condition of U.S. nuclear cooperation, it will be vulnerable to charges of undermining the NPT.[191]

While the United States initially urged Jordan to follow the UAE model,[192] it has since backed off on this demand that Jordan (and now Vietnam, discussed below) relinquish its right to engage in ENR capabilities if it is ever in a position to do so.[193] Bunn, et al., quoting the frank reaction of Jordan's Atomic Energy Commission leader, Khaled Toukan:

> [w]e believe in the universality of the NPT. We do not agree on applying conditions and restrictions outside of the NPT on a regional basis or a country-by-country basis. But I think we still don't have common ground. They started to understand our viewpoint, but still (there is) no common ground.[194]

Bunn, et al., continue, along with Toukan:

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[191] Ted Jones, comments on ROK 123 agreement, "Pinch Hitters," *Arms Control Blog*," May 31, 2013, http://guests.armscontrolwonk.com/archive/3804/guests-guest-post-ted-jones-of-nei-on-the-rok-gold-standard.

[192] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 23.

[193] Solomon, "U.S. Shifts Policy on Nuclear Pacts," 2.

[194] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 23.

> Toukan made clear that Jordan will not follow the example of the UAE in relinquishing its NPT rights to enrichment and reprocessing, stating that, "The United Arab Emirates has relinquished all its NPT rights to sensitive nuclear technology indefinitely. Why should we give up our rights?" He added that Article IV of the NPT stipulates that, "all countries have the right to full utilization of peaceful nuclear energy, research and development." He added that, "We are sticking and adhering to the NPT, and (we want) full rights and privileges under the NPT."[195]

While the primary argument with the three Middle Eastern countries reviewed in this section (besides the UAE) is clearly the argument concerning the Article IV dilemma and juxtaposed against the fairness argument, the case studies of Jordan, Turkey and Saudi Arabia provide principle support for not only the "don't rock the boat" argument but the author's "unstable region" and "bad policy" arguments as well. The fact that Jordan has foresworn nuclear weapons as a NNWS, but is fighting on principle against the gold standard agreement and could find a nuclear suitor elsewhere is mind-boggling. If these Middle Eastern countries are not textbooks exhibits of the "don't rock the boat" argument, then the author does not know what is? One thing is for certain though: requiring a gold standard method in this precarious position is what bad policy looks like for the United States with regard to leadership on the nonproliferation front.

To further highlight the weakness of the critics' claim that the gold standard is the best method to strengthen the nonproliferation regime and complicating negotiations with the Jordanians and other Middle Eastern countries is the UAE's 123 agreement Agreed Minute clause. The moment Jordan enters into a non-gold standard 123 agreement, or Saudi Arabia possible does the same, or if Turkey enters into a renewal agreement that allows for ENR in the decades ahead (again), then the UAE will likely utilize its right to

[195] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 23.

renegotiate their own 123 agreement, sweeping its advocates' primary crown jewel into the dustbin of nonproliferation history.

However golden its aim may be, the gold standard is nonetheless bad policy. Jeffrey Lewis asserts: "It is one thing to not get a nonproliferation pledge; it is another thing to lose such a pledge, especially in a region as volatile and proliferation-prone as the Middle East."[196]

Questions put forward:

- Likelihood that Jordan will sign a gold standard renewal 123 Agreement (very likely, likely, unlikely, and very unlikely): Very unlikely.
- Likelihood that a Jordan agreement will persuade other countries to sign a gold standard 123 agreement (very likely, likely, unlikely, and very unlikely): Very unlikely.

[196] Lewis, "It's Not as Easy as 1-2-3," 4. In addition to these arguments, Jordan is also known to have an excess of indigenous natural uranium, yet another reason why they would be hesitant to give up their rights to ENR capabilities. While they might not have use for it now, the Jordanians, for this reason, are all the more unlikely to give up their Article IV rights for future generations and business interests.

Turkey

- Existing U.S.-Turkey 123 Agreement: Yes, 2008
- U.S.-Turkey 123 Agreement up for renewal: No
- New U.S.-Turkey 123 Agreement possible in the near future: N/A for several decades

Table 5. Country case study.

Thesis Argument	Argument Description	Partnering Country: Turkey
Argument #1	Is a deal that is possible to get approved (by the partnering country and by the U.S. Congress) likely to assist with forming a No-ENR Regime/International norm?	No. A new 123 renewal is not even due for several more decades. Even at that future time, a gold standard "renewal" is not likely; therefore, a 123 deal with Turkey in the far-off future is not likely to assist in forming a no-ENR deal/norm.
Argument #2	Would the prestige and leverage of the United States be enough to convince this country to sign a gold standard 123 agreement and not go elsewhere for a better deal with another nuclear supplier?	No. Turkey has already indicated that because of reasons to be discussed in the commentary section, the prestige and leverage of the United States is not likely to produce a gold standard agreement.
Argument #3	Does the "rock the boat" argument apply to negotiations with this country and will it push this country into an unnecessary corner?	Yes. Requiring a gold standard deal with Turkey in the coming decades is highly likely to "rock the boat," as Turkey has signaled that it is not interested—even if just for the very valid reason that future generations might want to engage in ENR explorations.
Argument #4	Does the gold standard appear to be bad policy with regard to a deal with this country?	Yes. If the U.S insists on a gold standard with Turkey in a future renewal agreement, Turkey may decide not to enter into a renewal agreement; hence, a gold standard deal would be bad policy for certain.
Argument #5	Is this country in a region that can be considered an unstable region?	Yes. The Middle East, with regards to the topic of this thesis and nuclear nonproliferation, is considered to be in an unstable region.
Argument #6	Does this country view a gold standard 123 deal as unfair and discriminatory in nature?	Yes. Turkey is adamant about the gold standard method being completely unfair—even if not for current Turkish policy makers, at least to future generations of Turkey leaders.

This table applies the six arguments discussed in Chapter 5 to the Turkey case.

Commentary on Turkey. Given that Turkey signed a 123 nuclear cooperation agreement with the United States in 2008, one might wonder why a Turkey case is under analysis in this chapter. The reason is simple: it is a recent 123 agreement, it is not a gold standard agreement, to a certain extent it fits the unstable region argument and it is a clear example of the "unfair" argument as well as the primary argument, the Article IV dilemma.

The Turkey case is practically analogous with the Jordan case, so the author will not repeat the points. Jessica Varnum's 2012 article for the Nuclear Threat Initiative (NTI) best summarizes the Turkey 123 agreement scenario:

> [T]here will be—likely unassailable—resistance to a Gold Standard norm from some countries, and even from close U.S. allies. The 2008 U.S.-Turkey 123 agreement is a thought-provoking example of a case in which U.S. nonproliferation influence was likely greater under the status quo approach than it would have been with a Gold Standard requirement. Like many other non-nuclear weapon states, Turkey believes in an NPT Article IV-based "fundamental right to enrichment." U.S. efforts to coerce or cajole countries into giving up these rights are perceived in Turkey as discriminatory, hypocritical, thinly veiled forms of economic protectionism. Moreover, although Turkey does not have a near-term interest in ENR, one Turkish interlocutor explained that there are issues of intergenerational equity to consider, because the development needs of future generations may only be met through widespread nuclear power. Thus it would be unjust for Ankara to make decisions that exclude future generations from choosing whether they will build ENR facilities. Extensive research of the Turkish case study, including interviews in Ankara and Istanbul, convinced this author that while Turkey placed high priority on concluding a 123 agreement with the United States, its government would not have signed onto the Gold Standard as a condition for cooperation.[197]

If the United States requires a gold standard agreement, in addition to the dilemmas inherent in practically all future bilateral nuclear agreements discussed in this thesis (Article IV claims and concerns over what is fair and what seems purely discriminatory) is Varnum's statement that U.S. influence (leverage) "was likely greater under the status quo approach than it would have been with a Gold Standard requirement [i.e., strongly supporting the author's "don't rock the boat" argument]." Varnum concludes with a strong conviction after reviewing the U.S.-Turkey agreement in extensive detail that the Turks, if given the choice of a gold standard option or nothing, would have gone elsewhere for a nuclear supplier in 2008.

[197] Varnum, "U.S. Nuclear Cooperation as Nonproliferation," 5-6. (Note: For further information on this quote, see footnote #29 and #30 in this article by Varnum.)

Time and again, as the arguments in chapter five attest and as many of these country case studies demonstrate, the gold standard is not the best policy for future use of all potential nuclear cooperation agreements; doing so would weaken the nonproliferation regime, not strengthen it.

Questions put forward:

- Likelihood that Turkey will sign a gold standard renewal 123 Agreement (very likely, likely, unlikely, and very unlikely): N/A. Turkey's 2008 123 agreement was not a gold standard agreement and future renewal agreement negotiations will not be for several decades.
- Likelihood that a Turkey agreement will persuade other countries to sign a gold standard 123 agreement (very likely, likely, unlikely, and very unlikely): N/A. (Because the Turkey 123 agreement was not a gold standard, it does not support the gold standard advocates case or bode well that other countries in the future will sign up for a gold standard agreement themselves. Turkey's standard 123 agreement is just one more recent example that countries considering a nuclear agreement with the United States will likely ask, "If Turkey did not have t sign a gold standard agreement, why should we?")

Saudi Arabia

- Existing U.S-Saudi Arabia 123 Agreement: No
- U.S.-Saudi Arabia 123 Agreement up for renewal: No
- New U.S.-Saudi Arabia 123 Agreement possible in the near future: Yes

Table 6. Country case study.

