

The Tens of Thousands of Years Policy

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Introduction:

Nuclear energy and defense are contentious topics throughout the United States due to the perceived danger of placing radioactive material in the hands of leaders and civilians with powerful and militaristic ends in mind. Regardless of the political and moral questions surrounding the subject of human's right to harness nuclear power, the "Achilles Heel" of nuclear production is the waste produced by both high-level and low-level radioactive use (Funk, A and Sovacool, B.K. p.115).

As nuclear production blew up in the 1950s there was no immediate strategy in place to handle the waste produced from these new ventures. Three decades after the nuclear reactors went live, the spent fuel began to accumulate calling into action government actors and industry leaders to fabricate a strategy to address the issue of what to do with the waste. Congress established the Nuclear Waste Policy Act in 1982 as a legislative answer. This act called for the construction of a geological repository as a long-term radioactive waste solution. Thirty years after policy implementation construction on a geologic repository is yet to be started, leading to the lack of a long-term response to the 90,000 tons of nuclear waste still remaining in short-term storage containers, enough to fill a football field sized pool 20 feet high (Funk et al.).

Ultimately, it is important to determine the reason that a policy with a crisis driven goal in mind has meet so much contention, resulting in a stagnant stage of implementation, half a century after enactment. To determine the cause of this concern the policy history and current policy environment leads the conversation to an analysis of faults in policy design and inconsistency in stakeholder's political authority. Öberg, Landin, and Thelander, scholars of policy design suggest, "If policy formulation is politically biased, in

that leading and powerful politicians steer the supposedly “neutral” administration toward certain desired policy options early in the policy process, decision making will be based on inadequate information. This is likely to hamper both democracy and efficiency,” (97). By unpacking this avenue of thought, and addressing the policy design with an emphasis on the driving politics of nuclear waste reform the problems at the core of the policy can be uncovered.

The policy design prescribed by the Nuclear Waste Policy Act of 1982 (NWPA) included unrealistic timelines and numerous veto points, which predestined the bill to policy failure. This has left the nation without a long-term storage solution for spent nuclear fuel. Through an analysis of these veto points along with a discussion of the importance in political clout of legislative and executive stakeholders, the NWPA of 1982 will be uncovered as destined to continual contention unless long-term political stability is adopted by all holders of political authority.

Nuclear Science:

There are two classes in which nuclear waste are separated into depending on the origin and radioactive levels assessed high-level and low-level. High-level waste, used in nuclear power plants, does not decay to its mined levels of radioactivity until approximately 1,050 years after being spent in reactors (World Nuclear Association). While low-level waste, including items used in biomedical applications, must be stored for a shorter duration but at a much greater quantity (USNRC). Both of these forms of waste must be handled properly to ensure that the environment is not harmed by the intense radiation that can lead to numerous aberrations in the normal functionality of the

ecosystem. Although both types of waste need to be handled, only the high-level nuclear waste and spent fuel rods need long-term storage options.

Spent fuel rods are extremely dangerous due to the nature of their design. Fuel rods are comprised of uranium mined from the earth's core. These rods are then placed in nuclear reactors and operate for approximately five years before they are considered spent, meaning that all the uranium atoms that produce nuclear energy have been split and no more fuel is present leaving only radioisotopes that emit radiation but do not produce power (Union of Concerned Scientist). Once the fuel rods are spent they are placed in pools of water to allow the cooling process to begin (Union of Concerned Scientist). These pools are meant to hold a limited number of rods for 50 years allowing them to be cool enough for transfer and long-term disposal. The rods themselves remain radioactive for hundreds of thousands of years as the radioactive isotopes, such as the proliferating isotope of plutonium-239, with a half-life of 24,100 years, decay (Hubert and Funk et al.).

Scientists have had little funding to explore alternative options for nuclear waste disposal however; some projects do exist exploring alternative ways to handle spent nuclear fuel rods. Research conducted early in the nuclear waste crisis determined the use of a reprocessing system as a positive alternative. Reprocessing spent fuel allows up to 30% of the natural uranium to be recycled (Funk et al.). As a result the reprocessed waste functions as nuclear weapons grade radioactive materials. The reprocessing efforts were stopped during the Carter administration, after India exploded a nuclear weapon using US and Canadian reprocessed fuel creating a situation that called for international safety to outweigh the efforts to harness the recyclability of nuclear waste (Funk et al.). Recent investigations have moved away from recycling efforts offering unique alternatives for

potential nuclear waste storage; current efforts in physical organic chemistry have led to recent breakthroughs on possible future materials capable of sequestering radioactive isotopes. These materials are known as metal organic frameworks, (MOFs) highly tunable molecular traps for radioactive organic isotope storage (Li et al.).

While there is research being conducted on waste management alternatives the vast majority of nuclear waste must be handled in bulk form calling for large storage tanks to be used to hold the radioactive waste as it decays. The leading answer for the long-term storage of such fuel has been identified as geologic repositories where large rock formations above the water table have proven to be the answer for the storage of spent nuclear fuel (Kraft). Geologic repositories were identified as the storage solution in the early 1970s and due to the increasing amount of nuclear waste accumulating across the nation, Congress began to explore options for waste management and storage beginning the process on the long and incomplete road of nuclear waste reform in America.

Legislative Action:

I. Before Enactment

The Nuclear Waste Policy Act of 1982 was not the first piece of legislation that sought to provide national reform for nuclear waste disposal (Clary). At least ten additional bills circulated through Congress without gaining traction or finding success (Clary). Growing discussions and salience of the issue in Congress prior to legislative action can be studied through the analysis of the number of occasions when nuclear waste was discussed in committee hearings. This information presented in Figure 1, located in the appendix, acquired from the research of Nowlin, provides information “obtained from the ProQuest congressional database, using the search terms “nuclear waste,” “radioactive waste,” “spent

nuclear fuel,” “nuclear waste,” “Yucca Mountain.” (60). The pre-NWPA era encompassed a significant amount of constitutional hearings regarding spent nuclear fuel, ultimately leading to congressional action with the adoption of the NWPA, however; this response was not without prompting from lower government systems.

As the nuclear waste crisis was growing, thirty-three state governments began to enact local legislation curtailing nuclear production until answers for waste disposal were found (Clary). Nineteen of those states abandoned nuclear production all together (Clary). Meanwhile, 20% of the United States’ national energy was being produced through nuclear energy and a sudden end to that production would impact not only the states handling the waste but would also be costly to the nation as a whole (Hubert). As a reactionary solution to the possible loss in energy production, Congress enacted legislation that precluded scientific research pushing inconclusive results as a basis for policy that would impact many generations to come (Clary).

