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The Fission and Fusion of Nuclear Environmentalism: Nuclear Energy in the United States from 1945 to 1990

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Abstract

In 1945, the world first experienced the immense and devastating power of the nuclear bomb. The ability to harness the atom gave rise to an abundance of opportunities to advance society and conserve the human environment but also unleashed certain anxieties about the potentially destructive nature of this newfound atomic power. American politicians and scholars, torn between both their own wishes and fears, became hampered by the dilemma of this atomic “genie”. Research of historical arguments in conjunction with contemporary dialogues reveals a confusing and often contradictory story of nuclear power’s fission and fusion as it faced multiple issues. This paper investigates the history of nuclear power in the United States from the point of view of those in charge, including top scientific experts and government officials, from 1945 to 1990. It will explore the promising start of nuclear energy and explain its uneasy descent into uncertainty while considering the contemporarily emerging “environmentalism” movement. By doing so, it hopes to prove the precarious and often fragmented place that nuclear technology has in human history.

On July 16th, 1945, a blinding flash was unleashed, accompanied quickly by immense heat and deafening sound, followed moments later by a shockwave of destruction incomparable to that of any weapon ever seen before. The cold, quiet desert morning was suddenly interrupted by a towering mushroom cloud of radioactive energy. Ap-

pearing as if the sun rose early, the Trinity Test was the first ever successful test of the atomic bomb, conducted by the United States in the desert of New Mexico.¹ Undoubtedly, the world changed course on that fateful day, with a scene that could be described as a display of technological advancement, military achievement, and raw devastation. The Manhattan Project, the efforts undertaken for scientific research and development of the atomic bomb, was a success. The Fat Man and Little Boy nuclear warheads would soon end the Second World War upon their detonation in Nagasaki and Hiroshima, respectively, marking Japan’s surrender.² The United States of America had certainly unleashed a power unseen by humanity ever before. Robert J. Oppenheimer, the lead designer of the bombs themselves, is famously quoted incorrectly referencing the Bhagavad Gita, “now, I am become Death, the destroyer of worlds.”³ The atomic bombs and the use of nuclear energy had massive implications for the future of warfare and the fate of civilization, both positive and negative. This paper will argue that despite initial excitement, indecisiveness in nuclear energy debates from 1945 to 1990 led to its decline as a power source because politicians and scholars were fragmented over whether

¹James W. Feldman, *Nuclear Reactions: Documenting American Encounters with Nuclear Energy*, (Seattle: University of Washington Press, 2017), XIII.

²Kathleen M. German, “The Atomic Energy Debate: Scientists Speak as Citizens,” *Communication* 11, no. 3 (December 1982): 73.

³Feldman, *Nuclear Reactions*, XIV.

nuclear power could potentially serve economic, militaristic, or environmentalist interests in the United States' future.

Despite their destructive power, there was a shimmer of hope for the future within these bombs as well. The atom became a symbol of power, progress, and potential following the end of the Second World War. Nuclear scientists were soon able to harness the power of the atom, by using radioactive elements, to produce energy. Nuclear power plants and fission-based reactors were introduced as an alternative energy source using reactors that powered nuclear submarines in the early 1950s.⁴ The first large nuclear reactor began producing power in 1957.⁵ Yet still, the shadow of the mushroom cloud loomed over nuclear energy. Concerns that plagued the use of the atomic bomb transferred over to the use of atomic energy. A hesitant optimism slowed the distribution and acceptance of nuclear power in the middle of the twentieth century. Those in political power deliberated the positives and negatives of nuclear energy as scientists continued to investigate the potential it held for the future. Simultaneously, opponents of this new science created studies and lobbied for stricter nuclear regulations based on economic, social, and other persistent issues.

While it may be assumed that "environmentalism" is always an Earth-centered movement, as pictures of more recent protests over human-driven climate change and resource exhaustion come to mind, "environmentalism" is a young term in the scope of history, and it is a malleable concept defined in many ways. The widespread understanding of environmentalism in the United States was born out of the desire to protect human interests in nature through conservation laws.⁶

⁴Russ Manning, "The Future of Nuclear Power," *Environment* 27, no. 5 (May 1985): 15.