Thesis Argument	Argument Description	Partnering Country: Saudi Arabia
Argument #1	Is a deal that is possible to get approved (by the partnering country and by the U.S. Congress) likely to assist with forming a No-ENR Regime/International norm?	No. The author will admit though to not fully understanding the position of Riyadh with regard to future nuclear cooperation deals or even its level of intent to get into the nuclear game. But one can be assured that given it is the Middle East and the Iran and Israel scenarios (and Jordan, Turkey, etc.) are constantly brewing, one doesn't have to speculate too much that if and when Riyadh does decide to get into the nuclear mix, adhering to a gold standard arrangement is highly unlikely, therefore, any deal with the Saudi's is not likely to assist in creating a no-ENR regime/norm. (With that being said, Washington will be under great pressure from Israel to ensure that an agreement with Saudi Arabia would contain a no-ENR assurances.) A hornet's nest indeed will likely be shaken, to say the least, with these complicated foreign policy variables.
Argument #2	Would the prestige and leverage of the United States be enough to convince this country to sign a gold standard 123 agreement and not go elsewhere for a better deal with another nuclear supplier?	No. Riyadh would most likely use an alternative nuclear supplier. America's attempt to work with Iran as of late is only further aggravating the once-strong, relationship between the United States and Riyadh.
Argument #3	Does the "rock the boat" argument apply to negotiations with this country and will it push this country into an unnecessary corner?	Yes. U.S. leverage will not be enough to convince Riyadh to sign a gold standard agreement; hence, insisting on a gold standard method regardless would unnecessarily "rock the boat."
Argument #4	Does the gold standard appear to be bad policy with regard to a deal with this country?	Yes. For all the reasons described in the above three arguments of Table 6. And on the other hand, no, given the Israel component as one of America's strongest allies.
Argument #5	Is this country in a region that can be considered an unstable region?	Yes. Saudi Arabia is considered to be in an unstable region with regard to the nuclear nonproliferation regime.
Argument #6	Does this country view a gold standard 123 deal as unfair and discriminatory in nature?	Yes, the author speculates that Riyadh would consider a gold standard agreement unfair.

This table applies the six arguments discussed in Chapter 5 to the Saudi Arabia case.

Commentary on Saudi Arabia. Riyadh has signaled that it is interested in pursuing nuclear capabilities with U.S. firms, which would mean that a 123 agreement is required.[198] While all of the arguments discussed would surely be at play, Saudi Arabia seems to be an entirely different case. In addition to the ordinary dilemmas, the added variables of Iran and pressure from America's ally Israel would surely complicate any negotiations. As Hibbs points out in a 2012 Carnegie article:

> The Saudi government is also aware that should Riyadh not assure Washington that it won't build sensitive enrichment and reprocessing installations, U.S. lawmakers, concerned about the security of Israel, would almost certainly forbid the United States to cooperate with Saudi Arabia on those terms. What's more, like neighboring UAE, Saudi Arabia may want to accommodate the United States in the interest of its bilateral defense arrangements, especially in view of its perceived threat from Iran.[199]

Any future negotiations with Riyadh should be interesting to watch develop given the many intricate foreign policy variables at play. As for the present time, considering the recent historic phone call between President Obama and Iranian President Rouhani on September 27, 2013 (the first high-level contact in over three decades) and suddenly tensions at the negotiating table for a future nuclear deal become even more intense (or in this thesis' terms, U.S. leverage diminishes). While no one can predict exactly how a future 123 nuclear agreement with Saudi Arabia might look like, one thing can be sure: regardless of the outcome, it will most likely be negotiated in a case-by-case manner.

Questions put forward:

- Likelihood that Saudi Arabia will sign a gold standard 123 Agreement with the United States (very likely, likely, unlikely, and very unlikely): Unlikely.

[198] Elaine M. Grossman, "U.S. Envoy Takes Issue with Nonproliferation Lingo for Nuclear Trade Pacts," 2.

[199] Hibbs, "Negotiating Nuclear Cooperation Agreements," 2.

- Likelihood that a possible U.S.-Saudi Arabia agreement will persuade other countries to sign a gold standard 123 agreement (very likely, likely, unlikely, and very unlikely): Unlikely.

Vietnam

- Existing U.S.-Vietnam 123 Agreement: A new agreement is pending U.S. Congressional approval.
- U.S.-Vietnam 123 Agreement up for renewal: No
- New U.S.-Vietnam 123 Agreement possible in the near future: Deal currently pending; awaiting U.S. Congressional approval

Table 7. Country case study.

Thesis Argument	Argument Description	Partnering Country: Vietnam
Argument #1	Is a deal that is possible to get approved (by the partnering country and by the U.S. Congress) likely to assist with forming a No-ENR Regime/International norm?	Absolutely NOT. Vietnam has signed a non-gold standard 123 agreement with the United States and is awaiting U.S. Congressional approval. The U.S.-Vietnam agreement, if approved, will not help form a no-ENR regime/norm.
Argument #2	Would the prestige and leverage of the United States be enough to convince this country to sign a gold standard 123 agreement and not go elsewhere for a better deal with another nuclear supplier?	No. A non-gold standard deal has already been in the works and is awaiting U.S. Congressional approval. If Congress does not approve it, Vietnam is likely to pursue an alternative nuclear supplier other than the United States.
Argument #3	Does the "rock the boat" argument apply to negotiations with this country and will it push this country into an unnecessary corner?	Yes and no. Perhaps the "rock the boat" pushed Vietnam into not agreeing to enter into a gold standard agreement, but it also did not "rock the boat" enough for Vietnam to forge a nuclear agreement with another supplier.
Argument #4	Does the gold standard appear to be bad policy with regard to a deal with this country?	Yes. The gold standard-or-the-highway stance of the United States would likely have persuaded Vietnam to look for another nuclear supplier. Furthermore, if Congress does not approve the deal, Vietnam is likely to look for another nuclear supplier; hence, the gold standard is bad policy.
Argument #5	Is this country in a region that can be considered an unstable region?	No. At the current time, Vietnam does not necessarily fit into the unstable region category with regard to the topic of this thesis.
Argument #6	Does this country view a gold standard 123 deal as unfair and discriminatory in nature?	Absolutely. Vietnam feels that the gold standard is so unfair that it persuaded the United States to allow it to enter into an agreement that is not a gold standard requirement. Vietnam agreed to forego no-ENR capabilities with regard to U.S. nuclear fuel but not nuclear fuel from other nuclear suppliers.

This table applies the six arguments discussed in Chapter 5 to the Vietnam case.

Commentary on Vietnam. Vietnam just signed a non-gold standard 123 agreement with the U.S. Department of State and awaits U.S Congressional approval. While the deal may have a golden shine on the surface—Vietnam agreed not to enrich or reprocess

nuclear materials of U.S.-origin—it does not require a contractual agreement from Hanoi not to enrich or reprocess fuel of other countries besides the United States. This takes away a gold sheen as it is not a gold standard agreement. Were Hanoi to obtain ENR technologies from other nuclear suppliers and eventually enrich uranium or reprocess spent nuclear fuel that was not of U.S.-origin, it would be perfectly within its rights to do so.

Vietnam it seems, like many other countries reviewed in this chapter and many NAM countries, has clung to its NPT Article IV rights. In addition to the primary premise of this thesis and the fairness argument, Vietnam also was not held hostage in negotiations by American prestige and strong-armed leverage. Says Hibbs in a 2013 Carnegie article before the agreement negotiations were finalized:

> Vietnamese officials…have informed their U.S. counterparts that they don't want to negotiate a nuclear cooperation agreement on the basis that Vietnam must forfeit its ENR "rights." Vietnam has little incentive to do so. While Taiwan's nuclear infrastructure was set up decades ago hand-in-hand with U.S. industry, [yet again, a signal U.S. leverage isn't the same with every 123 agreement] Vietnam will build reactors with the help of Russia and Japan and it doesn't need an agreement with the United States to do that. Russia has agreed to supply fresh nuclear fuel to Vietnam and thereafter to take back and reprocess in Russia the spent fuel from reactors in Vietnam.
> Hanoi has spelled out that it has no interest in setting up enrichment or reprocessing plants, and U.S. officials on the ground appear unworried that Vietnam will try to develop sensitive nuclear fuel cycle capabilities.[200]

To be fair to the critics, while the agreement in essence supports this thesis, it is not without critics and also has not been approved by the U.S. Congress to date. The basis of the agreement seems to reside primarily with the unstable region argument in that while not perfect (a gold standard method), 10% of something is again, better than 100% of nothing. The deal also seems to support the evidence presented in the argument that

[200] Hibbs, "Negotiating Nuclear Cooperation Agreements," 2.

the U.S. nuclear industry is declining as the U.S.-Vietnam agreement will surely provide additional business to U.S. nuclear contractors.

While the U.S. nuclear industry should never be put ahead of U.S nonproliferation concerns, the unstable region argument of some presence at the end of the day is better than none trumps any critics' claims that U.S. nuclear revenue streams were put before U.S. nonproliferation concerns.

At the top of the dissenters' list of the Vietnam 123 deal is nuclear nonproliferation expert Henry Sokolski, who in a 2013 article for the *National Review*, says matter-of-factly, with regard to congressional approval scheduled in December, "It [the U.S. Congress] should say No."[201] Sokolski continues, "the precedent of this nuclear agreement will weigh heavily in our future negotiations with others," to which Sokolski infers is a nod to the headaches this deal will cause in convincing countries such as South Korea to forego any ENR capabilities in future 123 renewal negotiations (and also the fact that Iran is surely watching closely as well to these agreements.)

