
NOTES

ECONOMIC INCENTIVES: OR HOW I LEARNED TO STOP WORRYING AND ACCEPT NUCLEAR POWER

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This Note argues that increased use of nuclear power is the most effective and feasible way to combat climate change. Before the United States can increase its nuclear capacity however, local communities must accept new nuclear reactors. This Note identifies one area where Congress can use statutory changes to encourage local communities to accept such reactors. Through analysis of that area, it identifies ways in which Congress can act to remove localities' concerns. Finally, it lays out what those statutory changes should look like.

INTRODUCTION

The scientific community near-universally agrees that human activities cause global climate change.¹ As of the time of writing, climate change has caused ice to break up and trees to flower earlier in the year, glaciers to shrink, and plant and animal ranges to shift.² If climate change continues unabated, scientists predict it will eventually cause, among other things, a rise in sea levels; more frequent droughts and heat waves; and stronger, more intense hurricanes.³ Unsurprisingly, the global community has begun to recognize the importance of combating climate change.⁴ This realization has, in turn, led to growing recognition that nuclear power must play a role in combating climate change.⁵ In fact, Drs. Ken Caldeira, Kerry Emanuel, James Hansen, and Tom Wigley, the world's four leading climate scientists,⁶ even wrote an open letter saying “there

¹ See *Scientific Consensus: Earth's Climate Is Warming*, NAT'L AERONAUTICS & SPACE ADMIN., <http://climate.nasa.gov/scientific-consensus/> [<https://perma.cc/H4NK-BMGR>] (last visited Sept. 27, 2018) (citing several studies indicating widespread acknowledgement of climate change).

² *The Consequences of Climate Change*, NAT'L AERONAUTICS & SPACE ADMIN., <http://climate.nasa.gov/effects/> [<https://perma.cc/YDA9-YHNN>] (last visited Sept. 27, 2018).

³ *Id.*

⁴ See generally, e.g., Paris Agreement, *opened for signature* Apr. 22, 2016, U.N. Doc. FCCC/CP/2015/L.9/Rev.1 (entered into force Nov. 4, 2016) (noting parties recognize “urgent threat” posed by climate change). At the time of writing, 179 Parties to the Convention have ratified the Paris Agreement. *The Paris Agreement – Status of Ratification*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/paris_agreement/items/9444.php [<https://perma.cc/S4AF-GXHM>] (last visited Sept. 27, 2018).

⁵ See RAYMOND L. MURRAY, NUCLEAR ENERGY: AN INTRODUCTION TO THE CONCEPTS, SYSTEMS, AND APPLICATIONS OF NUCLEAR PROCESSES 481-82 (6th ed. 2009).

⁶ James Conca, *Cuomo Accepts Nuclear Is Clean for Upstate New York*, FORBES (Aug. 2, 2016, 6:00 AM), <http://www.forbes.com/sites/jamesconca/2016/08/02/new-york-state-considers-nuclear-a-clean-energy/#655ca519768b> [<https://perma.cc/PZ86-55EG>].

is no credible path to climate stabilization that does not include a substantial role for nuclear power.”⁷

Despite the fact that Drs. Caldeira, Emanuel, Hansen, and Wigley say that “continued opposition to nuclear power threatens humanity’s ability to avoid dangerous climate change,”⁸ leading environmental groups largely oppose both the current technology’s expansion⁹ and the very concept of nuclear energy.¹⁰ While large groups continue to work against nuclear power, other environmentalists have begun to recognize its place in the fight against climate change.¹¹ Unfortunately, the general public has failed to adopt this changing view. For example, a 2016 *Gallup* poll showed that, for the first time since 1994,

⁷ *Top Climate Change Scientists’ Letter to Policy Influencers*, CNN (Nov. 3, 2013, 8:12 AM), <https://www.cnn.com/2013/11/03/world/nuclear-energy-climate-change-scientists-letter/> [<https://perma.cc/XFP6-HB8E>] [hereinafter *Climate Letter*].

⁸ *Id.*

⁹ See, e.g., NAT’L RES. DEF. COUNCIL, NRDC POLICY BASICS: NUCLEAR ENERGY 1 (2013) (“NRDC is not opposed in principle to nuclear power . . . but [it] take[s] seriously the significant safety, global security, environmental, and economic risks that use of this technology imposes on society. . . . Until these risks are properly mitigated, expanding nuclear power should not be a leading strategy for diversifying America’s energy portfolio . . .”).

¹⁰ E.g., *End the Nuclear Age*, GREENPEACE INTERNATIONAL, <http://www.greenpeace.org/international/en/campaigns/nuclear/> [<https://perma.cc/5BTZ-7Z8U>] (last visited Sept. 27, 2018) (“Greenpeace has always fought—and will continue to fight—vigorously against nuclear power because it is an unacceptable risk to the environment and to humanity.”); *Nuclear Free Future*, SIERRA CLUB, <http://www.sierraclub.org/nuclear-free> [<https://perma.cc/Q6TN-SWAA>] (last visited Sept. 27, 2018) (“The Sierra Club remains unequivocally opposed to nuclear energy. . . . Nuclear is no solution to Climate Change. . . .”); see also Chris Mooney, *It’s the First New U.S. Nuclear Reactor in Decades. And Climate Change Has Made that a Very Big Deal*, WASH. POST (June 17, 2016, 5:00 PM), <https://www.washingtonpost.com/news/energy-environment/wp/2016/06/17/the-u-s-is-powering-up-its-first-new-nuclear-reactor-in-decades/> (“[A]n increasingly influential environmental left is insisting on a completely fossil- and nuclear-free future that is instead based on wind, solar, water and batteries.”).

¹¹ SPENCER R. WEART, *THE RISE OF NUCLEAR FEAR* 252-53 (2012) (noting that “James Lovelock, a hero of radical environmentalists,” “Patrick Moore, a founder of Greenpeace,” and other “veteran environmentalists” support expanded use of nuclear power); e.g., *Michael Shellenberger: How Fear of Nuclear Power Is Hurting the Environment*, TED.COM (June 2016), https://www.ted.com/talks/michael_shellenberger_how_fear_of_nuclear_power_is_hurting_the_environment?language=en [<https://perma.cc/74L8-SHUZ>] (discussing nuclear power as necessary to fight climate change); PANDORA’S PROMISE (Robert Stone Productions & Vulcan Productions 2013) (discussing how environmentalists realized importance of nuclear power in combating global climate change); see also Mooney, *supra* note 10 (“[S]ome environmentalists welcome nuclear [power]. . . .”).

a majority of Americans opposed nuclear power.¹² Thus, while nuclear energy has seen a resurgence in the past few years,¹³ the public's current opposition to it will likely prevent nuclear power from taking its place among other clean energy sources.¹⁴

If nuclear power is to be expanded as a partial solution to climate change, local communities¹⁵ will need to support, or at least accept, new reactors. Although many factors motivate local opposition to nuclear power, safety is one of the most prevalent.¹⁶ While concerned parties do list reasons beyond just

¹² Rebecca Riffkin, *For First Time, Majority in U.S. Oppose Nuclear Energy*, GALLUP.COM (Mar. 18, 2016), <http://www.gallup.com/poll/190064/first-time-majority-oppose-nuclear-energy.aspx> [<https://perma.cc/6G64-VCRS>].