⁵J. Samuel Walker, "Writing the History of Nuclear Energy: The State of the Art," *Diplomatic History* 9, no. 4 (1985): 377.

⁶Stanley Rothman and S. Robert Lichter, "Elite Ideology and Risk Perception, in Nuclear Energy Policy," *The American Political Science Review* 81, no. 2 (1987): 383.

"Environmentalism" can be the conservation and preservation of the world and its systems, even if it means for human consumption. For example, people might want to preserve oil for instances that oil serves best, such as vehicle fuel, heating, electricity generation, and the production of raw goods like plastics, so they switch to alternative energy to fuel other processes. Preserving the supply of oil through alternative sources is the protection of natural resources for the benefit of humanity, and therefore, "environmentalism." Maintaining an environment in which humanity could thrive was of immense importance to politicians and scholars. While a central question for these parties may have been, "how can humanity prosper?", in the case of nuclear power and nuclear warfare, some began to ask, "how can humanity survive?"

1. Nuclear Power as a "Genie"

Nuclear power was viewed as a "genie": not only because it held seemingly magical potential, but also because as old genie stories go, there is always a caveat to such great power.⁷ In 1946, Joseph H. Willits, Director of Social Sciences at the Rockefeller Foundation recognized that atomic energy enabled "man" to destroy "himself" and argued for safeguards against such a fate.⁸ However, just pages later, he applauded atomic energy's great centralizing power for the future of mankind. He then realized his own contradiction and thus asked how the delicate balance between science and technology and nuanced political and international policy could be found.⁹ These debates were a driving force behind the initial nuclear concern. Finding this balance between such a volatile energy and a fragile world system as the Cold War heated up remained pertinent.

⁷Manning, "The Future of Nuclear Power," 15.

⁸Joseph H. Willits, "Social Adjustments to Atomic Energy," *Proceedings of the American Philosophical Society* 90, no. 1 (January 1, 1946): 49.

⁹*Ibid.*, 51.

There was an inherent drive in the United States to take advantage of the new source of power to seek improvement for the lives of its citizens, but certain nuclear processes also threatened to snuff out this new life as well.

President Dwight Eisenhower, in office from 1953 to 1961, reconciled with these ideas in his “Atoms for Peace” speech in front of the United Nations in 1953. He certainly recognized the power unseen before by any man present in nuclear warfare but stood behind atomic energy as a pathway toward a new future. He understood that the capability already existed, and urged that scientists be able to use atomic energy for “universal, efficient, and economic usage.”¹⁰ In this same speech, he assigned the Atomic Energy Agency to safeguard fissionable materials from sudden seizure.¹¹ Despite an initial promise of American intellect to solve the “atomic dilemma,” which was the overarching question of whether to use radioactive substances to create energy, Eisenhower sustained the debate with suspicion.¹² Such suspicions would cripple the nuclear industry early on, as nuclear energy became primarily a battleground for the Cold War.¹³

As international policy during the Cold War became more convoluted, so did the U.S. government’s approach to handling atomic energy. Now that the “genie” had been released from the lamp, its wishes were available to the world. The United States wanted to stuff the “genie” back into its lamp for its own security and strategic purposes to compete with communist countries. Therefore, only a select few politicians and elite scientists contributed to important policies regarding the use of nuclear substances to create energy.¹⁴

¹⁰Dwight Eisenhower, “Address before the General Assembly of the United Nations on Peaceful Uses of Atomic Energy,” *Address Before the General Assembly of the United Nations on Peaceful Uses of Atomic Energy*, (December 8, 1953), 5.

¹¹*Ibid.*, 5.

¹²*Ibid.*, 6.

¹³Walter, “Writing the History of Nuclear Energy,” 379.

¹⁴Rothman and Lichter, “Elite Ideology and Risk Perception,” 383.