At the time of this writing, the U.S. Congress has not voted on the Vietnam 123 nuclear agreement as it stands, short of a no-ENR provision. But one thing is almost certain: if the United States had had a "gold standard or no agreement" policy, no agreement would be on the table for Congress to consider, with strong or weak merits. This author, while not ignorant of the fact that the nuclear security regime in Vietnam is not the strongest and also not naïve of the often bloated claims of new nuclear jobs and business opportunities created by a new deal, nonetheless, feels that the nonproliferation

[201] Victor Gilinsky and Henry Sokolski, "The U.S.-Vietnam Nuclear Deal," *National Review Online*, http://www.nationalreview.com/article/361860/us-vietnam-nuclear-deal-victor-gilinsky-henry-sokolski, 1.

regime stands a chance—even if only a modicum size of a chance—in being a smidgen stronger for our presence in Vietnam than if we were not present.

Questions put forward:

- Likelihood that Vietnam will sign a gold standard renewal 123 Agreement (very likely, likely, unlikely, and very unlikely): Very unlikely. (A non-gold standard agreement is currently awaiting U.S. Congressional ratification. If Congress does not approve it, it is unclear if Vietnam will sign a gold standard agreement in a renegotiation.)
- Likelihood that a Vietnam agreement will persuade other countries to sign a gold standard 123 agreement (very likely, likely, unlikely, and very unlikely): Unlikely.

Nine Additional Countries at a Glance

The author would be remiss if the following countries were not mentioned. Each, in one way or another, finds itself either a hot topic in nonproliferation circles or in the 24/7 news cycles with regard to the global nuclear regime. Therefore, commentary on these countries is warranted here.

Iran

At the date of this writing, Iran and the United States (along with U.S. partners France, Britain, Russia, Germany and China) have just agreed to a historic nuclear pact, signed in Geneva on November 24, 2013. While it is yet to be seen if the nuclear deal will hold together after the original six-month term that all parties agreed to, the agreement is widely seen as a successful breakthrough in international relations (save for the Israeli Prime Minister Benjamin Netanyahu who called it a "historic mistake"[202] and some Republicans in the U.S. Congress who assert that the United States gave in too early with regard to the easing of tough sanctions already in place and gave up too much with regard to allowing even a modicum amount of uranium enrichment up to 5%).

As we have seen from the start with the dilemma of this thesis topic and then the arguments for and against the gold standard method and with the individual country case analyses, front and center to this debate is the "inalienable right" for peaceful nuclear technology, which many consider to entail ENR technologies. Many critics of the case-by-case method, such as Sokolski (with his candid comment previously mentioned, "If the U.S. lets Jordan, Vietnam or South Korea make nuclear fuel, you can kiss any attempt

[202] David Simpson and Josh Levs, "Israeli PM Netanyahu: Iran Nuclear Deal 'Historic Mistake'," *CNN*, http://www.cnn.com/2013/11/24/world/meast/iran-israel/index.html.

to persuade Iran or any other state to forgo fuel making goodbye,") see the case-by-case method as a reflection of the United States' weak resolve to hold firm in its effort to curtail the spread of ENR capabilities. They assert that this lack of resolve ultimately will lead countries such as Iran to test the limits (and patience) of the nonproliferation order. This argument, while compelling, is not based in reality as the Iranian nuclear deal has again demonstrated as I will explain in the following paragraph.

While it is unclear Mr. Sokolski favors the Iranian nuclear deal, it is clear that this issue of enrichment is not only important to the United States but also to the Iranians. In this deal, which is being hailed by the majority of world leaders as a major breakthrough —even a U.S.-Iranian detente moment—Iran was able to maintain the right to enrich uranium up to 5% (the level necessary to operate a civil power reactor). At this point what is far more significant than running a reactor is the symbolic fact that Iran kept this "inalienable right." The United States will not tout this point as it tries to advance the deal here in the states, but in truth, the Iranians know all-too-well that a "de facto" recognition was indeed granted, with the ability to enrich uranium up to 5%.[203] The Iranian leadership will surely be touting this part of the deal to their constituency and elected leaders in order to gain approval in their country.

In short, Iran is the 8th example given in this thesis that the case-by-case method is the best way to strengthen the nonproliferation regime. Each country has its own foreign policy and geopolitical variables that it will bring to any future negotiation table and therefore, the gold standard one-size-fits-all policy is not realistic.

[203] Already there is rumbling on the U.S. side that this right to enrich up to 5% is not in the initial six-month agreement. But for the purposes of this thesis, this serves to express the point about ENR and the contention around the issue. This is sure to be a hot topic concerning ongoing negotiations.

India

- Existing Indo-U.S. 123 Agreement: 2008.
- Indo-U.S. 123 Agreement up for renewal: No.
- New Indo-U.S. 123 Agreement possible in the near future: No; not until a renewal many decades in the future.

The United States signed a 123 nuclear cooperation agreement with India, known as the Indo-U.S. nuclear deal, on October 10, 2008, after several years of negotiations, amendments to U.S. law, exceptions granted from the NSG and so forth. As with the 6-month interim Iranian nuclear deal, concessions were also given to India with regard to the right to enrich and reprocess spent nuclear fuel, though on a much grander scale. The primary aggravation from many corners of the world about the Indo-U.S nuclear deal is that India is not a member of the NPT, though it traffics in the nuclear trade the same way as other NPT-abiding members.[204]

While President George W. Bush was convinced that the Indo-U.S. nuclear deal was his détente moment with India—a capstone of his presidency, his Nixon-China moment—it is widely believed that the Indo-U.S. nuclear deal weakened the nonproliferation regime as a whole. While the author sides with the latter camp, it is also because of the reality of the nuclear playing field today that this thesis favors the case-by-case method. Is it a shame that the South Koreans can point to the Indo-U.S. deal and therefore have stronger leverage when demanding that they too have the right to enrich (especially with the additional benefit of being one of the U.S.'s strongest allies)? Yes.

[204] It should not be lost on the reader that one of the key exceptions that the Indo-U.S. deal had to obtain in order to be approved was from the Nuclear Suppliers Group (NSG), which as we saw in the chapter three, was formed from the advent of the India nuclear weapons test of 1974.

Is it a shame that Jordan or Saudi Arabia in the years to come will point to the Iranian deal just forged and say, "If Iran can enrich, so why can't we?" Yes. But these are the realities with which we live and within which we negotiate bilateral nuclear cooperation agreements. Some presence and oversight with partnering countries' nuclear activities, while not perfect, is better than none at all for the nuclear safety and nonproliferation regime. The gold standard method is not based in reality, as these arguments and case analyses show.

China

- Existing U.S.-China 123 Agreement: Yes.
- U.S.-China 123 Agreement up for renewal: Yes, current 123 agreement expires in 2015.
- New U.S.-China 123 Agreement in the near future: Yes, but very unlikely to be a gold standard 123 agreement.

China, under its current 123 bilateral nuclear cooperation agreement with the United States, does not have the right to enrichment technologies, though it does have nuclear weapons (China imports its nuclear technology) and is recognized by the international community as a nuclear weapons state (NWS). In an Indian magazine *Frontline* which went to print shortly before the Indo-U.S. nuclear deal of 2008 was forged, the author states:

> Among the countries/entities having civil nuclear cooperation agreements with the US, only Japan and EURATOM (European Atomic Energy Community), the US' closest allies, have automatic processing rights. In fact, the latter has only been granted advanced consent for reprocessing in the revised agreement of 1996. It has been wrongly stated by various commentators that China has such advanced

> approval to reprocess. The fact is, it does not have, and any proposal to reprocess has to be negotiated with a supplementary agreement. The US-China 123 Agreement merely says that such a request would be considered "favourably".[205]

While China does not have enrichment capabilities (without further 'supplementary agreement[s]') in the existing 123 nuclear agreement with the United States, it will be interesting to see if they demand more concrete allowances for ENR technologies in a 123 renewal agreement coming up for renegotiation in 2015—especially now armed with the fact that the Indo-US agreement has made exceptions, the Iranian nuclear deal may yet make a permanent (beyond six-months) exception and so forth. Surely, any renewal negotiations with China will be fraught with tensions on many fronts, given China's ascension in world affairs. The United States will likely be leery of giving away a nuclear golden goose too easily to China, but how much leverage the United States will have in this negotiation given our economic ties and debt to China is unclear.

North Korea

It is safe to say that the United States will not be entering into a 123 nuclear agreement with Pyongyang any time soon. While the issue of North Korea and their nuclear weapons program is a grave issue in the nonproliferation regime and a major concern to the safety of all mankind, it is not a primary issue with regard to the topic of this thesis topic. The author merely mentions it because of North Korea's neighbor to the south, South Korea. South Korea, in wanting its own robust 123 agreement with ENR capabilities, will surely in the upcoming negotiations, point to its non-NPT, nuclear

[205] R. Ramachandran, "Long Haul Ahead," *Flonnet*, http://www.hindu.com/thehindu/thscrip/print.pl?file=20070629007011400.htm&date=fl2412/&prd=fline&.

"have" neighbor to the north as Exhibit Z of why they need a robust a nuclear technology tool kit as does any other nation in good standings with the United States. This grave security issue in ROK's backyard is surely not lost on the U.S. negotiators and once again, the author ascertains, will be why a gold standard 123 agreement will likely not be forged in the renewal negotiations in 2016.