Policy design and development is of critical importance for policy viability of all forms of legislation. Oberg expresses, “Flawed policy design can seriously impede policy implementation, and Linder and Peters have even argued that starting with the wrong policy instrument is a larger problem than using the right instrument poorly,” (Oberg et al). By considering the climate of policy construction present during the passage of the NWPA of 1982, a window into the future problems of implementation may be better understood. On the eve of a new year, the 97th Congress meet in Washington to conclude the legislative session and prepare to travel home for the Christmas holiday. The House and Senate were at odds, the reports on “the nuclear-waste legislation [emphasized], the differences were so great, and the time was so short, that it was widely believed no bill would be acted upon,”

(Barlett et al). To avoid Congressional inaction on the growing crisis of nuclear waste reform impacting the electricity supply for the nation, “two lawmakers, Sen. McClure and Rep. Morris K. Udall (D., Ariz.), and their committee staffs put together a final bill which was rushed through a lame-duck session of Congress in 90 minutes, hours before the start of the Christmas vacation...During the afternoon of Dec. 20, the Senate, with many of its members absent and with debate limited to a total of 15 minutes, approved 17 unprinted amendments to the bill,” (Barlett et al). This legislation dictated nuclear waste reform, if enacted, for 40 future generations.

Comprehensive investigation was not conducted to determine the best language and specifics needed to ensure that policy implementation of the NWPA of 1982 was achieved. Oberg stresses that although “It is time-consuming to analyze a large number of policy options and their consequences...it is not optimal to focus on a single solution early in the policy process,” (95). By singling out a specific policy or as in this case, discounting alternatives as a function of time constraints, problems can arise based on a “democratic perspective,” (Oberg et al, 95). These problems include, as outlined by Oberg et al, invalidating policy legitimacy by not considering multiple avenues of crisis resolution, proposing policies not based in sound comprehension due to lack in education on all areas of an issue, and discrediting “democratic accountability,” leading to the public holding policy initiators accountable for policy failure (Oberg et al, 95).

In the circumstance of the NWPA the lack in analysis of alternatives and the rushed deliberation of the bill creates a law in which the policy design mirrors most of the components Oberg et al warn against. As a result of the expediency in which the law was passed through Congress, all alternatives were left at the bill sponsor’s door, pushing

through chamber disagreements without any input from Congress members whose names were not included on the legislation. Many members did not even understand the full content of the legislation on the floor introducing an absence in knowledge to analyze if the proposed bill was of sound nature or needed language changes to ensure its effectiveness. Barlett cautions, “As might have been expected when Congress enacts a law that few of its members understand, the bill resembled a legislative Christmas tree, festooned with favors for special-interest groups and influential politicians,” (Barlett et al.). The inclusion of such “favors” undermined the “democratic accountability” of the legislation as will be seen in the political sentiment expressed during the aftermath of policy enactment (Barlett et al. and Oberg et al).

II. After Enactment:

The NWPA as enacted by Congress in 1982 included four major objectives to be carried out by the Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC) including,

- (1) “to establish a schedule for the siting, construction, and operation of repositories that will provide a reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository;”
- (2) “to establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and spent fuel;”
- (3) “to define the relationship between the Federal Government and the State governments with respect to the disposal of such waste and spent fuel; and”
- (4) “to establish a Nuclear Waste Fund, composed of payments made by the generators and owners of such waste and spent fuel, that will ensure that the costs of carrying out activities relating to the disposal of such waste and spent fuel will be borne by the persons responsible for generating such waste and

spent fuel.”

-NWPA as Amended, March 2004.

The NWPA additionally included language legislating that private and civilian nuclear facilities were liable for the primary responsibility of ensuring that interim storage for nuclear waste was provided at the site of the reactor (Funk et al.) While the government was not required to compensation the facilities for the interim storage, the Department of Energy (DOE) was required to sign contracts by January 1, 1990 with all private generators of spent nuclear fuel, taking title of the waste produced in return for an annual contribution to the newly created Nuclear Waste Fund (Funk et al.). This fund served as a major financial sponsor of the efforts to construct a repository (Funk et al.).

A complex timeline was created during the issuance of this policy with the first step outlining that each state containing a possible site was to be notified of such possibility 90 days after the enactment of the legislation (NWPA). Nine states were evaluated as potential hosts for the geological repository site leaving out a large area of the country. The other 41 states were not only excluded based on reasons of not possessing a potential site but were not investigated due to time constraints imposed by the policy (Bryan). This rushed selection process may have excluded some of the best states and site locations from being identified, however; due to the policy timeline such expediency was necessary to ensure compliance. States that were included in the nine selected states felt that a complete survey was not taken of the country and they were selected under prejudicial conditions. This signified that the already initially selected states already contested the policy for partialities against selection of the states not evaluated.

Within 180 days of policy enactment, the Department of Energy was obligated to

finalize the guidelines for site qualifications set by the Environmental Protection Agency (EPA). These qualifications would be followed during the selection of a geologic repository (NWPA). With the EPA qualifications in place the DOE evaluated the nine states' perspective site locations, using only existing scientific knowledge to determine the viability of the location for long-term nuclear waste storage (NWPA). Once the sites were observed the final recommendation of the top three potential sites were presented to the President by the statutory January 1, 1985 deadline (NWPA). Three locations for site location were recommended to the President in 1985, including Hanford Nuclear Reservation in Washington, a salt formation in Texas and Yucca Mountain in Nevada (Macalster College).

After the recommendation, the policy called for the decision of the President to approve the sites for further action within 60 days from DOE reporting (NWPA). During this time period Congressional interest in the issue sprang into action as shown in Figure 1. The Congressional members from Texas and Washington worked within the chambers of Congress to pass amendments leading to the ultimate decision by Congress to only concentrate on the Nevada site of Yucca Mountain (Malcaster College). The initial policy amendments were introduced within the Senate Budget Reconciliation bill, however this piece of legislation was not accepted by the House calling for the formation of a conference committee for discussion of the disagreements between the two chambers (Vandenbosch). Out of this conference committee came the amendments act solidifying Yucca Mountain as the only site location. Congressional members against site locations in Washington and Texas had significant political clout within the chambers of the House and Senate serving in multiple leadership roles. Due to their political influence, the amendments to the NWPA

were ratified in 1987, within the conference committee bill “approved by the House at 10 p.m. on December 21 by a 237 to 181 vote and by the Senate at 1 a.m. on December 22, 1987, by a 61 to 28 vote,” (Vandenbosch, 87). Members of Congress were ready to adjourn for the holidays, much like the climate for the initial passage of the bill. This rush to ensure policies are passed before adjournment is unsettling. As Oberg expresses, “considering several policy alternatives improves the likelihood that preferences and final decisions will be based on facts and logic...a key component of democratic decision making, at least from a deliberative perspective on democracy,” (95). Without further time allowed for more in-depth policy consideration, the inclusion of the amendments act within a conference committee bill did not allow the opposition to rally support against the proposals, much to the dismay of the young and powerless Congressional members from Nevada who had only begun their tenure in office in both houses.