Early on, as demonstrated by Eisenhower, many of these decisions were born out of militaristic motives to secure the United States as a dominant force on the world stage, especially during the height of the Cold War.¹⁵ These ideas sought the preservation of society. Without society, there is no structure to life, putting humanity in peril. Early politicians and scholars wanted to preserve an environment in which they could continue to live and investigated nuclear applications to further progress towards that manufactured environment. Although for human-serving interests, the early atomic dilemma was about the environment which people relied on. These militaristic ideologies dominated the early days of nuclear power, even through a lens of preservation. This view sought to put one’s nation before any other in the great nuclear arms race, and ensure it survived as devastating warheads were developed. During the 1950s and early 1960s, these issues suppressed most other concerns, even despite initial attempts to separate nuclear warfare and power from one another.¹⁶ Scientists and politicians were concerned about the survival of humanity.¹⁷

2. The Cost of Nuclear Magic

Due to a willful ignorance, the U.S. government pumped a multitude of money and resources into the expansion of the nuclear industry as it developed.¹⁸ Politicians moved to monopolize the buying market for uranium, just so they could re-

tion,” 383.

¹⁵Steve Cohn, “The Political Economy of Nuclear Power (1945-1990): The Rise and Fall of an Official Technology,” *Journal of Economic Issues* 24, no. 3 (September 1, 1990): 784.

¹⁶M. Granger Morgan, “What Would It Take to Revitalize Nuclear Power in the United States?” *Environment* 35, no. 2 (March 1993): 32.

¹⁷German, “The Atomic Energy Debate,” 73.

¹⁸Mark Diesendorf, “Is Nuclear Energy the Answer to the Greenhouse Effect or to an Oil Crisis?” *Social Alternatives* 9, no. 4 (January 1991): 57.

tain control over the resource.¹⁹ Unfortunately, in retrospect, the government placed overwhelming faith in the nuclear industry, as scientific understanding of the infant energy was too fickle. With great enthusiasm, investors failed to see the “inflexibility” of nuclear technology.²⁰ They were confined to only certain expensive processes that could maintain energy quotas. The industry spent hundreds of billions of dollars from 1952 to 1991 to keep nuclear reactors functioning.²¹ In 1982 dollars, total expenses plus utilities cost anywhere between \$561 and \$741 billion.²² To contrast, the high estimate for the value of nuclear revenue is \$402 billion while the low estimate is just \$268 billion. This is where most of the conflict between pro-nuclear and anti-nuclear interests arose. There was no reasonable method of predicting costs, and in most situations, the costs of nuclear power exceeded the profit. Many pro-nuclear politicians greatly understated the cost of nuclear energy.²³ When the rising costs of production became too great, construction projects were abandoned and antagonisms towards the nuclear industry grew.²⁴ Towards the end of the 1960s, growing frustrations due to exaggerated costs led to the abandonment of future nuclear power plant plans.²⁵ The “genie” began to look less and less appealing.

Despite surviving social concerns, economic concerns crippled the nuclear power industry. Politicians and scholars could not agree if such

costs were worth the trouble, and as a result, production became undermined. On top of this frustration, regulatory practices became overly complicated.²⁶ The complexity of not only the technology itself but also the management systems that surrounded it damaged nuclear power further.²⁷ As well as these, bureaucracy and the regulatory environment surrounding nuclear energy became complicated, and it became very difficult to get projects approved.²⁸ There were too many risks associated with nuclear power, especially when it took a toll on the economy due to its monumental costs. Politicians and scholars had begun to see flaws in any original optimism. By 1970, nuclear power was on its last legs. It was damaging the economy, which directly influenced how people lived. Politicians and scholars wanted to preserve a “status quo” of living for Americans and were unwilling to make monetary sacrifices to invest in nuclear power completely.²⁹ They wanted to maintain a human-made environment of stability and comfort. These impulses were driven by an underlying environmental view on civilization. However, disagreements among opposing groups stagnated its fast and widespread distribution across the country.

3. Foreign Policy and Domestic Wishes

Then, circumstances changed. The United States society was very dependent on energy to function, and it drew from all diverse sources of power, ranging from fossil fuels to wind, solar, and nuclear power.³⁰ During the 1970s, the oil embargoes placed on the United States and some European countries by oil-producing countries in the Middle East caused an energy crisis, which led

¹⁹Stephanie A. Malin, *The Price of Nuclear Power: Uranium Communities and Environmental Justice, Nature, Society, and Culture* (Rutgers University Press, 2015), 34.

²⁰Christian Joppke, “Decentralization of Control in U.S. Nuclear Energy Policy,” *Political Science Quarterly* (*Academy of Political Science*) 107, no. 4 (Winter 1992): 709.