¹³ See Mooney, *supra* note 10 (discussing first United States nuclear power plant to open in twenty years and four more under construction); *Under Construction Reactors*, INT'L ATOMIC ENERGY AGENCY, <https://www.iaea.org/PRIS/WorldStatistics/UnderConstructionReactorsByCountry.aspx> [<https://perma.cc/9RW6-8DF2>] (last updated on Mar. 14, 2018); see also *Location of Projected New Nuclear Power Reactors*, U.S. NUCLEAR REGULATORY COMM'N (Sept. 15, 2017), <http://www.nrc.gov/reactors/new-reactors/col/new-reactor-map.html> [<https://perma.cc/BV9C-22R8>] (showing locations of new reactors currently under licensing review).

¹⁴ See Mooney, *supra* note 10 ("Nonetheless, there's little doubt that lingering fears of radioactive contamination, in the end, drive continuing resistance to nuclear . . ."). Interestingly, this problem is not unique to the American nuclear industry. In fact, this Note was inspired by an article examining ways to improve nuclear power's public perception in China. Aihong Wu & Wei Liu, *A Study of Legal Issues Relating to Public Acceptance of Nuclear Power*, in *NUCLEAR LAW IN PROGRESS* 481, 481-90 (Rafael Mariano Manóvil ed., 2014). However, international responses to nuclear power's public perception problem are largely outside the scope of this Note.

¹⁵ Throughout this Note, the term "local communities" will refer to the communities in which new reactors are built and their immediate neighbors. This term does not refer to states, because it is more important that the people living near new reactors accept them than those living elsewhere in the relevant state.

¹⁶ See NAT'L RES. DEF. COUNCIL, *supra* note 9, at 1 (describing its concern over nuclear power's safe use and desire for "stringent regulation of the complete nuclear fuel cycle, beginning with the mining and milling of uranium and ending with the final disposal of radioactive wastes"); e.g., *End the Nuclear Age*, *supra* note 10 (stating that expanded use of nuclear reactors will "create tens of thousands of tons of lethal high-level radioactive waste . . . and result in a Chernobyl-scale accident once every decade"); *Nuclear Free Future*, *supra* note 10 (stating that "reactor safety . . . and the required long-term storage of nuclear waste . . . make nuclear power a uniquely dangerous energy technology for humanity"). Despite these fears, from an objective standpoint, nuclear power is actually one of the safest fuel sources, as discussed later in this Note. JOEL B. EISEN ET AL., *ENERGY, ECONOMICS AND THE ENVIRONMENT: CASES AND MATERIALS* 403 (4th ed. 2015). Additionally, the newest reactor designs are "much safer" than previous designs and are "invulnerable to the types of accidents that befell Chernobyl and Fukushima." WEART, *supra* note 11, at 301.

safety for their opposition,¹⁷ this Note will limit its discussion to safety concerns. It does so because, of the various concerns, statutory changes can most readily address safety. Further, as others have noted, “[o]f all the perceived risks of nuclear power, safety is perhaps the most salient.”¹⁸ Therefore, statutory solutions to the public’s safety concerns have the potential to cause a seismic shift in the local acceptance of nuclear power by encouraging communities to, at the very least, accept and not oppose new nuclear reactors.

It may appear as if this Note turns a blind eye to the very real economic concerns plaguing the nuclear industry.¹⁹ To an extent this criticism is accurate; however, this does not stem from a willful blindness. Rather, because safety is necessarily a federal issue,²⁰ this Note focuses on federal solutions. Many recent developments indicate that nuclear power’s economics are best considered at the state, rather than the federal, level.²¹ Thus, a discussion of economics, while tangentially relevant, would not fit within this Note’s discussion.

As those well-versed in issues plaguing the nuclear industry will likely recognize, this Note also does not address the question of spent nuclear fuel (“SNF”). While SNF is a very real problem for the nuclear industry,²² it is also incredibly complicated and the policies surrounding it have recently been in flux.

¹⁷ *E.g.*, *End the Nuclear Age*, *supra* note 10 (noting, among other concerns, resource drain and spent nuclear fuel creation).

¹⁸ EISEN ET AL., *supra* note 16, at 403.

¹⁹ The Nuclear Energy Institute has even said that “without significant market reforms, nuclear power plants will not be economically viable.” *Id.* at 402.

²⁰ *Pac. Gas & Elec. Co. v. State Energy Res. Conservations & Dev. Comm’n*, 461 U.S. 190, 212 (1983) (finding that, under Atomic Energy Act, “the federal government maintains complete control of the safety and ‘nuclear’ aspects of energy generation”).

²¹ In the past few years, states such as New York and Illinois have enacted “Zero Emission Credit program[s]” (“ZECs”) to help nuclear power plants remain economically viable. Rod Adams, *Clean Nuclear Energy Handed Decisive Win in U.S. District Court*, FORBES (July 18, 2017, 7:16 AM), <https://www.forbes.com/sites/rodadams/2017/07/18/nuclear-competitors-handed-decisive-court-loss-in-illinois/#611e097f61e0> [<https://perma.cc/XB8U-F9TG>] [hereinafter *Illinois ZEC*] (describing Illinois ZEC programs); Rod Adams, *Judge Valerie Caproni Hands Another Decisive Victory to Clean Nuclear Energy Generators*, FORBES (July 27, 2017, 5:55 AM), <https://www.forbes.com/sites/rodadams/2017/07/27/judge-valerie-caproni-hands-another-decisive-victory-to-clean-nuclear-energy-generators/#2d7b2f8202da> [<https://perma.cc/LUS3-QSWU>] [hereinafter *New York ZEC*] (describing New York ZEC programs). While these programs have faced constitutional challenges under the dormant commerce clause, district courts in both New York and Illinois have recently upheld ZECs’ constitutionality. *See generally* *Coal. for Competitive Elec. v. Zibelman*, 272 F. Supp. 3d 554 (S.D.N.Y. 2017); *Vill. of Old Mill Creek v. Star*, No. 1:17-cv-01164, 2017 WL 3008289, at *1 (N.D. Ill. July 14, 2017); *Illinois ZEC*, *supra*; *New York ZEC*, *supra*.