Canada, Italy and Australia

Other countries such as Canada, Italy, and Australia (Canada and Australia have existing 123 nuclear agreements with the United States) want to retain their right to ENR capabilities for future economic reasons. Former IAEA General Director Mohamed ElBaradei, in discussing the pushback from the international community concerning President George W. Bush's National Defense University speech and the U.S.'s promotion of the gold standard policy for all future nuclear exports, states in his 2011 memoir:

> The result, as I had anticipated, was deep misgivings, not only among developing countries but also from Canada, Italy and Australia, for example, countries that did not have a full fuel cycle but that wanted to keep their options open for the future.[206]

Bunn, et al., discuss the Bush administration's demand for the NSG's export regulations to incorporate, where applicable, what is known as the black-box approach (the export of sensitive nuclear technology that remains under lock and key, not accessible by the importing country). Their report, in reference to Canada's objection to the black-box approach, states:

[206] ElBaradei, *The Age*, 125.

> Canada, in particular, opposed this criterion, since it wanted to keep open the possibility of buying centrifuge technology and then upgrading this technology over time to compete effectively in the international market.[207]

And again, in the same report:

> It bears emphasis that opposition to the proposals on E&R transfers came not just from developing countries but from advanced states and even from states with a long history of strong support for the nonproliferation regime, such as Canada and the Netherlands, whose opposition stemmed not only from commercial interests but from concerns that states compliant with the NPT obligations should not be denied enrichment and reprocessing options.[208]

In other words, even developed countries have a problem with the United States' technology-denial strategy of no-ENR; they find it offensive, unfair, discriminatory, and downright hypocritical.[209] The gold standard method of 123 agreements (or even with regard to NSG regulations) is simply not a technique based in the reality of our times.

Brazil and Argentina

Two final examples of evidence that the case-by-case method is based in the real-world is the exception that the NSG granted Brazil and Argentina. In Bush's second term, the United States held firm that the NSG should not transfer ENR technologies to NPT states that did not adopt what is known as the Additional Protocol (the Additional Protocol allows for additional security checks by the IAEA over and above what is normally required of NPT signatories, therefore bolstering the strength of the nuclear

[207] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 14.

[208] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 21.

[209] Regarding even further commentary on Canada's reluctance concerning the right to enrich uranium, in the 2012 Carnegie Endowment for International Peace article titled "Negotiating Nuclear Cooperation Agreements," Mark Hibbs states, "Canada does not want to forfeit its option to add value by processing the uranium into commercial power reactor fuel in coming years. In 2008, Ottawa overcame an impasse with the United States on this issue by voluntarily suspending its freedom to import enrichment technology for a limited period of time pending successful negotiation of global ENR trade rules." Page 3.

safety and security regimes). But Bunn, et al., made note of Argentina and Brazil's objection and more importantly, their resolutions, stating:

> Argentina and Brazilian objections to requiring states to have the Additional Protocol in effect as a condition of receiving E&R were reportedly resolved when the NSG agreed to accept language that would allow E&R transfers to a recipient that either has the Additional Protocol in force or "has signed, ratified and is implementing a regional arrangement approved by the IAEA which operates to achieve the same objective by providing confidence in the peaceful nature of civilian nuclear programs." This would allow Argentina and Brazil to receive E&R without having an Additional Protocol in effect.[210]

In short, the United States finally conceded to not only Canada but also to Brazil and Argentina, with regard to each country's differing issues concerning ENR technologies and the NSG's exportation regulations. The Bush administration's gold standard uncompromising stance was replaced with what is known as a criteria-based approach, one analogous to a case-by-case method. The U.S.'s gold standard demands of the NSG did not hold up as expected nor will they in real-world negotiations of future 123 nuclear cooperation agreements.

Concluding Thoughts on the Individual Country Case Studies

The point made here, again and again, is that while each country brings to the table their unique independent variables, needs, assets and liabilities, the vast majority seem to share the same grievances with regard to Article IV "inalienable rights" and what they deem is fair and unfair. Making exceptions here or there to forge an agreement should not be viewed as being weak. It is simply the reality of international affairs; compromise is what is necessary on an international stage to move things forward. Demanding a gold standard approach, whether it be in dealing with the NSG or at the

[210] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 16.

negotiating table of future 123 nuclear cooperation agreements, is not smart policy and will ultimately backfire in its attempt to strengthen the nonproliferation regime.

After discussing the arguments in the preceding chapter and examining in detail the individual case country analyses in this chapter, the evidence is clear. The gold standard method is bad policy. In a 2012 *Foreign Policy* article, Jeffrey Lewis quotes U.S. Department of Energy Deputy Secretary Daniel Poneman: "[The gold standard method] will almost certainly ignite debates and passions that are more likely to strangle than to promote the prospects of this regime [the nonproliferation regime]."[211] Lewis, in summarizing Poneman and his colleagues, reiterates, "Attempting to impose ENR restrictions…might actually spur proliferation."[212]

I wholeheartedly agree. If the United States requires a gold standard agreement or no agreement in all future 123 bilateral nuclear cooperation agreements, the nonproliferation regime will ultimately be weakened, not strengthened.

[211] Lewis, "It's Not as Easy as 1-2-3," 3.

[212] Lewis, "It's Not as Easy as 1-2-3," 3.

Chapter VII

Ways Forward for a Safer Future

The farther backward you look, the further forward you can see.[213]
− Winston Churchill

With the meticulous detail of the atomic backdrop provided in chapter two and followed with a detailed description of the genesis of the gold standard explored in chapter three, it is evident at this point that the reality of the decades gone-by has resided in the compromising, non-ultimatum-like manner of the case-by-case method. While the gold standard is absolutely preferable, where obtainable, it is nonetheless, the author's position that the gold standard method is fleeting at best. Therefore, the case-by-case approach to negotiating 123 bilateral nuclear cooperation agreements is a far better approach to ensuring a stronger nonproliferation regime as it is the approach that is best positioned in reality in which these negotiations actually take place.

But there is always room for improvement. This chapter briefly looks at some possible ways forward, from two distinct perspectives: first, what a more amicable, effective case-by-case 123 agreements might look like and, finally, a brief summary of some overall measures that could help the entire nuclear regime to further curtail the spread of these sensitive nuclear technologies.

[213] Brainy Quotes, "Forward Quotes," http://www.brainyquote.com/quotes/keywords/forward.html.

More Creative Case-by-Case 123 Nuclear Cooperation Agreements

There is always room for improvement and there is no exception for the imperfect case-by-case method. In fairness to the critics of the thesis position (that the case-by-case method is far from perfect), Jessica Varnum, in a 2012 article for the Nuclear Threat Initiative (NTI), perhaps says it best:

> Given the imperfect nature of the status quo approach to 123 agreements, there are compelling reasons to favor some type of reform…. U.S. decision-makers may need to think creatively beyond the black and white alternatives of the status quo vs. a universal Gold Standard—but perhaps also beyond the "case-by-case" approach.[214]

In a nod to the fairness argument in support of the case-by-case method, Varnum continues: "One possibility would be for U.S. policy makers to negotiate rather than unilaterally impose certain reforms in order to give them broader legitimacy and normative potential."[215]

So, how might future case-by-case agreements be better executed? The most-often mentioned way forward with regard to more palatable case-by-case agreements is what is known as a side-letter or a preamble or a letter of intent attached to case-by-case agreements. These side-letters have been most-often elucidated by nuclear energy and nonproliferation expert Mark Hibbs, quoted earlier in this thesis. As was discussed in the preceding chapter when we examined Jordan and Canada, Hibbs sees two examples of positive ways forward. With regard to Jordan, Hibbs states:

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[214] Varnum, "U.S. Nuclear Cooperation as Nonproliferation," 8.

[215] Varnum, "U.S. Nuclear Cooperation as Nonproliferation," 9.

> Amman's refusal to legally forfeit its ENR options doesn't have to mean that Jordan can't accommodate the United States on this point if both sides really want a nuclear cooperation agreement. Instead of forcing Jordan to legally commit itself not to enrich or reprocess, the U.S.-Jordan agreement might include a declaration by Jordan—in a preamble or in a side letter—to the effect that Jordan will not set up sensitive fuel cycle infrastructure because it is not justified by the anticipated requirements of Jordan's nuclear power program.[216]

Hibbs continues:

> Such a declaration may or may not be legally binding, but it would be politically robust in the context of a bilateral agreement with the United States. Jordan would retain its "right" to develop or acquire reprocessing and enrichment capabilities, but it could agree not to exercise this option. Jordan and the United States might agree to periodically reassess Jordan's nuclear fuel supply requirements.[217]

With regard to the compromise that the United States made with Canada, Hibbs succinctly summarizes the creative approach used to surpass that impasse as well:

> A similar approach was successfully taken by Canada in a somewhat different context concerning its interest in enriching uranium. When the United States proposed to the Nuclear Suppliers Group in 2004 that transfers of ENR items to newcomers be banned, Canada objected. Unlike Vietnam, but like Jordan, Canada has domestic uranium reserves (indeed it's currently the world's leading uranium exporter) and, like Jordan, Canada does not want to forfeit its option to add value by processing the uranium into commercial power reactor fuel in coming years. In 2008, Ottawa overcame an impasse with the United States on this issue by voluntarily suspending its freedom to import enrichment technology for a limited period of time pending successful negotiation of global ENR trade rules.[218]

In short, as we have seen time and time again, the gold standard method suggests a sense of arrogance and hypocrisy that the majority of the international community deems completely unfair and discriminatory. In defense of these side letters, Hibbs candidly states that "U.S. resolve to include a no-ENR pledge in the body of new bilateral agreements will be seen by some countries as arrogant and unacceptable. Incorporating

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[216] Hibbs, "Negotiating Nuclear Cooperation Agreements," 3.