²¹Jeffrey R. Paine, “Will Nuclear Power Pay for Itself?” *Social Science Journal* 33, no. 4 (October 1996): 459.

²²*Ibid.*, 459.

²³Diesendorf, “Is Nuclear Energy the Answer,” 57.

²⁴Rothman and Lichter, “Elite Ideology and Risk Perception,” 385.

²⁵Earl Cook, “The Role of History in the Acceptance of Nuclear Power,” *Social Science Quarterly* (*University of Texas Press*) 63, no. 1 (March 1982): 4.

²⁶Morgan, “What Would It Take to Revitalize Nuclear Power,” 30.

²⁷*Ibid.*, 7.

²⁸*Ibid.*, 9.

²⁹Cook, “The Role of History in the Acceptance of Nuclear Power,” 13.

³⁰Hans Blix, “Nuclear Power and the Environment,” *Environmental Policy & Law* 19, no. 6 (December 1989): 198.

to a demand for nuclear power to replace what was lost.³¹ The Organization of Arab Petroleum Exporting Countries (OAPEC) restricted the number of oil barrels sent to the United States in 1973 while drastically increasing the price per barrel in response to the decision to support Israel in the Yom Kippur War against a coalition led by Egypt and Syria. Eventually restricting the distribution of oil to the United States entirely, OAPEC, under the leadership of Saudi Arabia, sent a stinging message and forced politicians and scholars to reconsider American fuel consumption.³² Even after the embargo ended in 1974 following peace talks, OAPEC continued to control oil prices, which caused Americans to question their economic place in the political world.³³ This was by far not the last oil crisis the United States faced, and subsequent events caused by tensions in the Middle East forced Americans to look at their dependence on foreign energy sources and inwards to revitalize energy industries domestically.³⁴

At the same time, Congress had begun to pass environmental legislation and regulation in the face of excess energy consumption in American society. While oil was the focus of these laws, early environmental thought saw consideration of the long-lasting impact of human actions on the natural world.³⁵ Such a heavy strain complicated how people approached atomic energy. On one hand, the U.S. was reliant on its energy sources to maintain industrial processes. On the other, nuclear power was undesirable because of how expensive it was to generate and the potential natural effects that its use could have on the environment. This issue caused certain hesitations in decision-making. Ultimately, maintaining a status quo of American living surmounted all other

tensions, which influenced United States policy. Despite the monetary and environmental consequences, OAPEC's oil shock made scholars and politicians believe that the expenses of nuclear power to be necessary to avoid foreign political control of the American economy.

This reborn desire to reignite energy industries in the United States bolstered the potential impact of nuclear energy and made it seem worthwhile. At the same time, scholars were excited about the possibility of a diverse and aggressive energy economy domestically. Nuclear power expert James T. Ramey favored the competitive nature of nuclear power and stressed that not only was it cleaner than oil, but that it prevented a dependency on foreign power sources.³⁶ What he argued about may be indicative of more modern environmentalist thought. Ramey was concerned about air pollution from other energy sources and used that argument to fuel a positive nuclear perception. However, such arguments were made to only preserve what valuable fossil fuels the United States had in reserve.³⁷ Ramey even recognized the potential issues with nuclear energy, such as thermal runoff, potential radiation leaks due to accidents, and the problem of waste storage, but assured the reader that the nuclear industry was entirely safe.³⁸ Such opposing statements were confusing: how could nuclear power present so many problems while at the same time remain entirely safe? Scholars contradicted their ideas often with these juxtapositions.

Scholars wanted to preserve natural resources for the future of humanity but were simultaneously willing to cut corners and potentially harm the natural world to do so. As discussed, this early environmentalism was quite human-centric. Men like Ramey argued that sacrifices should be made to ensure the best possible environment.

³¹Manning, "The Future of Nuclear Power," 16.

³²Karen R. Merrill, *The Oil Crisis of 1973-1974: A Brief History with Documents*, (Boston: Bedford/St. Martin's, 2007), 2.

³³Ibid., 3.

³⁴Ibid., 5.

³⁵Ibid., 2.

³⁶James T. Ramey, "The Promise of Nuclear Energy," *The Annals of the American Academy of Political and Social Science* 410 (November 1, 1973): 11.