²² *See, e.g.*, *End the Nuclear Age*, *supra* note 10.

In the past year, Congress moved on a bill that could solve this issue.²³ Based on the past forty years however, this bill may or may not amount to anything.²⁴ Given the importance of resolving the SNF issue, the uncertainty surrounding Yucca Mountain's current status, and the possibility of a resolution in the near future, this Note will not comment on SNF in order to avoid both further complicating the debate and succumbing to early obsolescence.

While a statutory solution to safety concerns has been necessary for years, recent events make such a solution even more important. Despite the need to quickly combat climate change,²⁵ the American public has shown a willingness to elect leaders who both reject climate change's existence²⁶ and promise to take actions that will exacerbate the situation.²⁷ These electoral choices make it

²³ Ben Botkin, *Shimkus Explains Yucca Mountain Revival Bill to Business Leaders*, LAS VEGAS REV.-J. (Oct. 17, 2017, 6:15 PM), <https://www.reviewjournal.com/news/politics-and-government/nevada/shimkus-explains-yucca-mountain-revival-bill-to-business-leaders/> [<https://perma.cc/P7HT-C6EQ>] (noting that although outcome is uncertain, bill to deal with Yucca Mountain is moving through Congress and that "Donald Trump has included \$120 million in his fiscal 2018 budget to restart licensing for Yucca Mountain").

²⁴ Humberto Sanchez, *House Passes Yucca Bill, but Its Future Is Uncertain as Heller Pledges to Stop It in the Senate*, NEV. INDEP. (May 11, 2018, 2:15 AM), <https://thenevada-independent.com/article/house-passes-yucca-bill-but-its-future-is-uncertain-as-heller-pledges-to-stop-it-in-the-senate/> [<https://perma.cc/8N28-RYM3>] (noting that while Shimkus bill passed House by a vote of 340 to 72, it is "unlikely to become law anytime soon").

²⁵ See *The Science*, UNITED NATIONS (Sept. 23, 2014), <http://www.un.org/climatechange/the-science/> [<https://perma.cc/ZZ9W-AX7E>] ("Increasing magnitudes of warming will increase the likelihood of severe and pervasive impacts that may be either surprising or irreversible."); see also *Global Climate Change: Vital Signs of the Planet: Facts*, NAT'L AERONAUTICS & SPACE ADMIN., <http://climate.nasa.gov/faq/> [<https://perma.cc/V96B-CV6D>] (last visited Sept. 27, 2018) ("[E]xperts are concerned about Earth passing one or more 'tipping points'—abrupt, perhaps irreversible changes that tip our climate into a new state.").

²⁶ See Donald J. Trump (@realDonaldTrump), TWITTER (Nov. 6, 2012, 11:15 AM), <https://twitter.com/realdonaldtrump/status/265895292191248385?lang=en> [<https://perma.cc/6UQK-6MVK>] ("The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive."); see also Donald J. Trump (@realDonaldTrump), Twitter (Jan. 1, 2014, 4:39 PM), <https://twitter.com/realdonaldtrump/status/418542137899491328?lang=en> [<https://perma.cc/52R7-5DNU>] ("This very expensive GLOBAL WARMING bullshit has got to stop. Our planet is freezing, record low temps, and [sic] our GW scientists are stuck in ice[.]").

²⁷ Amita Kelly & Barbara Sprunt, *Here Is What Donald Trump Wants to Do in His First 100 Days*, NAT'L PUB. RADIO (Nov. 9, 2016, 3:45 PM), <http://www.npr.org/2016/11/09/501451368/here-is-what-donald-trump-wants-to-do-in-his-first-100-days> [<https://perma.cc/5DRZ-37MK>] (reporting that then-incoming Trump administration promised to "cancel billions in payments to U.N. climate change programs . . . [;]" to increase use of greenhouse gas emitting energy sources "including shale, oil, natural gas and clean coal[;]" and to allow projects such as "the Keystone Pipeline[] to move forward").

difficult for the United States to do its part to combat climate change.²⁸ Interestingly, given the political divide on this issue, nuclear power may be able to serve as a sort of consensus candidate for new American energy infrastructure.

On the conservative side, the current administration has spoken “about the need for America to build more nuclear power plants.”²⁹ Additionally, Republicans generally view nuclear power more favorably than Democrats.³⁰ In fact, even in 2016, when a majority of Americans looked at nuclear power unfavorably, a majority of Republicans still favored its use.³¹ While liberals have historically opposed nuclear power,³² the Democratic Party recognized “that climate change poses a real and urgent threat to our economy, our national security, and our children’s health and futures.”³³ Given that nuclear energy ties wind power as the energy source with the smallest carbon footprint,³⁴

²⁸ See, e.g., Jeff Goodell, *The Pentagon & Climate Change: How Deniers Put National Security at Risk*, ROLLING STONE, Feb. 26, 2015, at 48, 52 (noting that military cannot request funds to combat sea-level rises at strategically important bases because Congress will “redline any expenditure with the word ‘climate’ in it”). This is particularly true given that the Republican Party’s official platform explicitly rejects the United Nations’ Intergovernmental Panel on Climate Change as an “unreliab[le]” “political mechanism, not an unbiased scientific institution.” *Republican Platform: America’s Natural Resources: Agriculture, Energy, and the Environment*, GOP, <https://www.gop.com/platform/americas-natural-resources/> [<https://perma.cc/W8XF-VYHL>] (last visited Sept. 27, 2018). It also “reject[s] the agendas of both the Kyoto Protocol and the Paris Agreement.” *Id.* Pursuant to these beliefs, the Trump administration eventually decided to withdraw the United States from the Paris Agreement. Adam Vaughan, *Ban Ki-moon: US has Caused Serious Damage to Paris Climate Efforts*, GUARDIAN (Mar. 5, 2018, 11:28), <https://www.theguardian.com/world/2018/mar/05/ban-ki-moon-us-paris-climate-agreement-withdrawal> [<https://perma.cc/W2CU-9HJR>] (quoting former United Nations General Secretary Ban Ki-moon as saying that this withdrawal “creates a serious problem). Finally, the official Republican platform also believes “[c]limate change is far from this nation’s most pressing national security issue” and that beliefs to the contrary are a “triumph of extremism over common sense.” *Id.*

²⁹ Christopher Helman, *President Trump Will Make America’s Energy Sector Great Again*, FORBES (Nov. 9, 2016, 11:45 AM), <http://www.forbes.com/sites/christopherhelman/2016/11/09/president-trump-will-make-americas-energy-sector-great-again/#664c673f64e2> [<https://perma.cc/HL4K-MKZX>].

³⁰ Riffkin, *supra* note 12.