[217] Hibbs, "Negotiating Nuclear Cooperation Agreements," 3.

[218] Hibbs, "Negotiating Nuclear Cooperation Agreements," 3.

ENR terms into side-letters or preambles may be less offensive."[219] In further attestation that these letters of intention are a more practical, fair-minded way forward, Bunn, et al., in their Belfer Center report point out that the United States has also signed

> Memoranda of Understanding with Jordan, Saudi Arabia, and Bahrain in which those countries expressed their intention to rely on international markets rather than enrichment and reprocessing on their territories but these do not constitute legally binding comments.[220]

There is always room for improvement and a better way forward, even with the case-by-case method as advocated for in this very thesis. These side-letters of intent to not pursue ENR technologies would be more palatable to future nuclear partners who may be undecided as to whether to enter into an agreement with the United States. Therefore, with regard to more effective ways to curbing the spread of ENR technologies specifically concerning these Section 123 agreements, these suggested examples of case-by-case improvements could be of great assistance going forward with future negotiations.

Other Effective Measures to Curtail the Advancement of ENR Technologies

While there is a long list of effective ways to tackle nuclear disarmament, to increase the nuclear safety regime, to reduce the likelihood of nuclear terrorism and so forth, there are also many ways that could advance the immediate goal of curtailing the further spread of ENR technologies. The good news is that future improvements on this immediate goal of curtailing the further spread of ENR technologies could pay huge

[219] Hibbs, "Negotiating Nuclear Cooperation Agreements," 3.

[220] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 29.

dividends for the larger issues of nuclear disarmament, nuclear safety, and nuclear terrorism.

In addition to the improvements listed above concerning 123 nuclear cooperation agreements, the most advantageous method of curtailing the advancement of ENR technologies is for supplier states to promote and, therefore, provide fuel assurances to countries in need of this fuel for peaceful purposes. The burden rests primarily on the supply side, with countries that have nuclear fuel and nuclear fuel capabilities, to ensure that countries that do not have ENR capabilities (the demand side) will nonetheless always have access to fuel for peaceful nuclear energy programs.

Front and center to this aim of a better way forward and obligations of the supplier states stepping up to the plate is the often cited idea of an international nuclear fuel bank. This idea dates back to the less-than-successful 1978 Nuclear Nonproliferation Act (NNPA), which called for an "International Nuclear Fuel Authority, a fuel bank, and multinational enrichment facilities and spent fuel repositories."[221] Sharon Squassoni, a nuclear nonproliferation expert at the Carnegie Endowment for International Peace, in a 2008 article for the Arms Control Association that revisits the 1978 NNPA, reminds us that "None of these [aforementioned options] have been pursued with any success, yet they are virtually all on today's agenda."[222]

Clearly, this idea of an international nuclear fuel bank would not be easy to achieve; it would surely come under fire by some on the demand side as nothing more than a continued effort by the United States and the "haves" to maintain a nuclear cartel

[221] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 2.

[222] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 2.

of sorts. On this note, Squassoni admits that "Supply assurances [would need] to provide incentives for states to forgo domestic enrichment programs includ[ing] layered guarantees, fuel banks and shares in existing enrichment ventures." Surely, these valid issues of demand-side hesitations would have to be addressed to establish international trust[223] but, nonetheless, should not impede the valiant attempt once and for all of an international fuel bank that would go a long way in averting the unwanted advancement of ENR capabilities.

On this subject, for well over a decade, from 1997 to 2009, ElBaradei constantly advocated for an international fuel bank. ElBaradei thought that that bringing fuel cycle facilities under multinational control was not only a great idea, but would lead ultimately to nuclear disarmament.[224] For further information on this, see ElBaradei's highly praised October 16, 2003, article in *The Economist*, "Towards a Safer World," where he discusses, among other ideas for a better way forward, this very idea of an international fuel bank as a positive way forward to ensure a stronger nonproliferation regime.[225]

While there has been some progress in pursuing the beginning stages of an international fuel bank by the United States, the IAEA, the Nuclear Suppliers Group (NSG), and the Nuclear Threat Initiative (NTI), the reality of such an institution, as of this writing, is still a long way from reality. These key players and others in the international nuclear safety regime would be smart to continue pursuing such a viable instrument, which would go far in stabilizing the entire international nuclear fuel cycle.

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[223] Lavoy, "The Enduring Effects of Atoms for Peace," 2. This sentiment is obtained from the last line of paragraph ten of the article, which reads, "…as simple steps to establish international trust…"

[224] ElBaradei, *The Age*, 131, 14.

[225] Mohamed ElBaradei, "Towards a Safer World," *The Economist*, October 16, 2003, http://www.economist.com/node/2137602.

In the meantime, while international players are trying to bring about an international fuel bank, the issue of what to do with spent fuel needs to be tackled more robustly. Countries that do not have ENR capabilities, but buy nuclear fuel on the international market for peaceful nuclear energy programs, have a problem with how to dispose spent fuel. Currently, Russia is the only country that takes its spent nuclear fuel from customers absolving the buyer of the headache of disposing the spent nuclear fuel. Squassoni points out the poignant fact that "[t]he world cannot expect and should not desire Russia to be the sole nuclear waste repository."[226] She goes on to suggest that

> [p]erhaps the biggest impact [the U.S.] Congress might make on other countries' fuel cycle decisions would be to overcome nuclear waste storage roadblocks in the United States and start to build support for taking back spent fuel of U.S. origin. [Further noting in the same breath:] Such an effort could be valuable in allowing U.S. policy makers to confront the true costs of nuclear power and proliferation directly.[227]

Expanding on these two ways forward, Bunn, et al., encapsulate the two ways—providing fuel assurances and nuclear waste take-backs—in what they call "cradle-to-grave" fuel cycle incentives.[228] In a nutshell, supplier states could offer fuel to countries seeking it and after this fuel is used by the receiver, they could return the spent fuel to the provider; this full-circle process would therefore eliminate the need for countries to develop their own ENR capabilities to obtain nuclear fuel and also eliminate the trouble of having to dispose of the hazardous end product and eliminate the temptation to sell or reprocess spent fuel into reusable nuclear fuel that could be used to create nuclear weapons—the R part of the ENR.

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[226] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 5.

[227] Squassoni, "Looking Back: The 1978 Nuclear Nonproliferation Act," 5.

[228] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 4, 38-40, 49.

ElBaradei addressed this critical issue of nuclear fuel disposal in his 2003 *Economist* article:

> [W]e should consider multinational approaches to the management and disposal of spent fuel and radioactive waste. More than 50 countries have spent fuel stored in temporary sites, awaiting reprocessing or disposal. Not all countries have the right geology to store waste underground and, for many countries with small nuclear programmes for electricity generation or for research, the costs of such a facility are prohibitive.[229]

As Squassoni, Bunn, et al., and ElBaradei attest, the topic of nuclear fuel disposal is apt for discussion when it comes to exploring better ways forward for a safer, sounder nuclear nonproliferation regime.

In addition to suppliers providing strong, safe, reliable nuclear fuel assurances to countries in need and offering these same countries a proper, safe, hassle-free way to dispose the spent nuclear fuel, a few other ways forward deserve mention. At the heart of this thesis is the call for the readers to realize that the same objectives and goals of a safer nonproliferation regime can be met without the offensive, discriminatory language of the gold standard method that puts off the majority of potential nuclear partners. Therefore, the United States should continue to refine its domestic nuclear exporting policies and rules, ensuring a strong nonproliferation regime, yet through less offensive and more equitable approaches. U.S. nonproliferation policy makers and future administrations should pay special attention to this point, in that our laws are as strong as possible and aim to create as safe an international nuclear regime as possible.

Juxtaposed against the tighter nuclear exporting policies of the United States, the NSG should continue to perfect its rules and regulations. Their three decades of not exporting (with only one exception) ENR technologies to countries that do not already

[229] Elbaradei, "Towards a Safer World," 1.

have a strong, well-regarded nuclear energy program is highly admirable. But, again, there is room for improvement. Just one of many improvements suggested by Bunn, et al., is that the NSG could "Adopt new language in the NSG guidelines that would affirm Article IV rights and register commitments to promote international cooperation with states as long as they are in conformity with the obligations of the NPT."[230] This, the authors point out, might go a long way in addressing the primary hesitation of non-NSG members: "It may also help mitigate suspicions among non-NSG members that the NSG is a cartel that is aimed at depriving non-members access to peaceful nuclear technology."[231]

In conclusion, there are many ways to curtail the further expansion of ENR technologies. These suggested approaches discussed above are presented merely as a sampling of the multitude of possibilities for curbing the creep of ENR technologies around the globe. Many of them, if instituted, would certainly go a long way in helping to secure a stronger nonproliferation regime.

An Invitation for Further Investigation and Study

In addition to the hypothesis of this thesis and the arguments and the individual country case studies presented in support of this thesis position, it should be evident, as is always the case with the extended toils of academic endeavors, that the subject matter is nevertheless ripe for further examination. While the evidence presented here strongly suggests that the case-by-case method is the best way to ensure the strongest possible

[230] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 47.