³⁷Ibid., 16.

³⁸Ibid., 17-18.

This damaged the cause because of its obvious issues: how can people maintain a safe environment if they destroy it in their attempt to preserve it? Still, President Richard Nixon, in office from 1969 to 1974, instructed the Atomic Energy Commission to speed up licensing and construction of nuclear power plants to combat the shortage.³⁹ Even though the nuclear industry was already struggling, outside influences such as the oil embargo imposed by OAPEC dictated that it should continue expanding. This indecisiveness would come back to hurt nuclear perception. Just as scholars and politicians had begun to dismiss atomic power due to initial economic concerns about huge costs and diminishing revenue, a new scarcity of foreign oil influenced them to reverse their decisions as the need for energy was felt nationwide. This confusion then led to an inability to firmly establish nuclear power, which put pressure on the industry.

4. Nuclear “Accidents” as Omens

No nuclear power story in the United States can be divorced from the Three Mile Island accident (TMI) that occurred in 1979. A secondary cooling circuit malfunctioned, which raised the temperature in the main cooling unit to unsafe levels. When the system automatically shut off in response, operators were unaware that a valve had failed to close due to faulty instrumentation, and the reactor core suffered severe damage and partially melted.⁴⁰ The incident that occurred in the nuclear reactor unit startled the public and impacted political opinion.⁴¹ Although issues with nuclear power were present earlier, TMI served as

a “final straw” incident.⁴² President Jimmy Carter, in office from 1977 to 1981, immediately moved to make nuclear power an energy source “of last resort” as conservation efforts became more effective against uncertain foreign oil prices.⁴³ Only years earlier, he had supported nuclear power for peaceful economic use in the United States.⁴⁴ This change in sentiments was most likely caused by mounting pressure from the public to address nuclear safety following TMI.

Alvin M. Weinberg, a nuclear power expert at Oak Ridge National Laboratory, originally argued that nuclear power expansion was necessary, and he supported the industry’s growth.⁴⁵ He, like President Carter, recognized that expanding nuclear power was certainly necessary because of issues securing foreign economic interests like oil in the Middle East.⁴⁶ He was mostly unconcerned about nuclear accidents, stating they would do little damage.⁴⁷ After TMI, however, he changed his viewpoint and became uncertain that nuclear energy would survive any future accidents.⁴⁸ TMI, and the scale of commotion that it caused, forced Weinberg to agree that a “nuclear accident anywhere is a nuclear accident everywhere.”⁴⁹ Evident here is the indecisiveness that hurt the industry earlier. The constant fluctuation in political and expert opinion due to outside circumstances characterized the debates surrounding the TMI incident and most other nuclear

³⁹Cohn, “The Political Economy of Nuclear Power,” 801.

⁴⁰Jimmy Carter, “President’s Commission on the Accident at Three Mile Island - Remarks Announcing Actions in Response to the Commission’s Report - December 7, 1979,” *Public Papers of the Presidents of the United States* 1979–Book II (January 1, 1979), 2202.

⁴¹Jimmy Carter, “NRC: ML120960615 - Nuclear Regulatory Commission.” NRC.gov, (April 7, 1977), 2.

⁴²Alvin M. Weinberg, “An Acceptable Nuclear Future?” *Sciences* 17, no. 8 (December 1977): 19.

⁴³Alvin M. Weinberg, “Is Nuclear Energy Necessary?” *Bulletin of the Atomic Scientists* 36, no. 3 (March 1980): 32.

⁴⁴Weinberg, “An Acceptable Nuclear Future?” 20.

⁴⁵Weinberg, “Is Nuclear Energy Necessary?” 34.

⁴⁶*Ibid.*, 35.

³⁹Richard Nixon, “Address to the Nation About Policies to Deal with the Energy Shortages,” *Public Papers of the Presidents of the United States: Richard Nixon, 1973*, (Washington, DC: Government Printing Office, 1975), 917.