³¹ *Id.* (finding in 2016 that “[a] slight majority of Republicans, 53%, are in favor of nuclear energy”).

³² *Id.* (finding that percentage of Democrats favoring nuclear energy peaked at fifty-four percent in 2009 and subsequently fell to thirty-four percent in 2016).

³³ *Environment*, DEMOCRATIC PARTY, <https://www.democrats.org/issues/environment> [<https://perma.cc/GJ6M-SEYV>].

³⁴ James Conca, *How Deadly Is Your Kilowatt? We Rank the Killer Energy Sources*, FORBES (June 10, 2012, 1:08 AM), <http://www.forbes.com/sites/jamesconca/2012/06/10/energys-deathprint-a-price-always-paid/#76aa81bb49d2>. Nuclear and wind power both produce about 15 gCO₂/kWh. *Id.* Interestingly, solar energy actually produces about 40

Congressional Democrats may accept statutory measures promoting nuclear power as a way to cut carbon emissions.³⁵ Thus, given Republicans' historic support and the Democratic Party's hope to combat climate change, the two parties may reach an agreement to enact statutory changes to promote nuclear power.

Further, given the Republican Party's official views on climate change,³⁶ an agreement to expand the United States' nuclear infrastructure may be the only feasible American action to combat climate change in the foreseeable future. In fact, recent events indicate that such an agreement may be politically feasible. On March 22, 2017, the Senate Environment and Public Works Committee passed the Nuclear Energy Innovation and Modernization Act (the "NEIMA") by a bipartisan vote of eighteen to three.³⁷ Tellingly, Republican Senator John Barasso supported the bill because it "will create jobs, lower costs, and contribute to America's energy security" while Democratic Senator Sheldon Whitehouse voted for it because advanced reactors can "help address the serious threats we face from climate change."³⁸ While this is a big step in the right direction, neither Congress nor industry can expand nuclear power without local acceptance. Consequently, statutory solutions to safety, such as community-based incentives, are still very important.

This Note will seek to solve one of the biggest roadblocks preventing nuclear power from obtaining local acceptance through changes to statutory frameworks. Part I of this Note will analyze the history of local acceptance of nuclear reactors and how that history underlies the public's distrust of nuclear

gCO₂/kWh. NAT'L RENEWABLE ENERGY LAB., LIFE CYCLE GREENHOUSE GAS EMISSIONS FROM SOLAR PHOTOVOLTAICS 1 (2012).

³⁵ Amy Harder, *At Climate Conference, Democrats Shift Tones on Nuclear Power*, AXIOS (Nov. 11, 2017), <https://www.axios.com/at-climate-conference-democrats-shift-tones-on-nuclear-power-1513306849-db953c61-9095-4f1f-90cf-1a8f1f483dcb.html> [<https://perma.cc/Q8TE-AB36>] (quoting Democratic Senator Sheldon Whitehouse as saying "there's bipartisan support to pass measures in Congress advancing nuclear technologies" at climate conference in 2017); *see also infra* notes 37-38. *But see* Harder, *supra* ("[Democratic Senator Ed] Markey . . . didn't explicitly say he opposes nuclear power, but that was the thrust of his comments.").

³⁶ *See supra* note 28 and accompanying text.

³⁷ *NEIMA Breezes Through Senate Committee*, AM. NUCLEAR SOC'Y (Mar. 22, 2017, 3:57 PM), <http://www.ans.org/pi/news/article-619/> [<https://perma.cc/K2EL-YA6L>]. NEIMA creates new licensing procedures for advanced reactors, "establish[es] new transparency and accountability measures" with regard to the Nuclear Regulatory Commission's ("NRC's") "budget and fee programs," and "improve[s] the efficiency of uranium regulation." Press Release, U.S. Senate Comm. on Env't & Pub. Works, Bipartisan Group of Senators Introduce Nuclear Energy Innovation and Modernization Act (Mar. 2, 2017), <https://www.epw.senate.gov/public/index.cfm/2017/3/bipartisan-group-of-senators-introduce-nuclear-energy-innovation-and-modernization-act> [<https://perma.cc/E2YK-KFYP>].

³⁸ Press Release, U.S. Senate Comm. on Env't & Pub. Works, *supra* note 37.

power. Understanding this history is vital to developing statutory measures that will address the public's concerns. Part II will then analyze the way safety concerns manifest as a phenomenon known as "Not in My Backyard," or "NIMBY." Finally, Part III will propose a statutory program of community-based incentives designed to break the NIMBY pattern and alleviate those fears.

I. CAUSES OF DISTRUST

An attempt to solve a problem without understanding the interplay of history, causes, and previously-attempted solutions is doomed to failure. Only through understanding these factors can Congress craft programs likely to succeed in the future. Consequently, before developing solutions to this problem, this Note will first analyze why the problem exists.

A. *Brief History of Public Acceptance of and Opposition to Nuclear Power*

After strong initial public support and a rapid expansion,³⁹ nuclear power's expansion rate and public support began to decline starting in 1971.⁴⁰ Many factors, including corporate distrust, nuclear energy's unbreakable link to nuclear weapons, and the possibility of other futuristic forms of energy all contributed to this shift.⁴¹ Additionally, general trends such as rampant "distrust of . . . government" and growing environmental concerns contributed to nuclear power's fall from grace.⁴² For example, the National Environmental Policy Act ("NEPA") took effect on January 1, 1970.⁴³ Since its enactment, NEPA has "become the preferred statute of general appeal in environmental disputes"⁴⁴ and is frequently used to challenge governmental decisions involving nuclear technology.⁴⁵ Further, while pop culture had depicted nuclear technology as a

³⁹ MURRAY, *supra* note 5, at 222 (noting that nuclear power accounted for one third of all generating capacity expansions between 1965-1970); *see* Ralph Berger, Reader NE 161 Nuclear Power Engineering 11 (Fall 2011) (unpublished course reader) (on file with author) (noting "positive acceptance" of nuclear power in 1950s and 1960s).

⁴⁰ MURRAY, *supra* note 5, at 222; *see* Berger, *supra* note 39, at 11 (explaining social forces militated against nuclear energy).

⁴¹ Berger, *supra* note 39, at 11-12, 334.

⁴² *Id.* at 334.

⁴³ Denis Binder, *NEPA, NIMBYs and New Technology*, 25 U. OF WYO. C. OF L. LAND & WATER L. REV. 11, 16 (1990).

⁴⁴ *Id.* at 11-12.