[231] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 48.

nonproliferation regime with regard to Section 123 agreements, there is room for improvement in this method as well. And as we have seen with this chapter in appraising various ways forward, this arena too is ripe for further academic studies.

In short, the subject of a safer nonproliferation regime is apt for further contributions to knowledge, as the safety of all mankind depends on the hope espoused in these better ways forward. The author begs the reader to consider this subject manner in his or her future studies so as to ensure that a perpetually focused lens is directed towards these challenges, further ensuring the possibility of a safer planet for all future generations.

Addition Resources for Readers that Would Like to Learn More

With regard to the better ways forward, the author points the reader to the invaluable amount of information pertaining to this subject that can be found in journal articles, newspaper articles, reports, websites, and blogs mentioned in the footnotes of this thesis. For a more in-depth rendering of this thesis subject, the bibliography of this thesis would be an enormous start.

Secondly, the author would like to point to Section Five of the Bunn, et al., Belfer Center report "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options"[232] often cited throughout the last few chapters, for a more in-depth discussion of better ways forward. While this chapter introduces the reader to the general landscape of possible ways forward, the Bunn, et al., report—specifically Section Five—offers a detailed dialogue of many of this chapter's central themes.

[232] McGoldrick et al., "Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options," 29-43.

Thirdly, interested scholars would be well advised to read Steve Miller's 2012 report for the Academic Academy of Arts & Sciences (AAAS) titled "Nuclear Collisions: Discord, Reform & the Nuclear Nonproliferation Regime"[233] to better understand the nuclear nonproliferation regime—its strengths, weaknesses, differing points of views between the "haves" and the "have-nots" and so forth.

And finally, the author would like to leave the reader with the following online resources for further exploration on all-things nuclear. Without the contributions of the respected nuclear energy, safety, weapons, terrorism, and nonproliferation regime experts who work and write for these institutions, this thesis and its defense would be lacking depth and I would have fewer sources of analysis. It is with an immense appreciation that the author passes along to the reader this short list of avenues for further study:

Harvard University Kennedy School of Government Belfer Center for Science and International Affairs Project on Managing the Atom
http://belfercenter.ksg.harvard.edu/project/3/managing_the_atom.html

Harvard University Kennedy School of Government Belfer Center for Science and International Affairs International Security Program (ISP)
http://belfercenter.ksg.harvard.edu/project/46/international_security.html

Nuclear Threat Initiative
http://www.nti.org

Carnegie Endowment for International Peace
http://carnegieendowment.org

Arms Control Wonk Blog
http://armscontrolwonk.com

International Institute for Strategic Studies: IISS
http://www.iiss.org

[233] Miller, "Nuclear Collisions: Discord, Reform, & the Nuclear Nonproliferation Regime," entire report.

James Martin Center for Nonproliferation Studies
http://cns.miis.edu

Foreign Policy Blog
http://foreignpolicyblogs.com

Stanford University's Center for International Security and Cooperation (CISAC)
http://cisac.stanford.edu

Chapter VIII

Conclusion

> However beautiful the strategy, you should occasionally look at the results.[234]
> − Winston Churchill

Many scholars have argued (and likely will continue to argue) whether the two atomic bombs that essentially ended World War II ultimately saved more lives or cost more lives with the bombing of Hiroshima and Nagasaki, Japan on August 6, 1945, and August 9, 1945. (These two bombings are the only nuclear weapons used in war in history.) But what is not up for debate is the catastrophic loss of life that was the result of the bombings: not only did an estimated 106,000 people die and an estimated 110,000 people injured,[235] but thousands upon thousands died following the bombings from radiation poisoning. As for the Pandora's Box that U.S. physicists opened near the mid-point of the 20th century, American physicist J. Robert Oppenheimer (the "father of the atomic bomb"[236]) described it best when he quipped, "When you see something that is technically sweet, you go ahead and do it and you argue about what to do about it only after you have had your technical success. That is the way it was with the atomic bomb."[237]

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[234] 20th Century History. "Churchill Quotes," http://history1900s.about.com/od/people/a/ChurchillQuotes.htm.

[235] Eisenhower, *Atoms*, home page. 106,000 fatalities and 110,000 injured is merely a range of the number of fatalities and injured. The author cites a conservative estimate so as to not provide an inflated estimate, but some estimates are known to be in excess of 200,000 fatalities.

[236] Wikipedia, "J. Robert Oppenheimer," http://en.wikipedia.org/w/index.php?title=J._Robert_Oppenheimer&oldid=582240375.

[237] Brainy Quote. "J. Robert Oppenheimer Quotes," http://www.brainyquote.com/quotes/

With World War II over but the nuclear arms race just beginning, President Eisenhower tried to turn the tide of this burgeoning nuclear weapons pandemonium into a more benign race with his Atoms for Peace program almost a decade later in 1954. Some will argue (with merit) that the advent of peaceful nuclear energy technologies for all simply lead to the problems today with the spread of nuclear expertise that has brought many countries closer to obtaining nuclear weapons. But the good that came out of the Atoms for Peace program cannot be overstated; the Nuclear Nonproliferation Treaty (NPT) and nonproliferation norms formed during the second half of the 20th century remain the bedrock of the nuclear regime to the present day and are rooted in the Atoms for Peace initiative.

Following India's nuclear weapons test in 1974, and its development of "the bomb", President Carter, realizing that a dramatic shift in the nuclear realm was necessary to avert the further escalation of nuclear proliferation, Carter, thus, brought about the new era of what could be labeled as the United States' new nuclear-denial policy strategy. The United States not only started curtailing nuclear fuel capabilities on an international basis but also stopped reprocessing spent plutonium domestically. This strategy was the genesis of the gold standard movement that attempts to curtail the spread of uranium enrichment and plutonium reprocessing, as discussed in chapter three as enrichment and uranium reprocessing capabilities (ENR).

In the first decade of the 21st century, President George W. Bush, aiming to normalize what was already a dormant norm of no-ENR for the vast majority of international nuclear regime members, ran head-first into the very dilemma that was

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authors/j/j_robert_oppenheimer.html.

discussed in chapter four that we face today regarding the further development of these sensitive nuclear technologies (SNT). Countries worldwide were not going to lie down and have their Article IV "inalienable rights" stripped away without a fight then and neither are they likely to do so now.

What remains crystal clear from the Eisenhower Administration to the present day is that Oppenheimer's argument of what to do after the technical success of the bomb is still omnipresent six decades later. When it comes to the nonproliferation regime and all-things-nuclear, each administration has had, and will have to grapple with charting the best way forward, a challenge of immense importance, as the very safety of all humankind hangs in the balance.

A Systematic Wrap-up of Corroborating the Thesis

Today, U.S. nuclear nonproliferation policy makers are in a quandary as to how best to curtail the further advancement of sensitive nuclear technologies (SNT) around the globe. Front and center to this debate are the nuclear technology capabilities of enriching uranium and reprocessing spent plutonium used to generate fresh nuclear fuel for a country's nuclear energy program, known as ENR. While a country may have benign intentions for its nuclear energy programs, the dual-use nature of these SNT that peaceful nuclear energy programs share some of the same components of nuclear weapons-generating programs raises questions regarding the level of safety that the nonproliferation regime is truly providing.

Some U.S. nonproliferation policy makers and presidential administrations have argued that the "gold standard method" is the best method to prevent further escalation of

ENR capabilities. In order to conduct nuclear business with the United States, a country must enter into what is called a Section 123 nuclear cooperation agreement (named after Section 123 of the Atomic Energy Act of 1954), or a 123 agreement.[238] The gold standard 123 agreements require a partnering country to abstain from enriching uranium or reprocessing spent plutonium indigenously, in essence, they must agree to give up the right to these SNTs in exchange for a nuclear agreement with the United States and all the nuclear technology and expertise that comes from the United States with this agreement. The logic behind this method is simple, straightforward, and meritorious: with fewer countries around the globe engaged in enrichment and reprocessing activities, the less likely it will be that countries that do not possess these capabilities will be able to develop nuclear weapons.

I have argued that the gold standard method is *not* the best method to use in future 123 bilateral nuclear cooperation agreements and have asserted that the case-by-case method is the better method to achieve the strongest nonproliferation regime. The case-by-case method is the same agreement as the gold standard save for the partner's agreement to forego ENR explorations and capabilities. The case-by-case method toward negotiating bilateral nuclear cooperation agreements incorporates the highest level of U.S. nonproliferation standards and even encourages the partnering country to sign a gold standard agreement (forgoing ENR capabilities) where obtainable and when possible. While the critics' logic is indeed simple, straightforward and with merit in that with less

[238] These bilateral agreements are negotiated between the United States and a partnering country and upon a partnering country agreeing to certain terms and guidelines, the partnering country receives nuclear technology and expertise; in return, the United States accrues business for the domestic nuclear industry (jobs and export revenues) and also a presence in the partnering country's peaceful nuclear energy efforts in hopes of building a stronger nonproliferation regime (a regime meant to stem the further proliferation of nuclear weapons).

ENR capabilities throughout the world there stands a better chance of there being less opportunities for countries to proliferate, the realities of the real world in which these bilateral nuclear cooperation agreements are forged are anything but. The author has therefore demonstrated that the case-by-case method can best ensure the strongest possible nuclear nonproliferation regime.