The Nuclear Waste Policy Amendments Act of 1987 solely concentrated on Yucca Mountain as a future geologic repository site. This gained the policy the nickname of the “Screw Nevada Bill” as it disregarded the majority of the vision of the original policy to ensure that site selection was a fair process, substituting the scientific research of determining the most suitable site with the political biases of powerful players in Congress (Nowlin). The DOE continued with the originally proposed legislation for the process of site approval after selection. This called for the DOE to compile a recommendation for the President and Congress including multiple environmental and cost-benefit assessments regarding the Yucca Mountain site before issuing a license application to the NRC. According to the scholarship of Vandenbosch in *Nuclear Waste Stalemate*, “Energy Secretary Abraham notified the governor of Nevada that he intended to recommend Yucca

Mountain for a permanent repository on January 10, 2002, “ (139). This compilation process took much longer than the NWPA ordered the assessment to take; as the legislation outlined that all waste would be disposed of by January 31, 1998 (Funk et al). Which such a delay in policy fulfillment it is important to understand what led the DOE to action. “The terrorist attacks on the World Trade Center in New York City and the Pentagon in Washington, D.C., on September 11, 2001, increased the urgency of disposing of high-level nuclear waste in an underground repository,” (Vandenbosch, 139). The threat of terror revitalized the crisis of dealing with nuclear waste, Secretary Abraham stated, “We should consolidate the nuclear wastes to enhance protection against terrorist attacks by moving them to one underground location that is far from population centers,” (Vandenbosch, 139).

With this motivation in hand Secretary Abraham recommended the site for approval by President Bush on February 14, 2002 (Vandenbosch). The President approved the proposal one day later and sent the recommendation for approval by Congress. The governor of Nevada, Governor Guinn, had a 60-day timeline to determine if the state would veto the final recommendation (Vandenbosch). “Guinn took nearly the maximum time allowed and issued his Notice of Disapproval on April 8, 2002,” (Vandenbosch, 140). After the state veto was received, Congress had a 90-day period to sustain or override the final proposal of Yucca Mountain to serve as the site for a geologic repository. The joint resolution to override the veto was met with more contention occurring in Senate debates than House discussions (Vandenbosch). With the state veto defeated, Nevada faced the courts to hinder the continuation of the final recommendation process delaying the submission of the license application to the NRC until 2008 (Funk et al). This ten-year delay

pushed back the construction of the geological repository adding an initially unforeseen addition to the timeline of implementation. According to the legislated framework of the NWPA the NRC was allowed three years to issue a response to the application, however; presently in 2018 there has been no response.

A policy that was to be in full effect by 1998 has not even broken ground 20 years later. Gaining a deeper understanding of the history of the legislation as well as the veto points and roadblocks the policy has encountered is important in understanding the underlying sources of policy behavior. Veto points within the political context include points of conflict during the enactment when portions of the legislation are slowed down by either institutional or additional issues prescribed or unforeseen by the governing body. By turning to the public attitudes in Washington, the states, and the polity as a whole, the fundamental objections can be identified presenting a beneficial insight into a perpetrating ineffective statute.

Nevada and Yucca Mountain:

Looking to the states it is important to understand the interactions between the federal government and that of the states during policy implementation. State authority in the Congressional chambers, state sovereignty and state rights in the context of the NWPA of 1982 may point to downfalls and roadblocks leading to policy failure. To understand the evolution of the relationship between Nevada and the federal policy initiation efforts it is beneficial to identify the initial plan for state involvement with the policy. The initial 1982 version of the NWPA included language that ensured that regional equality would be considered and two sites, one in the west and the other in the east, would be analyzed for future site locations to ensure that one state did not bear the burden of the entire national

waste repository (Bryan). The initial promises for states involved in site selection and evaluation granted major oversight for impacted localities and governments to ensure that the process would continue without state dissent (Bryan). These policies gave the state a veto power through the allowed issuance of a notice of disapproval to Congress, only to be overridden by a joint resolution of Congress along with power of environmental assessments that must be granted by state authorities before licensing of the site by the NRC can be issued (Clary). The mechanism of the congressional resolution made state power fall as the underdog, with congressional clout having the upper hand and greater authority.

The NWPA of 1982 began with intentions of state and federal communication and collaboration, however due to the constricted timeline of policy implementation some of the cooperative intentions of Congressional members were disregarded in bureaucratic implementation of the policy. After the three sites were recommended to the President any hope of state and federal collaboration was eclipsed by the amendment actions made in the legislative branch. The states lost all power originally reserved to them in the initial legislation. In 1987, the Speaker of the House Jim Wright of Texas, President of the Senate Lloyd Bensen of Texas and House Whip Thomas Foley of Washington had the power to ensure that no additional presidential or congressional controlled deliberation would take place regarding where the site was to be located, removing the Texas and Washington site options and legislating that Nevada was the only viable location (Gilbreath). Legislating science and forcing states that have less power within the chambers of the legislator does in no way foster support from the victim of such action ending the future of state cooperation later proved to be mute with no power found in the judicial or legislative

branches. The 1987 amendments, coined by dissenters as the “Screw Nevada Bill,” confirmed the disdain of the legislated changes by the state of Nevada (Bryan). The change in direction of the policy was significant as even the “Father of NWPA,” Udall of Arizona, was not supportive of the legislation after the amendments were enacted (Bryan). Swift a representative from Washington, a state that greatly benefited from the amendments commented, “the Amendments Act changed the federal repository program from one characterized by regional equity and scientific objectivity to one driven by power politics and political expedience. Forty-nine states, using the Congress' punitive power under the Commerce Clause, found a way to isolate themselves from a problem common to them by victimizing a single state that, without a single nuclear power plant, had no part in creating the problem,” (Gilbreath, 594). The NWPA amendments inadvertently created an additional roadblock and veto point of the policy that allowed the state of Nevada to reach to the courts as a last ditch effort to build political influence.

An interpretation of the NWPA from the state of Nevada perspective provides interesting insight into how the state has responded to the highly federally controlled legislature (Bryan). There is much concern expressed by the state concerning how the DOE chose the Yucca Mountain site. The state government suggests that the DOE initially selected sites without reviewing the data and scientific evidence included in the process crafted by Congress (Bryan). Additionally, internal congressional review of DOE action led to a finding that the “DOE distorted and disregarded its own scientific analysis,” during the selection of the Yucca Mountain site (Bryan). Suggesting and providing supportive evidence that the DOE picked the sites and then applied the outline for decision loosely without convincing evidence of sound scientific basis giving the state of Nevada additional

motivations to show reservations for site development (Bryan). The state which did not have any of the powers originally given to the state before the amendments to the NWPA, also confronted the possibility of the geologic repository being detrimental to the economy of the state (Bryan). The state of Nevada relies heavily on tourism as a major economic support for the state, as the region has many landforms that are appealing and bring in visitors to the state (Bryan). The addition of a nuclear waste storage facility within close proximity to these tourism sites introduced potential impacts on state economic benefits heightening the already altered attitude of the state government.

The Nevada Attorney General published a law review after the addition of the amendments expressing the state of Nevada assessments regarding the viability of a nuclear waste disposal site at Yucca Mountain (Nevada Lawyer). After appealing to the situational location for the site and the many problems it poses to Nevada citizens the review suggests that the state of Nevada had reasonable grounds to form a strong position to defend the state from the continuation with site characterization at Yucca Mountain (Nevada Lawyer). The attorney general indicated that the state administration was committed to protecting the state on all levels; illustrating the state's disdain for continued action at Yucca and rejection to consent political pressure in the process of implementing the NWPA (Nevada Lawyer).