⁴⁰“Three Mile Island Accident,” *World Nuclear Association*, April 2022, <https://world-nuclear.org/information-library/safety-and-security/safety-of-plants/three-mile-island-accident.aspx>

⁴¹Manning, “The Future of Nuclear Power,” 12.

issues. Carter and Weinberg, who held weight in making important nuclear decisions, stagnated the pursuit of atomic energy due to their contradictions. Politicians became unsure of nuclear expansion and put a moratorium on any new plant sites.⁵⁰ What ultimately ended up happening was the tightening of regulatory programs following massive demonstrations and political unrest.⁵¹

The decentralization of nuclear power due to these tighter regulations put the nuclear program into a comatose state and hurt any potential recovery in the foreseeable future.⁵² Such decentralizing policies also created confusion among states when it came to the environmental effects of nuclear power, such as the disposal of nuclear waste.⁵³ This compounded present issues in the nuclear power industry. The TMI accident left supporters of atomic energy skeptical and blazoned anti-nuclear activists. Events like these provided a source for fragmentation; before there was an apparent need for nuclear energy usage in the wake of oil crises, but now there was a lot of support for its end altogether. Other events following TMI, such as the bombing of an Iraqi nuclear reactor in 1981 by Israeli forces using United States weaponry during the Iran-Iraq War, added to these tensions.⁵⁴ The bombing, coupled with the 1986 Chernobyl disaster in Ukraine, created a series of domino effects in the United States nuclear power industry.⁵⁵ In Chernobyl, improperly trained personnel performed a routine test incorrectly, destabilizing the poorly designed fourth reactor, and

causing fatal explosions and the expulsion of dangerous radioactive material into the environment. The event caused the death of thirty people and poisoned thousands more.⁵⁶

Now environmentalist thought was re-invigorated as political and corporate distrust reached a high.⁵⁷ It found a new life as an ideology devoted to saving an environment being harmed by human interference. Politicians and scholars began to consider the consequences of their actions and shifted course to damage control and prevention of any further accidents.⁵⁸ The nuclear power dilemma had now evolved into something new; it asked, “is nuclear energy safe for our planet?” Unable to decide what was right, politicians and scholars took a hands-off approach to governing any future decisions. Nuclear power, already faced with economic, political, and environmental issues, and now left with little engagement, weakened as a result.

5. A “Genie” Returns to its Lamp

Another push for nuclear power acceptance occurred in the 1980s under the Reagan administration. In a 1981 speech, President Ronald Reagan, in office from 1981 to 1989, called for the removal of complex governmental regulations to revitalize the industry. By doing so he hoped to use nuclear energy as an energy source to complement coal and hydro power and to relieve economic uncertainties.⁵⁹ His main goals were to streamline the construction process and to make plutonium procurement a competitive market.⁶⁰ Reagan be-

⁵⁰Malin, *The Price of Nuclear Power*, 42.

⁵¹Joppke, “Decentralization of Control in U.S. Nuclear Energy Policy,” 713.

⁵²Ibid., 711.

⁵³Ibid., 721.

⁵⁴Walter, “Writing the History of Nuclear Energy,” 380.

⁵⁵Joyce Battle and William Burr, eds., “Israeli Attack on Iraq’s Osirak 1981: Setback or Impetus for Nuclear Weapons?” *National Security Archive*, June 7, 2021, [https://nsarchive.gwu.edu/briefing-book/iraq-nuclear-vault/2021-06-07/osirak-israels-strike-iraqs-nuclear-reactor-40-years-later](https://nsarchive.gwu.edu/briefing-book/iraq-nuclear-vault/2021-06-07/osirak-israels-strike-iraqs-nuclear-reactor-40-years-later;); Malin, *The Price of Nuclear Power*, 42.

⁵⁶“Chernobyl Accident 1986,” *World Nuclear Association*, April 2022, <https://world-nuclear.org/information-library/safety-and-security/safety-of-plants/chernobyl-accident.aspx>.

⁵⁷Cohn, “The Political Economy of Nuclear Power,” 800.

⁵⁸Cook, “The Role of History in the Acceptance of Nuclear Power,” 13.

⁵⁹Ronald Reagan, “Statement Announcing a Series of Policy Initiatives on Nuclear Energy October 8, 1981,” *American Reference Library - Primary Source Documents*, (October 1981): 1.