⁴⁵ Ben Schiffman, Note, *The Limits of NEPA: Consideration of the Impacts of Terrorism in Environmental Impact Statements for Nuclear Facilities*, 35 COLUM. J. ENVTL. L. 373, 375 n.10 (2010) (noting that NEPA is used to challenge nuclear facilities). *See generally, e.g.*, *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87 (1983) (challenging "'zero-release' assumption" used when conducting NEPA analysis); *Nat. Res. Def. Council v. Nuclear Regulatory Comm'n*, 823 F.3d. 641 (D.C. Cir. 2016) (arguing that decision to deny hearing violated "the procedural rigor mandated by [NEPA]"); *San Luis Obispo Mothers for*

threat before this era,⁴⁶ the 1960s and 1970s featured many, now classic, science fiction and horror films depicting the alleged fallout from radiation and nuclear war.⁴⁷

Of these causes, the 1979 one-two punch of film *The China Syndrome* and the Three Mile Island (“TMI”) accident played the biggest role in destroying public support for nuclear energy.⁴⁸ *The China Syndrome*, which debuted in March 1979, depicted a nuclear disaster.⁴⁹ Tying in with the other trends discussed above, *The China Syndrome*’s marketing campaign, which was in full swing when TMI occurred, directly linked corporate malfeasance⁵⁰ to a nuclear

Peace v. Nuclear Regulatory Comm’n, 449 F.3d 1016 (9th Cir. 2006) (challenging decision to license Interim Spent Fuel Storage Installation despite not analyzing potential environmental consequences of terrorist attack violated NEPA). For an extended discussion about NEPA challenges to nuclear technology, see Binder, *supra* note 43, at 20-30.

⁴⁶ *The Day the Earth Stood Still* was released in 1951 and centered around the prospect of nuclear war. *THE DAY THE EARTH STOOD STILL* (Twentieth Century Fox 1951); see WEART, *supra* note 11, at 251-52 (contrasting modern-day remakes of famous nuclear war films with their original versions).

⁴⁷ *The Time Machine*, released in 1960, featured an “appalling nuclear war,” WEART, *supra* note 11, at 251; *THE TIME MACHINE* (Metro-Goldwyn-Mayer 1960), and Stanley Kubrick’s 1964 satire *Doctor Strangelove: Or How I Learned to Stop Worrying and Love the Bomb* depicted an American first-strike nuclear assault on the Soviet Union which causes the end of the world. *DOCTOR STRANGELOVE OR: HOW I LEARNED TO STOP WORRYING AND LOVE THE BOMB* (Columbia Pictures 1964) [hereinafter *DOCTOR STRANGELOVE*]. The original *Planet of the Apes*, released in 1968, indicated that humanity had been brought down by nuclear war, *PLANET OF THE APES* (Twentieth Century Fox 1968); see also WEART, *supra* note 11, at 251-52, and *Night of the Living Dead*, also released in 1968, implied that zombies “resulted from a mysterious radiation.” WEART, *supra* note 11, at 251-52; *NIGHT OF THE LIVING DEAD* (Image Ten 1968).

⁴⁸ *THE CHINA SYNDROME* (Columbia Pictures 1979); Berger, *supra* note 39, at 12. TMI was a major nuclear accident in 1979. See, e.g., EISEN ET AL., *supra* note 16, at 404-12; Berger, *supra* note 39, at 334-40 (discussing in detail events leading to TMI). Unlike Chernobyl and Fukushima Dai-ichi, however, “the quantity of radioactive materials” released during TMI “was not significant.” *In re TMI Litigation*, 193 F.3d 613, 658 n.77 (3d Cir. 1999) (affirming trial court’s grant of summary judgment for defendant), *amended by* 199 F.3d 158 (3d Cir. 2000); see also Berger, *supra* note 39, at 12 (stating coincidental timing of *The China Syndrome* with TMI led to unparalleled public hostility to nuclear energy). While the 1979 Iranian revolution also played a role in nuclear energy’s loss of favor among investors, the revolution’s effects were economic and are thus outside the scope of this Note. See EISEN ET AL., *supra* note 16, at 401-02.

⁴⁹ See Berger, *supra* note 39, at 334 (“The second popular culture event was the opening of the movie “China Syndrome” just twelve days prior to the March 28, 1979 Three Mile Island accident.”).

⁵⁰ See, e.g., Turner Classic Movies, *Movie Trailer The China Syndrome 1979*, YOUTUBE (Aug. 21, 2011), <https://www.youtube.com/watch?v=UFMsnicAtiY> (showing several characters in film acting against public interest in carrying out their job).

accident that “could ‘render an area the size of the state of Pennsylvania permanently uninhabitable.’”⁵¹

While “the quantity of radioactive materials” released during TMI “was not significant,”⁵² the accident “continues to shape perceptions of” nuclear power to this day.⁵³ In fact, TMI is typically discussed alongside Chernobyl and Fukushima Dai-ichi.⁵⁴ Tying in with *The China Syndrome*’s trailers, the public viewed TMI “as the personification of corporate greed placing profits ahead of personal safety, or techno-chauvinism putting vanity ahead of common sense.”⁵⁵ TMI even prompted “65,000 protestors [to] march[] on Washington, D.C. . . . [to] demand[] an end to nuclear power.”⁵⁶

While the nuclear industry did not end in 1979, it was utterly “disgrace[d].”⁵⁷ Going forward, “most major environmental groups” either “downplayed or ignored” many of “the potentially dramatic environmental advantages of nuclear power.”⁵⁸ In fact, after TMI, nuclear power became “a moral and personal issue” rather than just a policy or environmental one.⁵⁹

Since the 1970s and 1980s, views on the nuclear industry’s place in America’s electricity generation infrastructure have changed significantly. After utilities cancelled expansion plans and shut down reactors, environmentalists turned toward “more urgent” issues.⁶⁰ While large organizations continued to express concern about nuclear power, they also spoke against many other issues. As such, local watchdog groups now primarily comprise “[t]he anti-nuclear movement.”⁶¹ Interestingly, *Gallup*’s polling since 1994 has shown, with only a few exceptions, that a slight majority of Americans have historically favored

⁵¹ Berger, *supra* note 39, at 334.

⁵² *In re TMI Litigation*, 193 F.3d at 658 (discussing findings of report by NRC’s Special Inquiry Group).

⁵³ See EISEN ET AL., *supra* note 16, at 404.

⁵⁴ See *id.* at 407-12 (discussing accidents at Chernobyl and Fukushima to provide context); Berger, *supra* note 39, at 334-56.

⁵⁵ Berger, *supra* note 39, at 12.

⁵⁶ *Id.* at 334.

⁵⁷ *Id.* In fact, only two reactors have been both ordered and completed in the U.S. since TMI. See Mooney, *supra* note 10.

⁵⁸ Berger, *supra* note 39, at 334.