Communicating the attitude of the Attorney General into reality the state responded after forced site selection of Yucca Mountain; the state acted to halt the DOE from acquiring state licensures and assessments needed for inclusion in the submission of the licensing application to the NRC. Due to opposition from local and state authorities officials, characterization of the site did not fully begin until the late 1990s (Funk et. al). Some of this

delay in action of further site analysis was a result of Nevada's appeal to the judicial branch to resist the policy on grounds that it violated Nevadan law (Gilbreath). The Nevada legislator enacted state statues outlining that the storage of high-level radioactive waste in the state prohibited state law additionally passing two resolutions to Congress expressing this sentiment (Gilbreath). The DOE secretary did not recognize the resolutions or state law as a valid notice of disapproval and therefore continued to work towards characterizing the site (Gilbreath). In *Watkins I* the state of Nevada petitioned the Ninth Circuit Court expressing that the federal government was in violation of the state statue (Gilbreath). The court found that the state law was preempted by NWPA, suggesting that the federal government had already precluded state action in the specific policy arena invalidating state law on governance on the same issue (Gilbreath). Additionally, the courts suggested that because the federal government owned the lands where the site was located that Congress had plenary powers as granted in Article IV of the Constitution within the property clause (Gilbreath).

Nevada did not find help for resistance within the judicial branch but continued submitting cases approaching the circumstance on varying political grounds. In *Burford I*, the state of Nevada petitioned on grounds that continuation of the Yucca Mountain site violated the 10th amendment of the Constitution however this petition was not reviewed as the Ninth Circuit did not grant the case as it did not have standing (Gilbreath). The state made an explicit effort to invalidate the project, as members of the locality as well as the larger public were overwhelmingly against the construction of a permanent geologic repository.

Finding no major victories within the judicial system, Nevada has continued to

observe the slow and involved process of site characterization culminating in 2008 when the DOE presented an 8,600-page application to the NRC for approval (White). The state issued, as allowed in the NWPA, a notice of disapproval to Congress. Congress overrode the state objection with a joint resolution, leaving the state of Nevada waiting on the presently inconclusive approval of the application by the NRC as the last hope to avoid repository construction. The licensing application, which according to the NWPA should have been issued in the late 1990s, illustrates the extent to which the legislation has been delayed. This demonstrates how ineffective and unrealistic the timeline set by Congress has proved to be. The actions by the state of Nevada, who hold a constitutional right to file suit and challenge federal law illustrate one of the unaccounted for roadblocks increasing contention for long-term storage options.

Environmental Protection:

The state of Nevada is not alone in the dissent of the use of Yucca Mountain for a geologic repository for spent fuel rods and high-level nuclear waste, environmental advocates also have spoken out signaling the need for precautions to be addressed before the continuation with the building of the repository. Regarding environmental assessments of the viability of the sites there are reports on either side of the issue.

The International Atomic Energy Agency continues to support, even four decades after NWPA, that the creation of a geologic repository remains the most viable option for long-term nuclear waste storage (White). This suggests that the track of the study remains to be valid, however an analysis of the specifics of Yucca Mountain is needed to determine if the rock formation in Nye County is in fact a scientifically sound choice for a repository. A number of evaluations suggest that Yucca Mountain is a sound choice while others propose

that the site is not a secure option for holding nuclear waste; this scientific discussion further added to the unforeseen roadblocks to the successful implementation of the NWPA.

Many studies have been conducted culminating the DOE 2002 recommendation of the site before submission of licensing application to the NRC. The DOE Secretary expressed, “the Department has found that a repository at Yucca Mountain brings together the location, natural barriers, and design elements most likely to protect the health and safety of the public, including those Americans living in the immediate vicinity, now and long into the future,” (White, 8). Many other opinions suggested that the location and conditions of Yucca Mountain provided innate dangers for long-term storage. These concerns included arguments that highlighted the potential for significant earthquakes, the volcanism and the possibility of renewed volcanic activity of the mountain, and position of the site over major continental fault lines (Bryan). With varying reports of the environmental viability of the site, many cases entered the court circuit, calling for stringent evaluation of the enduring environmental impact of such a repository.

The EPA was a major stakeholder in these conversations as they held the responsibility to write and oversee the formation of environmental guidelines to be followed by the DOE in the application process and the NRC in licensing process. The first guidelines for the project were made in 1985 as legislated by the initial NWPA (National Research Council). These guidelines were to be made on a basis of the recommendation of the National Academy of Science and as time progressed and the repository was still undergoing characterization by the DOE the EPA updated the guidelines in accordance of Congressional direction (Murray, National Research Council). The first revision was in the Energy Policy Act of 1992 followed by a revision in 2001 (EPA). The 2001 EPA standards

provided guidelines for a 10,000-year program, this outline was challenged in 2004 in the DC Circuit Court on the basis that a program restricted to 10,000 was inefficient and did not consider the full requirement of the repository required to remain efficient for a longer timeline (EPA). As a response to the judicial ruling the EPA revised the guidelines once again in 2008 not putting an end date on the environmental impact guidelines of the Yucca Mountain site (EPA).

The change in guidelines of site approval set by the EPA is one result of the unreasonable timetable initially put into place by Congress in 1982. Environmental regulations have become significantly more stringent in the past decades as research has proven the significant impact of human activity on the planet. This illustrates just one of the difficulties the NWPA has faced, legislation made to last tens of thousands of years can operate in a tunnel only using the technologies known at time of initial legislation but must evolve as the scientific community uncovers additional insight to the potential impact of actions for a site such as Yucca Mountain. As a response to the every advancing scientific research the creation of timetables only hinders the creation of the best solution for long-term storage for nuclear waste.

Public Sentiment:

Just as science has evolved since the initial policy enacted, public sentiment has evolved as the polity has become more in tune with the potential dangerous of hosting a geologic nuclear repository within their home state. Nevada is home to no nuclear power plants and therefore, all waste would be brought in from other states to Yucca Mountain; the public of Nevada is not in the nuclear business and doesn't want to be the nation's dumping ground. The reaction of a "Not in my backyard" (NIMBY) attitude was apparent as

the people of Nevada expressed public disdain for the construction of nuclear waste facilities (Benford).

NIMBY is not an attitude reserved for nuclear waste storage but pervades many areas of public sentiment over contentious decisions and appropriations of land (Murray). The public generally asks why the proposed project has to happen near their home, ultimately known to have to occur somewhere but not allowed without a fight. In the context of nuclear waste the public has a disposition to relate anything nuclear in nature with bombs and militaristic functions enhancing negative attitudes of public dissent (Murray). In the specific Yucca Mountain site selection and ultimate federal mandate as a nuclear waste site, the general public perceived the federal government from overstepping constitutional powers leaving the public subject to central authoritarian despotism (Murray).