Knowing now what I have argued for, I conclude by detailing the logic behind this stance. With six arguments set out in chapter five and numerous country case studies analyzed in chapter six, I demonstrate why the case-by-case method is the best way forward with future 123 nuclear cooperation agreements. This approach not only discusses why the case-by-case method is the better method but also addresses the objections of its critics. Furthermore, each individual country case analysis juxtaposes these arguments against the vast array of individual foreign policy variables that each bilateral nuclear partner might bring to the negotiating table when trying to forge an agreement with the United States.

The primary argument I present in defense of my thesis position is while the gold standard aims are admirable (to curtail the spread of SNT), the method is unable to create an international norm of no-ENR, and therefore, will ultimately weaken the nonproliferation regime, not strengthen it. I based this position primarily on the non-nuclear weapon states' (NNWS) consistent claim to their "inalienable rights" to peaceful nuclear expertise that they strongly feel is granted to them under Article IV of the Nuclear Nonproliferation Treaty (NTP). The natural objection to this stance is that a no-ENR regime is possible, but gold standard advocates always point to the lone U.S.-United Arab Emirates (UAE) 123 gold standard agreement of 2009 and the possible U.S.-Taiwan

123 renewal agreement currently under negotiation. In defending my position, I offer strong explanations, backed by the support of a vast amount and wide-array of nuclear regime experts. With regard to the U.S.-UAE 123 agreement and the possible U.S.-Taiwan 123 agreement, the country case analyses address the weaknesses of the critics' constant dependency on these two weak case studies that support the gold standard method. Furthermore, the case studies demonstrate that nearly all countries that might consider entering into a nuclear agreement with the United States will resist any agreement that will require them to give away they see as their "inalienable right."

The second argument I present in defense of my thesis position is what I call the prestige argument. The natural objection from the critics is that countries will do almost anything (translation: will sign a gold standard 123 agreement) to obtain the "U.S. stamp of approval"[239] (and technological assistance) for their nuclear energy programs. Yet the U.S. nuclear industry has been in decline for decades now, never fully recovering from President Carter's halt on domestic reprocessing activities in the 1970s; furthermore, nuclear suppliers such as France and Russia (who have less restrictive nuclear agreement requirements) are quite willing to accommodate countries in their assumedly peaceful nuclear energy pursuits.

The third argument I present in defense of my thesis position is what I call the "don't rock the boat" argument. For over thirty years, a dormant no-ENR regime has existed. The basis of my position is the question why push countries into a corner and force them to stick up for something they likely will never pursue? The natural objection from the critics of the case-by-case method is meager at best on this point. While their claim that since few countries are currently seeking ENR capabilities, now might be the

[239] Varnum, "U.S. Nuclear Cooperation as Nonproliferation," 6.

best time to "rock the boat" in an effort to create a norm that might be stand a chance of coming to fruition, I ultimately disagree. Attempting to "rock the boat" to create a no-ENR norm is far-more likely to result in the adage of unnecessarily "rattling the cage". One needs to look no-further than the individual case studies provided in chapter six of countries considering 123 nuclear agreements with the United States such as South Korea, Vietnam, Jordan, and Saudi Arabia to see whether the boat is rocked; if and when it is rocked, it will likely cause the sleeping giant of global resistance to be awakened, sending potential partners running to other nuclear suppliers and therefore, weakening the nonproliferation regime, not strengthening it.

The fourth argument I present in defense of my thesis position is that the gold standard is simply bad policy. The natural objection that the gold standard is the best policy because it aims to stem ENR; no ENR capabilities granted equals no proliferation. Fair enough, but I (and others) argue it is not based in reality. I demonstrate with numerous case studies examples that the case-by-case method is the far-better choice for future 123 nuclear agreements. Having a U.S. nonproliferation policy that chases away future nuclear suitors is hardly the way for the United States to maintain a strong grasp on the global nonproliferation and nuclear safety regimes, and therefore, does not show strong leadership.

The fifth argument I present in defense of my thesis position is the unstable region argument. These unstable regions are of greatest concern to the United States and, thus, if there are any regions in the world that the United States does not need to be left out of concerning nuclear activities, it is in these unstable regions. The natural objections are that if there is any place in the world that needs no-ENR technologies, it is in these

unstable regions. Fair enough in theory, but in reality it is unwise to forego the opportunity to at least be present in these unstable regions when countries want to enter into an agreement and yet ultimately obtain these capabilities elsewhere because of the U.S.' requirement of a gold standard policy. The individual case analyses raise the question will the United States forego an agreement with Jordan simply to save the sole golden standard agreement in existence (the U.S.-UAE 123 agreement) or lose out on a chance to forge an agreement with South Korea in an ever-growing, tense region due to the rise of China? It is doubtful and more importantly, it is dangerous to do so and would not only weaken the nonproliferation regime, but the nuclear safety regime as well.

And finally, the sixth argument I present in defense of my thesis is that the gold standard method is unfair and discriminatory. Argument six is supported by the same evidence used in argument one: for the same reason that a no-ENR regime is not possible because of the NNWS's NPT Article IV "inalienable right" claim, the NWWS argue that the gold standard is unfair. Argument six is also attuned to the "don't rock the boat" argument: as the case country analyses demonstrated, the gold standard method is widely seen across the globe as unfair and discriminatory and therefore, in addition to "rocking the boat", the gold standard will without a doubt unnecessarily stir a hornet's nest of resentment between the nuclear "haves" and nuclear "have-nots". Argument six is so strong in defense of my thesis that it drowns out any objections.

The Thesis Is Corroborated

I have concluded that my six arguments and numerous country case studies have corroborated my hypothesis. After studying the nuclear regime for several years and

delving into the many nuances of each of the arguments' pros and cons, after acknowledging the strong points of the critics and recognizing the weak points of my own arguments, the evidence points to the fact that with regard to future 123 bilateral nuclear cooperation agreements, the case-by-case method is the best way to achieve the strongest possible nonproliferation regime.

The case-by-case method, while not perfect, is nonetheless, the best approach to pursue potential individual 123 nuclear agreements. As nuclear energy expert Mark Hibb's states in a 2012 Carnegie Endowment for International Peace article, U.S. nonproliferation policy makers "should not make the perfect the enemy of the good."[240] As the detailed study of these arguments presented and individual country case studies show, the gold standard method, while admirable in its endeavors and surely golden in its attempts to curtail the spread of sensitive nuclear technologies, is nonetheless, entirely too risky because the gold standard moment is fleeting and the costs are too high.

As was quoted at the opening of this conclusion chapter, Churchill states it clearly: "However beautiful the strategy, you should occasionally look at the results."[241] The gold standard method of blocking all ENR technology transfers in all future 123 nuclear cooperation agreements is surely the more attractive method, but the case-by-case method is most likely to achieve the strongest possible nonproliferation regime.

In order to make progress we must negotiate nuclear cooperation agreements in the context of reality—of what works and seems workable to all nations; compromising and logrolling is the art of any negotiation and the case-by-case method is the best as it

[240] Hibbs, "Negotiating Nuclear Cooperation Agreements," 4.

[241] 20th Century History. "Churchill Quotes," http://history1900s.about.com/od/people/a/ChurchillQuotes.htm.

will allow the United States to move forward with positive progress on the nonproliferation front and show leadership that the world depends on with regard to this vitally important issue. To think that the United States will always have the leverage and prestige going into the future in every situation, therefore the flexibility to "rock the boat" in a unilateral way each and every time, is this study shows, not only unfair, but dangerous to the entire nuclear regime. Therefore, the case-by-case 123 agreement should be the United States' choice when negotiating these important bilateral nuclear agreements.

In conclusion, I point out again, that at the heart of this thesis is something far more important than who is right or who is wrong. Each side of the argument has strong merits and clearly, the advocates of both methods seek in earnest the strongest possible nonproliferation regime to ensure a safe world for current and future generations. Clearly, the gold standard's position of no-ENR in future cooperation agreements as highly preferable, where obtainable. The crux of the argument is that the gold standard method is an unrealistic approach. Evidence suggests that the gold standard method is not and therefore the hypothesis central to this thesis is corroborated. The case-by-case method is unambiguously the most effective route to achieving the strongest nuclear nonproliferation regime possible.

Final Remarks

The significance of this thesis's findings is of paramount importance to the very security in which all humankind inspires to and deserves. As this thesis has shown, the decisions being made by U.S. policy makers with regard to how to conduct future nuclear

agreements with countries from every corner of the globe are of extreme importance and will impact not just citizens of the United States, but those of the entire world.

I have been drawn to the study of the nuclear regime and more specifically, the nonproliferation regime, for over a decade now. Having long been drawn to public service with the desire to leave this world a better place, which includes a run for political office in the Commonwealth of Virginia, I have continued to look for an issue that is of vital importance to the continued success and security of all mankind. The politically motivated atrocities of crimes against humanity and genocide, and the developmental problems of poverty and disease, have long captured my attention. But nothing has quite grabbed my attention as the horror of nuclear weapons. I knew instantly that I had found a profound topic in which to study further and an opportunity to attempt to make a small contribution to knowledge when I came across the issue of nuclear nonproliferation. It has held my attention for years and throughout this entire thesis process, an issue of vital importance.

President John F. Kennedy, in an address before the General Assembly of the United Nations on September 25, 1961, said,

> Today, every inhabitant of this planet must contemplate the day when this planet may no longer be habitable. Every man, woman and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident, or miscalculation, or by madness. The weapons of war must be abolished before they abolish us.[242]

[242] Military Quotes, "John F. Kennedy Quotes," http://www.military-quotes.com/john-f-kennedy.htm.