⁵⁹ *Id.* at 12. During this period, public opinion was so bad that the former head of Pacific Gas and Electric’s nuclear program’s “children were verbally attacked at school for what their father did,” so many protestors blocked the entrance to Diablo Canyon nuclear power plant that “workers had to be flown in by helicopter,” the Rancho Seco nuclear power plant “was shut down after an unprecedented popular vote,” and “the completed Shoreham Nuclear Plant was sold for \$1 to New York State to prevent its operation.” *Id.*

⁶⁰ WEART, *supra* note 11, at 239-40.

⁶¹ *Id.* This fact is partially why this Note directly targets local opposition as opposed to state or nationwide opposition.

nuclear power.⁶² Since 2010, however, public opinion has trended downward, eventually reaching a twenty-two year low in 2016 where, for the first time since 2001, a majority of Americans no longer supported it.⁶³

This brief history demonstrates several important points for any statutory solution. First, and most importantly, it must help ease fears that have existed for forty to fifty years. This means that attacks on those fears must be powerful enough to overcome concerns people have held for either the entirety or majority of their adult lives. Second, not only must statutory reforms consider long-held fears, they must account for the fact that people view opposition to nuclear power as a moral or personal cause. Third, these reforms must act in such a way that people do not view them as an extension of the techno-chauvinism of years past. The reform efforts can neither trivialize these concerns nor talk down to the people who hold them. Fourth, and perhaps most difficult, these reforms must contend with people who would seemingly be natural allies to the nuclear movement: environmentalists. Any statutory changes to promote nuclear power must help overcome opposition from both local and national environmental organizations, but they must do so in a way that does not weaken this country's environmental laws. By keeping these factors in mind when considering statutory changes, Congress may be able to finally overcome the public's resistance to nuclear power and spur its further development.

B. *Overarching Causes of Distrust*

Several factors have driven the opposition to nuclear power's expansion over the past seventy years.⁶⁴ This Note will examine the causes most readily addressable through statutory changes. First, the fact that nuclear power and radiation were "unknown hazard[s]"—and thus scarier than objectively more dangerous but more familiar technologies such as cars—contributed to the public's fears.⁶⁵ Likely further compounding the unknown aspect is the fact that nuclear power plants are large-scale facilities with the potential for great harm. This combined cause is a prime target for statutorily-created, community-based incentives, as will be discussed in Parts II and III. Second, the environmental movement raised concerns about radioactive waste's effects on both humans and the environment.⁶⁶ As environmental concerns played a key role in nuclear energy's recent resurgence however,⁶⁷ the environmental benefits, such as low carbon emissions, should offset environmental concerns. Any plan that tackles

⁶² Riffkin, *supra* note 12.

⁶³ *Id.*

⁶⁴ See MURRAY, *supra* note 5, at 223-24 (discussing "the nuclear controversy" and specifically listing "events and trends" that "raised public concerns and began to reverse the favorable opinion" regarding nuclear power).

⁶⁵ *Id.* at 224.

⁶⁶ See *id.* at 223-24.

⁶⁷ See *id.* at 225.

the unknown factor, however, must be careful to not exacerbate environmental concerns. If said plan fails to consider environmental implications, it will likely be doomed to fail. In particular, any plan to encourage nuclear power's expansion must comply with growing environmental justice concerns.⁶⁸ Consequently, while keeping the lessons learned from nuclear power's history in mind, the next two parts of this Note will seek to negate, or at least not exacerbate, two factors that cause local communities to oppose new reactors that can be addressed statutorily: fear of the unknown and environmental concerns. By targeting these two factors, Congress can likely create local acceptance of new reactors and thus expand the United States' use of nuclear power.⁶⁹

C. *Government Actions to Curb Public Opposition*

Before proceeding to an analysis of the safety concerns this Note seeks to resolve, I must call attention to something that has been missing up to this point: a discussion about direct government action focused on fostering local acceptance of new nuclear reactors. It may seem unusual that a Note advocating for direct government action has so far not mentioned a single government action designed to accomplish this task. This absence is no oversight. With one very important exception, discussed in Part III,⁷⁰ Congress has not enacted legislation specifically designed to encourage localities to accept new nuclear facilities.⁷¹

⁶⁸ Broadly speaking, debates about environmental justice refer to the "increased sensitivity to the distributional impacts of environmental harms, as well as the distributional impacts of various environmental law regimes." GLICKSMAN ET AL., ENVIRONMENTAL PROTECTION: LAW AND POLICY 3 (7th ed. 2015).

⁶⁹ As previously noted, due to the complexity of the economics and the fact that nuclear power's economics are not directly tied to the issues discussed here, this Note will not address economic concerns.

⁷⁰ See *infra* Part III.B.1 (discussing Energy Policy Act of 2005 ("EP Act") which contains many provisions that promote nuclear power). This exception was not included in the historical discussion above because it relates to a complicated narrative surrounding SNF and would have distracted from the previous discussion.

⁷¹ To be sure, the federal government has taken actions that may have positively impacted the public perception of nuclear power. For example, after TMI, the NRC issued new safety standards that dramatically improved plant safety and helped attain nuclear power's remarkable safety record. Berger, *supra* note 39, at 335 (listing seven improvements made after TMI). After Chernobyl, the NRC once again reviewed the accident and safety procedures to determine whether plants could be made safer. See EISEN ET AL., *supra* note 16, at 408-09 (describing NRC's post-Chernobyl assessment). Finally, after Fukushima Dai-ichi the NRC once again reviewed safety regulations and issued three orders to improve safety. See *id.* at 410-11 (detailing three orders issued in March 2012). While safety reforms were obviously designed to prevent another TMI, Chernobyl, or Fukushima Dai-ichi, the absence of accidents, a situation created by the reforms, must logically have helped show the public that nuclear energy was safe. See MURRAY, *supra* note 5, at 117-118 ("[I]n recent years there has been a growing public acceptance of nuclear power in the United States for several reasons:

While such actions from Congress may not have been necessary in the past, given the realities of climate change and the roadblock local opposition will pose for nuclear expansion, congressional inaction in this regard is no longer viable.

While it may seem unusual to ask Congress to now do what it has only done once before in a very limited circumstance, the world is a very different place than it was previously. For example, when opposition to nuclear power first arose, people were not concerned about greenhouse gas emissions.⁷² Thus, given modern climate concerns, the present Congress may do what past Congresses have not: use its legislative powers to encourage Americans to accept an expansion of nuclear power by creating community-based incentives.

II. NIMBY, SAFETY, AND THE UNKNOWN

If the United States is to effectively combat climate change, it will need to expand its nuclear generating capacity.⁷³ Unfortunately, the general public believes nuclear power is unsafe.⁷⁴ Thus, to allow the United States to expand said capacity, Congress should create incentives that encourage local communities to re-examine their fears about nuclear power's safety.⁷⁵ This section will first discuss the way in which these fears manifest in local communities. It will then argue that traditional corporate-based solutions are not sufficient in this case, meaning this problem requires a legislative solution.