Nuclear waste solutions are not a zero risk venture; there always exists a possibility of nuclear leakage or other complications (Murray). This uncertainty does not produce an easy agenda to share with the greater public sphere. Ideas have been proposed to persuade and maintain public consent of such a siting project using typical tools for achieving compliance such as, economic advantages and educational programs (Benford). However, studies concludes that when such a problem becomes an imminent threat, close to those who did not experience any prior danger the immediate response to such policies even if supplemented with promises and favors has an unfavorable outcome (Benford).

Risk analyses have been conducted to determine the likelihood of gaining public support for a geologic disposal site approval through the investigation of a benefit-cost model (Kunreuther). Findings suggest that the public is generally concerned about

addressing issues about the legacy of the waste for future generations and trust in the federal government's ability to successfully enact the policy and build a scientifically sound site (Kunreuther). The DOE's credibility has diminished in the eyes of the public as a result of the major deviations in implementation of the initial policy (Kunreuther). Political trust in Congress is also low especially from the viewpoint of Nevadans who were involuntary forced into the involvement with nuclear waste (Kunreuther). The public distrust in the DOE and legislative body provide bleak conditions for the future of the policy in terms of gaining public support. While the United States vastly overlooked and abandoned efforts to gain public support other nations with similar waste crises approached the issue differently.

By comparing the nuclear waste policy of the United States to another nation it can be identified that the need for a waste solution for spent fuel rods is not an American problem but a global issue (Kraft). This calls to attention the comparison of how the United States handled policy making compared with Canada, its northern neighbor (Kraft). Policy design ultimately speaks to policy failure therefore; unpacking the design of both nations' policy is beneficial when comparing the success or adversities each nation has faced (Kraft). While the United States created a timetable for implementation, Canada allowed time for science to be conducted, public sentiment to be measured and considerations for future generations to be analyzed (Kraft). This method allowed for an open dialogue to be created as opposed to a method of highly controlled policy implementation with multiple unreasonable deadlines (Kraft). Canada conducted public hearing with the purpose of listening to the public sentiment to creating a geologic repository; after the inquiries the Canadian government determined that public opposition was too strong to continue with

the process of exploring a site for a geologic disposal location (Kraft). As a result the Canadian government began an educational programs for the public to increase the public salience of the issue encouraging the public to reconsider previously expressed negative sentiment (Kraft).

While the United States did not approach the crisis with the same approach of the Canadian government public sentiment has proved to be a continuous and contentious hurdle to overcome for policy implementation to be effective. The lack of Congressional direction as to how to handle negative public sentiment illustrates the haphazard nature of the initial policy implementation. While Congress did not prescribe an outline in how to address the public the executive branch is burdened after enactment to carry out the policy. With a policy still in early steps of execution 35 years after initial passage, an analysis of the actions of different presidential administrations may provide insight on the viability of the NWPA as the timeline has long been abandoned.

Executive Responses:

In 1981, Ronald Reagan stated in a speech, "One of the best potential sources of new electrical energy supplies in the coming decades is nuclear power, but there are obstacles: Nuclear power has become entangled in a morass of regulations that do not enhance safety but that do cause extensive licensing delays and economic uncertainty. Government has also failed in meeting its responsibility to work with industry to develop an acceptable system for commercial waste disposal, which has further hampered nuclear power development," (White, 3). The issue that is facing the United States regarding nuclear power has pervaded administrations before the passage of the NWPA, showing just how permeating the issue of nuclear waste has been since nuclear energy was introduced.

Reagan believed as he remarked during the signing of the act, “The Nuclear Waste Policy Act of 1982, which I'm signing today, provides the long overdue assurance that we now have a safe and effective solution to the nuclear waste problem,” (Reagan).

In 1991, a decade after Reagan’s initial remarks the Bush administration opened discussion for an amendment to the already modified Nuclear Waste Policy Act of 1982 (Malone). This legislation was based on the ambition to find Nevada’s issuance of environmental permits for work at Yucca Mountain preemptive and therefore, remove the state allowed permitting process included in the original language of the bill (Malone). The motivation behind this amendment pushed for the acceleration of the process of building a geological storage location for spent nuclear waste (Malone). Issues of state sovereignty and federalism came to light as the state of Nevada was joined by other western states in the desire to protect the state from findings of preemption regarding NWPA statutes as well as future legislation (Malone). The Western Governors Association, including 18 states, warned Congress against action of an amendment removing state power from Nevada cautioning that such legislation would find the dissent of surrounding states impacting future collaborative efforts (Malone). The regional dissent shut down any real possibilities for such amendments to be passed, however; did reveal the feelings of the first Bush administration regarding the activities at Yucca Mountain.

The original timeline set forth in the NWPA comprised contractual obligations with producers of nuclear waste promising that the waste would be removed by January of 1998; crisis set in as the DOE forecasted that at the current rate of progress, waste would not be able to be collected until 2010 (Ewing et. al). Lawsuits began to enter into courts, as private waste generators challenged the federal government, highlighting the contractual

obligations; the courts found that since the timeline was concrete in the policy enactment that the companies could pursue damages, monetarily impacting the federal government (Ewing et. al). As a method to combat these damages, Congress began to seek ways through legislation to move nuclear waste prior to the geologic repository being ready to receive high-level waste, (Ewing et. al). President Clinton vetoed a bill including legislation to allow waste to shipped to Nevada and stored in short-term storage in wait for the construction of a geologic repository in 2000 as he expressed, "The bill passed by the Congress will do nothing to advance the scientific program at Yucca Mountain or promote public confidence in the decision of whether or not to recommend the site for a repository," (Wald). This sentiment was seconded by Energy Secretary Richardson who claimed that enacting an additional statute would only add to the "unachievable" measures of the originally proposed 1982 project (Wald). With the Clinton administration making strong opposition to hurried changes to the NWPA the DOE continued to work on the recommendation of the site for the President's approval allowing the judicial claims to be filed and damages be paid to private waste generators.

In 2002, the Bush administration received the final recommendation from the DOE to continue with the project at Yucca Mountain as the final step before submitting the application for licensure to the NRC (Ewing et. al). The administration then turned to Congress recommending Yucca Mountain; Congress ultimately approved the site in 2008 after considering the state of Nevada's veto and ensuring that the recommendation followed the court prescribed updated EPA standards (Ewing et. al and Funk et. al). The NRC was now in charge of reviewing the application submitted by the DOE and as subject to the initial timeline had three years to issue a decision (NWPA).

Barack Obama took office in 2009, backed by the support of the current Senate majority leader, Harry Reid of Nevada (Hubert). Reid as a major democratic supporter of the campaign made the administration promise to end the Yucca Mountain site project, now having the political clout he did not have in 1982 as a new member of Congress (Hubert). The efforts by Reid to use political force to stop the Yucca project shows how the inconsistency of those in power impacts the long-term project to construct a geological waste disposal (Hubert). Although the administration campaigned and issued political promises based on the suspension of the Yucca Mountain project the Obama administration included provisions in its energy policy to increase the use of nuclear energy as an alternative to oil based fuels (Funk et. al).