I agree completely. In nuclear circles, policy experts widely believe and often state that "proliferation begets proliferation."[243] Well, so does knowledge, the capacity to learn and the desire to improve the world. The pursuit of knowledge begets more knowledge and therein lies hope. Vast opportunities for further studies on this vital topic are waiting to be explored. Many of the topics discussed in chapter seven concerning better ways forward for a safer future are ripe for further examination.

Nuclear weapons are surely the swords of Damocles hanging over every last one of us. This need not, should not, and ought not be the case for us, our children, our children's children, and beyond. There has to be a better way forward for the safety and security of all living beings.

[243] Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security*, http://cisac.stanford.edu/publications/why_do_states_build_nuclear_weapons_three_models_in_search_of_a_bomb.

Appendix A

"The U.S. Atomic Energy Act Section 123 at a Glance"[244]

Section 123 of the U.S. Atomic Energy Act (AEA) of 1954 establishes the conditions and outlines the process for major nuclear cooperation between the United States and other countries. In order for a country to enter into such an agreement with the United States, that country must commit to a set of nine nonproliferation criteria. The United States has entered into nuclear cooperation agreements with 23 countries, the International Atomic Energy Agency (IAEA), the European Atomic Energy Community (EURATOM), and Taiwan.

The nine nonproliferation criteria for section 123 agreements are as follows:

- Nuclear material and equipment transferred to the country must remain under safeguards in perpetuity.
- Non-nuclear-weapon states partners must have full-scope IAEA safeguards, essentially covering all major nuclear facilities.
- A guarantee that transferred nuclear material, equipment, and technology will not have any role in nuclear weapons development or any other military purpose, except in the case of cooperation with nuclear-weapon states.
- In the event that a non-nuclear-weapon state partner detonates a nuclear device using nuclear material produced or violates an IAEA safeguards agreement, the United States has the right to demand the return of any transfers.
- U.S. consent is required for any re-transfer of material or classified data.
- Nuclear material transferred or produced as a result of the agreement is subject to adequate physical security.
- U.S. prior consent rights to the enrichment or reprocessing of nuclear material obtained or produced as a result of the agreement.
- Prior U.S. approval is required for highly-enriched uranium (HEU) and plutonium obtained or produced as a result of the agreement. An agreement permitting enrichment and reprocessing (ENR) using U.S. provided material requires separate negotiation.
- The above nonproliferation criteria apply to all nuclear material or nuclear facilities produced or constructed as a result of the agreement.

Section 123 requires that the Department of State submit a Nuclear Proliferation Assessment Statement (NPAS) explaining how the nuclear cooperation agreement meets these nonproliferation conditions. Congress has a total of 90 days in continuous session to consider the agreement, after which it automatically becomes law unless Congress adopts a joint resolution opposing it.

[244] Arms Control Association. "The U.S. Atomic Energy Act Section 123 At a Glance," http://www.armscontrol.org/factsheets/AEASection123#1. Appendix A is from this source cited in #51.

The President may exempt a proposed agreement from any of the above criteria upon determination maintaining such a criteria would be "seriously prejudicial to the achievement of U.S. non-proliferation objectives or otherwise jeopardize the common defense of the United States." Exempted 123 agreements would then go through a different process than non-exempt agreements, requiring a congressional joint resolution approving the agreement for it to become law. There are no 123 agreements in force that were adopted with such exemptions.

In 2006, Congress passed the Henry J. Hyde United States-India Peaceful Atomic Energy Cooperation Act which amended the AEA permit nuclear cooperation with India, a country which is not a member of the nuclear Nonproliferation Treaty (NPT) and does not maintain full-scope safeguards. The Hyde amendment has been criticized for undermining U.S. international counterproliferation efforts.

A 123 agreement alone does not permit countries to enrich or reprocess nuclear material acquired from the United States and permission to do so requires a further negotiated agreement. A debate is currently raging in the nonproliferation community over the "Gold Standard," named after the U.S.-UAE 123 agreement signed in 2009 whereby the UAE voluntarily renounced pursuing enrichment and reprocessing (ENR) technologies and capabilities. The UAE agreement stands in stark contrast to the "blanket consent" granted to India, Japan, and EURATOM, who have ENR approval from the U.S. This consent is being sought by other countries as many 123 agreements are up for renewal and renegotiation in 2014, most notably South Korea.

ENR capabilities are controversial because the process transforms raw uranium or spent nuclear fuel into highly-enriched uranium. While these capabilities are generally used for energy purposes, because the same technology can be used for weaponization processes there are concerns of serious proliferation risks when a country obtains the technology. A Gold Standard for 123 agreements would require any country party to a 123 agreement with the United States to renounce ENR activities. The Department of Energy and the U.S. nuclear industry advocate a continuance of the case-by-case approach followed thus far in renewal agreements. A case-by-case approach allows countries to apply for ENR permission, and has been successfully pursued by India and Japan. South Korea is pushing for an agreement to permit reprocessing to develop its own nuclear industry, a major target in its economic development plans.

Thus far Congress has attempted several times to pass measures ensuring that future 123 agreements adhere to the Gold Standard. The most prominent of these bills was H.R. 1280, which among other amendments to the Atomic Energy Act declared that future 123 agreements must include "a requirement as part of the agreement for cooperation or other legally binding document that is considered part of the agreement that no reprocessing activities, or acquisition or construction of facilities for such activities, will occur within" the country. The bill also required states considering 123 agreements to be members of many international treaties and conventions promoting non-proliferation. Though reported out of the House Foreign Affairs Committee in April 2011, it was blocked from floor consideration and died with the 112th Congress.

The executive branch has been less clear in its position. The George W. Bush administration coined the term Gold Standard when the U.S.-UAE deal was signed in 2009 and declared it the new standard for nuclear cooperation agreements. The Obama administration has not come out in favor of a Gold Standard, though there have been several interagency reviews soliciting opinions, the most recent during the summer of 2012. A 2011 letter from the Obama administration to Capitol Hill renounced the idea of a uniform approach to 123 agreements and advocated for a case-by-case approach in future negotiations.

Appendix B

Nonproliferation Treaty

THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS (NPT)[245]

(Text of the Treaty)

The States concluding this Treaty, hereinafter referred to as the Parties to the Treaty,
Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,
Believing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,
In conformity with resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,
Undertaking to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,
Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points,
Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,
Convinced that, in furtherance of this principle, all Parties to the Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in co-operation with other States to, the further development of the applications of atomic energy for peaceful purposes,
Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament,
Urging the co-operation of all States in the attainment of this objective,
Recalling the determination expressed by the Parties to the 1963 Treaty banning nuclear weapons tests in the atmosphere, in outer space and under water in its Preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end,

[245] United Nations. *The Treaty on Non-Proliferation of Nuclear Weapons (NPT)*, homepage.

Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament under strict and effective international control,
Recalling that, in accordance with the Charter of the United Nations, States must refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations, and that the establishment and maintenance of international peace and security are to be promoted with the least diversion for armaments of the world's human and economic resources,
Have agreed as follows:

Article I

Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

Article II

Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.

Article III

1. Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. Procedures for the safeguards required by this Article shall be followed with respect to source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility. The safeguards required by this Article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.

2. Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this Article.
3. The safeguards required by this Article shall be implemented in a manner designed to comply with Article IV of this Treaty, and to avoid hampering the economic or technological development of the Parties or international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provisions of this Article and the principle of safeguarding set forth in the Preamble of the Treaty.
4. Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this Article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification or accession after the 180-day period, negotiation of such agreements shall commence not later than the date of such deposit. Such agreements shall enter into force not later than eighteen months after the date of initiation of negotiations.

Article IV

1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.
2. All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also co-operate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.

Article V

Each Party to the Treaty undertakes to take appropriate measures to ensure that, in accordance with this Treaty, under appropriate international observation and through appropriate international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. Non-nuclear-weapon States Party to the Treaty shall be able to obtain such benefits, pursuant to a special international agreement or agreements, through an

appropriate international body with adequate representation of non-nuclear-weapon States. Negotiations on this subject shall commence as soon as possible after the Treaty enters into force. Non-nuclear-weapon States Party to the Treaty so desiring may also obtain such benefits pursuant to bilateral agreements.

Article VI

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

Article VII

Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories.

Article VIII

1. Any Party to the Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.
2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for each Party that deposits its instrument of ratification of the amendment upon the deposit of such instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment.
3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being reali[z]ed. At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by submitting a proposal to this effect to the Depositary Governments, the convening of further conferences with the same objective of reviewing the operation of the Treaty.

Article IX

1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.
2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics and the United States of America, which are hereby designated the Depositary Governments.
3. This Treaty shall enter into force after its ratification by the States, the Governments of which are designated Depositaries of the Treaty, and forty other States signatory to this Treaty and the deposit of their instruments of ratification. For the purposes of this Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.
4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.
5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.
6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article X

1. Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.
2. Twenty-five years after the entry into force of the Treaty, a conference shall be convened to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods. This decision shall be taken by a majority of the Parties to the Treaty.1

Article XI

This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.
IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in triplicate, at the cities of London, Moscow and Washington, the first day of July, one thousand nine hundred and sixty-eight.
Note: On 11 May 1995, in accordance with article X, paragraph 2, the Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons decided that the Treaty should continue in force indefinitely (see decision 3). [back to the text]

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