A. *Relevant Actors*

When considering how to address local communities' fear of nuclear power, two separate groups play roles. The first, comprised of large environmental organizations like the Sierra Club and Greenpeace, are sophisticated, non-local

(a) The industry has maintained an excellent nuclear safety record"). Consequently, these reforms may have indirectly improved the public's opinion of nuclear energy.

⁷² See MURRAY, *supra* note 5, at 117-18.

⁷³ *Climate Letter*, *supra* note 7 ("[C]ontinued opposition to nuclear power threatens humanity's ability to avoid dangerous climate change."); see Conca, *supra* note 6 (discussing New York's new "Clean Energy Standard").

⁷⁴ Seth P. Cox, *The Nuclear Option: Promotion of Advanced Nuclear Generation as a Matter of Public Policy*, 5 APPALACHIAN NAT. RESOURCES L.J. 25, 61 (2010-2011) ("[D]ecades removed from TMI, 42% of the population remain convinced that advanced nuclear is unsafe."). Technically Cox's article only discusses "advanced nuclear" power. See *generally id.* While Cox never actually defines what he means by "advanced nuclear," see *generally id.*, the sources upon which he relies for his fear data do not differentiate between "advanced" and traditional nuclear technology. See *Energy*, POLLINGREPORT.COM, <http://www.pollingreport.com/energy.htm> [<https://perma.cc/5VEK-E7ET>] (last visited Sept. 27, 2018). Additionally, it seems likely that many of the reactors constructed under the program this Note lays out would likely be advanced reactors.

⁷⁵ See Cox, *supra* note 74, at 69.

actors.⁷⁶ This Section will refer to these organizations as “Group One Actors.” In addition to Group One Actors, laypeople from the communities surrounding proposed facilities,⁷⁷ here referred to as “Group Two Actors,” also play a role in opposing nuclear power plants. As discussed below, while Group One Actors initiate opposition to new nuclear facilities, these initiatives’ long-term efficacy depends on Group Two Actors’ support. In other words, without Group Two Actors opposing new facilities, Group One Actors’ opposition methods will necessarily fail.

B. *The NIMBY Problem*

When the public fears projects with widespread benefits but concentrated costs, said fear manifests in a phenomenon called “Not in My Backyard” or NIMBY.⁷⁸ These projects frequently experience widespread support but localized hostility.⁷⁹ Nuclear reactors—which, as of 2009, forty-two percent of the United States’ population believed to be unsafe⁸⁰—represent the exact type of project that inspires NIMBY opposition.⁸¹ Because nuclear power draws

⁷⁶ See *supra* note 10.

⁷⁷ By communities surrounding the facility, I mean the community in which the facility will be located and those communities immediately surrounding it. For example, the surrounding community for a hypothetical reactor in San Francisco would consist of people from San Francisco, Oakland, and Berkeley, and other similarly close cities, but not Los Angeles, San Diego, or Sacramento.

⁷⁸ Binder, *supra* note 43, at 16 (“The problem is that everyone wants the benefits, but few want to share the costs. Thus developed the NIMBY phenomenon: ‘Not in my backyard.’”).

⁷⁹ See *id.* Using the example from above, people in San Diego or Los Angeles would support a new nuclear reactor in San Francisco, while those in San Francisco, Oakland, and Berkeley would oppose it.

⁸⁰ See Cox, *supra* note 74, at 61.

⁸¹ See Binder, *supra* note 43, at 20-30 (“[N]uclear power . . . epitomizes the low risk, high consequence scenario.”). While at least one scholar seems to imply that nuclear power plants no longer generate NIMBY opposition, Susan Lorde Martin, *Wind Farms and NIMBYs: Generating Conflict, Reducing Litigation*, 20 FORDHAM ENVTL. L. REV. 427, 427-28 (2009-2010), this comment ignores the fact that no new nuclear reactors began operating between 1996 and 2016. Mooney, *supra* note 10 (“[L]ife comes to a new nuclear reactor — the first in the country since its sister reactor here was licensed in 1996.”); see also *How Old Are U.S. Nuclear Power Plants, and When Was the Last One Built?*, U.S. ENERGY INFO. ADMIN. (June 21, 2017), <https://www.eia.gov/tools/faqs/faq.cfm?id=228&t=21> [<https://perma.cc/WM6V-AU2C>] (“The newest reactor to enter service is Tennessee’s Watts Bar Unit 2, which began operation in 2016. The next-youngest operating reactor is Watts Bar Unit 1, also in Tennessee, which entered service in 1996.”). In the case of nuclear power, the entire world experiences the climate benefits, while only the immediate community suffers the supposed risks. Interestingly however, while new nuclear power plants experience strong NIMBY opposition, those who actually live near functioning reactors tend to overwhelmingly support nuclear power. Nuclear Energy Inst., *Nuclear Power Plant Neighbors Dispel NIMBY*, GLOBE

NIMBY opposition and NIMBY opposition frequently follows a predictable pattern,⁸² those seeking to expand the United States' nuclear power output can exploit this pattern to craft a legislative program.

When groups manifest a NIMBY attitude, they frequently use NEPA to delay projects.⁸³ Broadly speaking, NEPA requires federal agencies to consider their decisions' environmental impacts by "prepar[ing] 'impact statements' to accompany, and presumably to inform, their decision making."⁸⁴ This allows plaintiffs to challenge government actions by claiming the relevant agency "fail[ed] to satisfy the rigor demanded by NEPA,"⁸⁵ either procedurally⁸⁶ or substantively.⁸⁷ By commencing this litigation, parties delay the implementation of a government agency's actions.⁸⁸ NEPA litigation gives those groups time to foster and expand local opposition to the project, begetting political opposition to either kill the project or increase its cost so significantly that proponents have no choice but to cancel it.⁸⁹

Nuclear power's opponents have repeatedly used this strategy to successfully stall at least one project "until costs and political/popular opposition doomed it."⁹⁰ Consequently, any legislative action targeted at expanding the use of nuclear power must disrupt this pattern.⁹¹ Further, because this pattern depends

NEWSWIRE (June 24, 2015), <https://globenewswire.com/news-release/2015/06/24/747221/10139652/en/Nuclear-Power-Plant-Neighbors-Dispel-NIMBY.html> [<https://perma.cc/M2MV-HVQN>].

⁸² Binder, *supra* note 43, at 16-17.

⁸³ *Id.*

⁸⁴ RONALD A. CASS ET AL., ADMINISTRATIVE LAW: CASES AND MATERIALS 552 (7th ed. 2016).