This mixed approach to nuclear power, only dedicating the administration to the positive side of nuclear energy did not provide a clear message from the administration. The Obama administration understanding that action must be taken tasked a Blue Ribbon Commission (BRC) in 2010 to evaluate the current state of nuclear waste disposal and to review the NWPA of 1982 (Funk et. al). The BRC reported and recommended that the best course of action in forming a successful nuclear waste reform policy was to abandon the Yucca Mountain project and move forward with finding a new site for a geologic repository, still considered the best method of long-term storage for spent nuclear fuel (Funk et. al). The BRC report suggest that the selection process should have initially been approached through a consent based methodology with the states and tribes amicably involved through incentive based negotiations, not legislative authoritative discernment (Funk et. al). The BRC did not provide guidance however in determining the best course of action if the states do not agree to such negotiations; leaving this challenging question

unanswered left the issues and current situation found at Yucca Mountain unanswered (Funk et. al).

The Obama administration also issued instruction to the DOE in 2010 to remove the submitted licensing application for the Yucca Mountain site (White). This action to withdraw an application from a regulatory commission was unprecedented and without a clear path of executive power or authority to do so. The NRC responded that the license could not be removed because of the language as issued in the NWPA; however, the director of the NRC appealed the decision of the original decision and called for a vote within the commission that ended in stalemate (White). With the NRC at an impasse deciding whether to disregard the application or to continue to review the licensure qualifications, the Obama administration throttled the continuation of the licensing approval project by defunding the Yucca project in that year's budget (Funk et. al). Ultimately the NRC decided to wind down the project in 2011, as there was no funding for continuation and the administration was working against the commission to continue with the pathway of legislative enactment, an obligation of the executive branch (White).

The next venue to save or condemn the Yucca project was the courts (White). In 2011, the Government Accountability Office stated that "the termination of Yucca Mountain...essentially restarts a time-consuming and costly process [that] has already cost nearly \$15 billion through 2009. By ending the Yucca Mountain repository, the Obama administration has forced nuclear power plants to continue to store spent nuclear fuel on-site, a "temporary" solution of indefinite—perhaps permanent—duration. This comes at great cost to the facilities and to taxpayers, threatening the industry's ultimate financial and political viability," (White, 4). With this sentiment in mind the courts heard many cases

of concerned organizations and states regarding the constitutional requirements and separation of powers arguments for the continuation of the Yucca Mountain project, however; ultimately the courts found that decision of continuation was in the hands of the executive branch leaving the project after almost three decades lifeless until future administrations wished to rejuvenate or begin a new project for long-term nuclear waste disposal (White).

President Trump's administration had two options: to continue in Obama's footsteps and letting the Yucca Mountain project die or to rejuvenate the efforts of the licensing process to secure Yucca Mountain as a site for a geologic repository. With the pathway for policy enactment still intact, as the Obama administration's action did not have any legal footholds, it still remains viable for the Yucca Mountain licensure project to continue (Zhang). Initial actions by the administration suggest that efforts and funding may be dedicated to such efforts calling to the front the proponents and opponents of the policy that has not been touched in six years (Zhang). In addition to a change in the office of the White House, Senator Harry Reid, the chief anti-Yucca supporter has retired from his career as a Congressional member. The change in political climate has heightened the response by both supporters and dissenters of the project, as the future of the project is unknown and remains to be seen through Presidents Trump's tenure in office (Zhang).

Halstead, the executive director of Nevada's Agency for Nuclear Projects, vehemently against the revitalization of the project commented, "I knew that morning when I heard the news of [Senator Reid's] decision to retire following the injury that the Yucca Mountains proponents in Washington—in Congress and in trade groups like the Nuclear Energy Institute, the United States Nuclear Infrastructure Council, and the two

professional societies, the American Nuclear Society and the American Physical Society—that they would all immediately start fantasizing about, ‘Oh, now we can have Yucca Mountain again!’” (Zhang). Opposing attitudes have created a renewed battleground where war is still being waged in Washington along as in Nevada with the future of the Yucca Mountain site weighing in the balance.

Since the Trump administration has entered the White House, talk of nuclear waste has resurfaced in Congressional chambers. It is hard to determine if this is a function of the new administration or a response to Senator Reid’s retirement. After the election the Wall Street Journal reported “Mr. Trump owes no political debt to Nevada, which due to Mr. Reid’s efforts voted last week for Hillary Clinton and defeated the GOP’s Senate candidate. Reviving Yucca would be a sign the Senate is moving past Mr. Reid’s era of dishonest political manipulation and partisan rancor,” (Gigot). With the Trump office having no collations with Nevada and republicans having control of Congress the introduction of H.R. 3053 in the House Energy and Commerce Committee introducing proposed amendments to the NWPA comes at no surprise (Energy and Commerce Committee). The proposed legislation calls for interim storage located at Yucca Mountain to encourage the construction of the geological repository with rejuvenated funding (Energy and Commerce Committee). “On June 28, 2017, the House Energy and Commerce Committee passed the bill by a vote of 49-4,” sending the legislation to the House subcommittee on Environment (Energy and Commerce Committee).

While the legislation still remains in this subcommittee the Chairman of the Committee Greg Walden supports the bill stating, “At the end of the day this bill is good for taxpayers, communities, and ratepayers...It’s now time for the federal government to fulfill

its obligation and permanently dispose of the spent nuclear fuel sitting in our states, alongside our lakes, rivers and roadways. The time for action is now and we intend to roll up our sleeves to get this done,” (Energy and Commerce Committee). This language mirrors the sentiment of Reagan, when the NWPA was initially proposed. The question surfaces as to why such action has not been taken, why the timetables and proposed mechanism of policy action have remained ineffective for half of a decade. Mapping the causes and effects of veto points along with the fight for political influence in the legislative and executive branch the contentious nature of the NWPA can be expressed.

Political Clout and Harry Reid:

As the future of the NWPA of 1982 is unsure, the originally proposed timeline is without question a policy failure. Although the initial policy creators believed to have solved the nuclear waste crisis the ever-changing nature of the executive office and legislative chambers has introduced political contention within the policy enactment process. From the first Bush administration’s action to expedite the environmental licensing process to the Obama administration’s action as “Rogue Regulator” of the policy for political gain; the NWPA has undergone standstills causing the original policy design to be unachievable and impractical for such a cumbersome policy initiative (White, 11).

The ever-changing nature of the political landscape in Washington does not match the call for long-term stability in the creation of a geological repository to store the nations nuclear waste. Initial policy design welcomed many avenues for members of the executive and legislative branch to introduce contention with regards to the plan of site selection and construction protocol required to ensure that the rock form chosen for storage met the standards necessary for completion. “A great deal of effort was expended by participants in

framing this landmark legislation, to include provisions that would exclude their state or region from serving as the host site for repositories,” (Vandenbosch, 2). This action began with the initial establishment of the language of the bill during policy design, concentrating on only one solution. Action which Oberg warns against, suggesting that “A system with institutions that produce information on many realistic policy options therefore facilitates deliberative capacity and may reinforce deliberative norms,” (96). When alternatives are not considered or looked over as a mechanism to avoid other states from being impacted, the democratic process becomes hindered.