⁶⁰Ibid., 1-2.

lieved that native American genius would be the solution to the “atomic dilemma” that Eisenhower had coined decades earlier.⁶¹ Politicians under the influence of Reagan’s economic programs saw nuclear power as a new market to obtain capital. Following the tumultuous energy crises of the 1960s and 1970s, Reagan approached the issue much like Eisenhower and prominent scholars of the late 1950s and 1960s did, by maintaining an American status quo with tinges of militaristic and nationalistic ideas. Reagan certainly was not an environmentally active president, but his actions directly impacted the environment, even if it meant increasing nuclear production and damaging natural resource supplies to foster an American future.

Reagan further demonstrated his economic policies in a nuclear agreement with China in 1985, praising the deal for its vast international economic implications.⁶² While international relations between the countries’ political systems engulf the bulk of the document, there are notions of protecting the environment from nuclear sources of thermal, radioactive, and chemical contamination.⁶³ This reflects the foundation of stable environmentalism—the beginning of addressing a problem that had confounded the nuclear dilemma since the start. Only now did the issue begin to take the spotlight. Spurred on by the TMI incident, politicians and scholars now had to consider the long-term effects of their actions regarding nuclear power. Unfortunately, during the Reagan administration, such efforts fell flat. Reagan championed heavy government involvement in fields such as waste management and technology improvement.⁶⁴ Nuclear waste provided unique issues that were hard to tackle, and when Congress passed a law that made disposal the responsibility of the

states, political warfare complicated the process.⁶⁵

In response to Reagan’s initiatives to loosen regulations, public activists only tightened their grip on the issue and began to push back due to considerations of the negative environmental effects of issues such as nuclear waste.⁶⁶ They were also concerned with the negative effects of radiation on personal health.⁶⁷ Public opinion surveys reflected the belief that scholars and nuclear power experts were split on the trustworthiness of nuclear power, but truthfully only one out of ten papers published about atomic energy were overly negative.⁶⁸ As a result, nuclear power became a confusing landscape. It was too much of a quagmire to determine one strong opinion that dominated the view of scholars and politicians. Indecisiveness further damaged nuclear power. Environmentalism was used as both a reason to support and reject nuclear power, which now stood in a shallow grave. Such arguments became the reason nuclear power was never revitalized as Reagan envisioned.

The nuclear power issue was not only complex but daunting. It was hard to find a balance between acceptance and proper use. Too many problems confused and confounded those in political power and nuclear power experts. Some of these issues were out of these official’s control—international conflict, for instance, indirectly crippled the nuclear power industry. When the nuclear bomb was first dropped, international warfare slowed the distribution of atomic energy out of fear for security and continued to do so well into the Cold War. Not enough money could be pumped into the industry to relieve these problems, and it stagnated out of negligence. Economic issues reared their ugly heads—experts proved that nuclear power was too costly to fund and maintain, in the hundreds of bil-

⁶¹Ibid., 2.

⁶²“China—United States: Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy,” *International Legal Materials* 24, no. 5 (September 1, 1985): 1393.

⁶³Ibid., 1394, 1403.

⁶⁴Joppke, “Decentralization of Control in U.S. Nuclear Energy Policy,” 714.

⁶⁵Ibid., 721.

⁶⁶Rothman and Lichter, “Elite Ideology and Risk Perception,” 384.

⁶⁷Walter, “Writing the History of Nuclear Energy,” 381.

⁶⁸Rothman and Lichter, “Elite Ideology and Risk Perception,” 390, 392.

lions of dollars.

However, as an economic “genie” it remained tantalizing, as nuclear power still held the potential to advance the United States into a new era of prosperity and success. When energy issues spurred by OAPEC-caused international strife consumed American politics, nuclear energy was assumed to be necessary, but unsolved problems lingered to hamper any successful attempts of distribution. Then the TMI incident raised a new environmental awareness that became the epicenter of nuclear debates into the 1980s and directly worked against further attempts to loosen regulations and give nuclear power new life. The nuclear industry has always been mired in a back-and-forth struggle that has prevented its success in the United States. These arguments were based on fundamental environmentalism, whether that be in support of maintaining human interests or preserving the integrity of a delicate natural world. Neither outlook was necessarily appealing to those who commented on the issue. Indecisiveness prevented politicians and scholars from agreeing on a final decision, and consequently, nuclear power was never entrusted with the American future.

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