Many members of Congress recognized that some states provided more viable options for site locations; based on population, land formations and additional characteristics that made that state more likely to be chosen for long-term nuclear storage. These representatives “made desperate efforts to include provisions in the bill that would guarantee that their state would be excluded from consideration,” (Vandenbosch, 54). These members submitted amendments to the initial NWPA of 1982 and those with the most political sway within the capitol found their provisions in the final iterations of the legislation. Senator Lott from Mississippi succeeded in the addition of provision that “banned the placement of a repository within one square mile of an area with a population density of 1,000 or more,” ultimately disqualifying many potential sites within the state (Vandenbosch, 55). Many other members failed to include their language in the bill continuing the fight to ensure that site selection did not take place in their state.

After the passage of the NWPA of 1982, the DOE selected sites and reported on their findings prior to producing the presidential recommendation of the three final site options. In December 1984, the list was down to five sites, including land formations Washington,

Nevada, Texas, Utah and Mississippi (Vandenbosch). The mechanism of narrowing the sites down to three for presidential recommendation faces contention. “Congressman Edward J. Markey (D-MA), commented... ‘During the 1980’s... the Department of Energy put politics first and safety last. In some instances, the Department simply ignored environmental problems at potential sites for a permanent waste repository, such as Hanford, Washington, when it though this site might be the most politically viable.’” (Vandenbosch, 65). Political pressures as well as appeals to what was most environmentally lead the DOE to remove Utah and Mississippi from the list of potential sites. The Utah site was removed because it was reported to be the least viable of the salt mine formations. However, the Mississippi site was removed from the list through a “somewhat ambiguous statement with regard to different combinations of preclosure performance measures,” (Vandenbosch, 66). These vague reasons for removal may be connected to the fact “that Mississippi had both of its senators on the Energy and Water Development Subcommittee of the U.S. Senate [with] Senator Stennis... [of Mississippi, serving as the] ranking Democrat on the powerful Senate Appropriations Committee,” (Vandenbosch, 66). The political influence of Mississippi Senators detached their states from undergoing further site evaluations, a luxury that the remaining states on the list did not have.

After the recommendation of the future sites to the president, Congress began to discuss provisions of the amendments act choosing Yucca Mountain as the sole site for a geologic repository. Before the amendments were passed “through an omnibus financial bill,” other efforts were made to pass Yucca Mountain as the sole site (Vandenbosch, 86). In these negotiations Senator Harry Reid of Nevada made efforts to fight for Nevadans, against the “Screw Nevada Bill.” A bill produced by Senator Jonston (D-LA) remove the potential

for additional sites to be researched in eastern and Midwest states led to a filibuster by Senators Reid and Brock Adams of Washington (Vandenbosch). “Reid emphasized that the Yucca Mountain site was scientifically unsound and that the selection process was procedurally unfair...[also introducing] an amendment that would make health and safety the primary considerations in selecting a site, a measure that would position Nevada lower in the rankings,” (Vandenbosch, 85). Ultimately Senator Reid’s provisions failed with Yucca Mountain being designated as the sole site of interest.

After this policy change, Senator Reid did not terminate his efforts to try to prevent the Yucca Mountain project from continuing. In 1989, he worked within his office to secure additional funding for Nevada through the Energy and Water bill to ensure that the state and localities had enough funding (Vandenbosch). Senator Johnson expressed that the “State of Nevada was using every possible means to frustrate and obstruct the plan,” (Vandenbosch, 90). This impediment of the plan continued as Reid threatened to filibuster any form of legislation that would allow preemption to be found for the obtainment of state permits, in turn causing the collection of paperwork needed to violate the timeline prescribed by the policy (Vandenbosch).

After the recommendation was made to the president and congress in 2002, Reid worked to sustain the veto of the Nevadan governor. The Senate hearings on this resolution allowed for many members to speak leading to an energetic debate, not seen in past considerations of nuclear waste policy, usually squeezed in to the docket at the end of the session (Vandenbosch). This open form of discourse was led by Senator Reid and Senator Ensign of Nevada. Their first points of discussion were mostly procedural suggesting, “if the motion to proceed prevails without the majority leader’s consent, then his office has been

impaired. His ability to control the agenda of the Senate which is the basis of his power and that of the majority party...would be dealt a devastating blow,” (Vandenbosch, 152).

Senator Ensign also referenced the politics of 1987 pointing out, “that of the three finalist states for the permanent repository...Washington has the majority leader of the House and Texas had the speaker of the House. Politics decided that Nevada would get the repository,” (Vandenbosch, 159). Even with political power being great the Nevadan Senators did not foster enough support to sustain the Governor’s veto. This was due to concerns by other states that if a nuclear waste site was not constructed in Nevada their state may be the next to have to share the burden.

With all steps of Congressional considerations regarding the long-term site construction being exhausted with no success for Nevada, many may suggest that the fate of Yucca was in the hands of the NRC. However, Senator Reid used his ever-growing political power to impede the NRC’s considerations. Reid used holds on presidential nominations to try to influence opinions in the NRC (Vandenbosch). “One of the holds by Senator Reid was associated with his effort to persuade President George W. Bush to nominate a member of Reid’s staff for a position on the Nuclear Regulatory Commission,” (Vandenbosch, 163). While President Bush did not immediately comply with Reid’s request he did appoint Reid’s staff member to the position, in exchange for Reid removing a hold on his nomination for the head of the EPA (Vandenbosch). This exercise of political authority shows just how political the NWPA of 1982 evolved into being. A policy founded on regional equality to determine the best course of action for the crisis at hand devolved into a competition with the winner being the figure with the most political clout.

The inconsistency of influential power over the policy lifetime of the NWPA has led to the inability for the policy to adhere to the originally proposed timeline. The 1982 policy has met many veto points from the opposition and members of the Nevadan delegation increasing the contentious nature of the policy. With Senator Reid, the driving force of anti-Yucca sentiment, retired from his role as policy inhibitor the policy has a possibility to proceed out of the NRC with help from a strong pro-Yucca advocate. However, even if the application merits a favorable review the amount of nuclear fuel in short-term storage across the nation is estimated to be more than one geologic repository can hold.

Future of Nuclear:

“Overall, the role of and forecast for nuclear power in the United States remains mixed. On one hand, the commercial nuclear plant fleet is aging. If present policy holds, nearly all currently active reactors’ licenses will expire by 2050, even with the license renewals allowed by current law,” (Hurbert, 1185). With this in mind nuclear power generation may appear to be on its last leg, however; due to the widely felt energy crisis and the call for energy sources with little greenhouse gas emissions it is not probable that nuclear energy will be entirely eliminated (Hurbert). The NRC has approved 13 sites for new reactors as shown in Figure 2 in the Appendix without a long-term waste program in site (NRC). This shows just how contentious the climate around nuclear power has become.

While additional nuclear waste is destined to be added to the waste stockpile there are some locations battling to handle the waste at reactor sites produced over the last half-century. Some of the states that are currently bearing the burden of nuclear waste with no answer insight include South Carolina, North Carolina, and Pennsylvania, (Marshall). The Savannah River Site (SRS), located outside of Aiken, South Carolina, is host to over 70% of

the country's high-level nuclear waste as it is the leader in nuclear defense production (Marshall). The Savannah River Site is home to 30 million gallons of high-level nuclear waste (National Research Council). To handle the large amount of nuclear waste SRS has removed the waste from the original storage containers only built for 70 years of use and has processed the remaining radioactive waste into glass for storage in steel drums (National Research Council). The glass can be easily shipped off site for geologic long-term storage if a site is constructed.

The enormous amount of nuclear waste in South Carolina ready for long-term storage shows how pertinent the issue of nuclear waste reform is to citizens of the state as well as other states that bear similar burdens. If the NWPA of 1982 as amended is destined to continual contention, an answer to the nuclear waste problem may be to follow the lead of the findings of the Obama administration's BRC findings and approach states that feel the encumbrance of serving as host to large quantities of nuclear waste with a cooperative tone suggesting the construction of a geologic repository within the borders of their state. If a state like South Carolina was to agree to this process possible negotiations may also be reconsidered in Nevada to avoid the loss of billions dollars of research and efforts to form a site at Yucca Mountain, an overall sound site for such a repository.

Conclusion:

Nuclear waste reform is a real concern that is usually overlooked for the more glamorous energy production side of nuclear power. However, the Achilles Heel of nuclear power still remains the ever-building amount of unhandled waste. While this issue is a national crisis the state of Nevada is the only state that is currently feeling the political

pressures of being host to a geologic repository site, too small to hold the totality of nuclear waste currently short-term storage across the United States.

The Nuclear Waste Policy Act of 1982, was believed to be the final answer to the problem of nuclear waste, however; “Congress created a complicated institutional process full of political checks, apparently intending to ensure that the siting of nuclear waste facilities would be conducted deliberatively and with full input from those most affected. But by introducing so many opportunities for challenge and delay, Congress inadvertently increased the likelihood that the law would fail to yield a waste solution,” (Hurbert, 1171). Six executive administrations later, the problems outlined by Reagan’s words still ring true, an answer to the nuclear waste crisis is far from being answered. Many legislative, political, judicial, and environmental components have lead to the continual contention of the NWPA of 1982, however; the initial policy design which included unrealistic timelines and numerous veto points predestined the bill to policy failure leaving the nation without a long-term storage solution for spent nuclear fuel.

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Appendix:

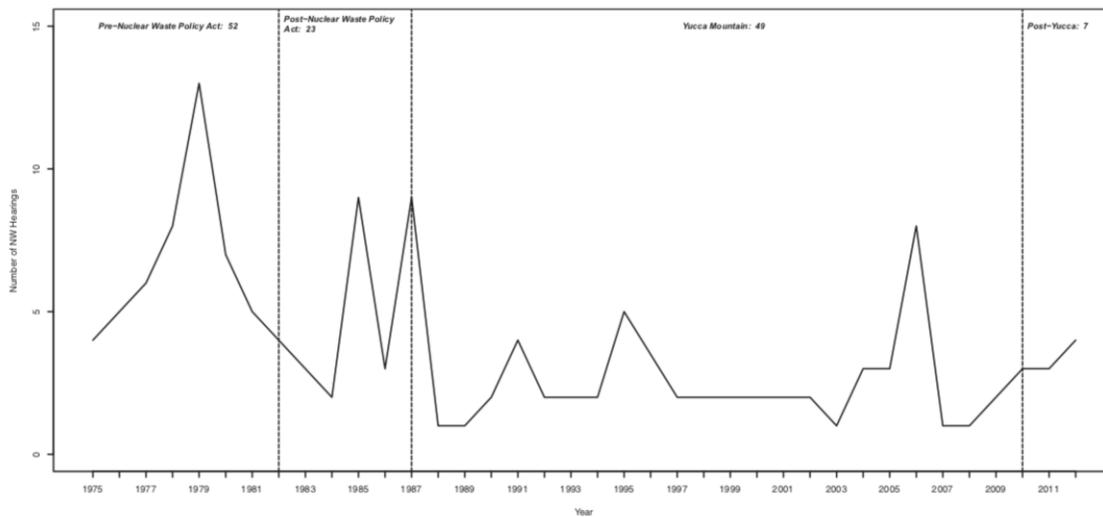


Figure 1: Congressional hearing on nuclear waste reform (Nowlin)

Locations of New Nuclear Power Reactor Applications

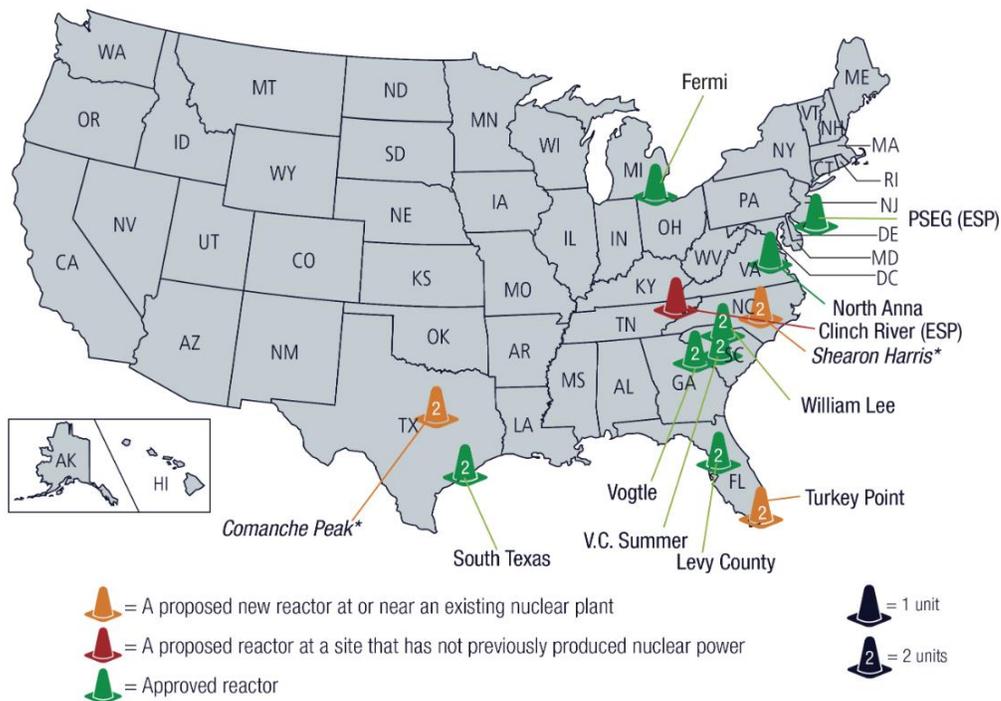


Figure 2: New and proposed reactors (US Nuclear Regulatory Commission)