⁸⁵ Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109, 1112 (D.C. Cir. 1971).

⁸⁶ *E.g., id.* ("We conclude that the Commission's procedural rules do not comply with the congressional policy.")

⁸⁷ *E.g.,* CASS ET AL., *supra* note 84, at 561 (summarizing plaintiff's argument in Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, 435 U.S. 519 (1978)).

⁸⁸ *See* Binder, *supra* note 43, at 17 (discussing advantages that come with delaying agency actions).

⁸⁹ *Id.* at 16-17.

⁹⁰ Binder, *supra* note 43, at 22, 25 (discussing reactor that was to be built on Lake Erie near Detroit); *see supra* note 45 and accompanying text (discussing NEPA's use in challenging environmental projects, particularly those involving nuclear power).

⁹¹ To be clear, this note is neither advocating for NEPA's repeal, nor criticizing the policies NEPA embodies. Congress designed NEPA "to raise the environmental consciousness of the entire federal bureaucracy." CASS ET AL., *supra* note 84, at 553. NEPA does this by ensuring agencies make "fully informed and well-considered decision[s]." Binder, *supra* note 43, at 26. As both a matter of good policy and good government, this goal must be encouraged. In fact, given the current climate crisis, *see supra* notes 1-10 and accompanying text, this goal is currently more important than ever. As such, this Note also does not advocate for any

on local opposition,⁹² any legislative solution must target and reduce that local opposition.

While the NIMBY phenomenon is not unique to nuclear power,⁹³ solutions that have worked for non-nuclear projects offer little guidance for nuclear facilities. For example, Group Two Actors have adopted NIMBY attitudes toward wind farms.⁹⁴ In the case of wind farms however, utilities overcome Group Two opposition by paying those affected by wind farm projects.⁹⁵ From a purely economic standpoint, nuclear facilities can likely not employ this strategy.⁹⁶ Consequently, solving the nuclear NIMBY problem will require looking beyond private corporate payouts.

C. *Why the Nuclear NIMBY Problem's Traditional Solution Will Fail and Why This Requires a Legislative Solution*

As an initial matter, one might ask why the NIMBY phenomenon requires a legislative solution. Given frequently cited safety data⁹⁷ combined with the climate change data discussed in the Introduction, perhaps the most obvious way to get Group Two Actors to accept new nuclear facilities in their communities is to disseminate safety data and educate them. Best of all, this course would not even require government action.⁹⁸ At first glance, this reasoning may seem

amendments to NEPA or for any federal legislation that increases the difficulty of bringing NEPA challenges in general.

As shall be discussed below, this Note only advocates for congressional action designed to get Group Two Actors to accept new nuclear facilities in their communities. This strategy will prevent Group One Actors from using NEPA as a delaying tactic, because they will not succeed in turning Group Two Actors to their cause. Should Group One Actors legitimately feel that the NRC prepared an inadequate Environmental Impact Study (“EIS”) however, this strategy does not prevent them from challenging the EIS under NEPA. Thus, the suggestions presented in this Section will both resolve Group Two Actors’ fears about nuclear power while also preserving the policies behind NEPA.

⁹² Binder, *supra* note 43, at 16-17.

⁹³ Martin, *supra* note 81, at 430 (discussing NIMBYs in context of opposition to wind farms and cell towers). For a more complete discussion of NIMBY and wind farms, see *id.* at 437-445.

⁹⁴ *Id.* at 428.

⁹⁵ *Id.* at 430.

⁹⁶ See EISEN ET AL., *supra* note 16, at 402 (discussing economic obstacles that risk making nuclear power economically unviable prior to imposition of additional costs).

⁹⁷ See *infra* notes 176-188 (discussing robust safety record of nuclear energy compared to other forms of electric generation).

⁹⁸ Assuming said educational program was carried out by the industry.

entirely valid. In fact, nuclear advocates⁹⁹ and the nuclear industry itself¹⁰⁰ firmly believe that if people were properly informed about nuclear power, a higher percentage of the population would support its use.¹⁰¹ While some scholars display hesitance about education's role in expanding nuclear energy,¹⁰² others frequently mention education as a way to improve the public perception of nuclear power.¹⁰³ Importantly, education efforts played a significant role in creating France's strong public support for nuclear power.¹⁰⁴ Although, education can undoubtedly play a role in getting local communities to accept nuclear power, advocates cannot rely on education efforts to develop Group Two acceptance. Educating people about nuclear power's safety will surely turn some opponents into advocates, or at least disinterested neutrals. The current culture however, indicates that for some portion of the population, education efforts must necessarily fail.¹⁰⁵

The view that education will convince local communities to accept nuclear power plants rests on a fundamental assumption: that facts will change people's minds. In the wake of recent events, the media have largely dubbed the modern era a post-truth world.¹⁰⁶ Post-truth refers to "circumstances in which objective

⁹⁹ See MURRAY, *supra* note 5, at 118 ("[Nuclear advocates] believe that if people were adequately informed they would find nuclear power acceptable.").

¹⁰⁰ John A. Bewick, *Facing Nuclear Fear*, 149 PUB. UTIL. FORTNIGHTLY, Oct. 2011, at 54, 59-60 ("[After] the Fukushima Daiichi disaster, the Nuclear Energy Institute (NEI) concluded that the industry must develop an aggressive outreach campaign to educate the public and allay peoples' fears.").

¹⁰¹ In my own experience, individuals in the nuclear field tend to strongly believe that education alone can overcome the NIMBY problem. For example, I studied nuclear engineering as an undergraduate and most of my classes at some point mentioned education as the solution to nuclear power's problems.

¹⁰² See Amanda Leiter, *The Perils of a Half-Built Bridge: Risk Perception, Shifting Majorities, and the Nuclear Power Debate*, 35 ECOLOGY L.Q. 31, 37 (2008) ("Would an education campaign based on either a bounded rationality or cultural cognition model succeed? The risk perception literature suggests two possible answers to this question, neither of which is encouraging for proponents of nuclear sector expansion.").

¹⁰³ E.g., Cox, *supra* note 74, at 66 ("Public attitude may be made more hospitable to expansion of advanced nuclear through educational campaigns focused on the industrial safety record and emissions profile of this technology.").

¹⁰⁴ Bewick, *supra* note 100, at 58 ("To support the country's nuclear power strategy, the French government and power utilities work systematically to educate citizens about nuclear power, and provide familiarity with the technology through a policy of transparency.").

¹⁰⁵ See *infra* notes 104-11 and accompanying text.

¹⁰⁶ Amy B. Wang, 'Post-Truth' Named 2016 Word of the Year by Oxford Dictionaries, WASH. POST: THE FIX (Nov. 16, 2016, 2:18 PM), https://www.washingtonpost.com/news/the-fix/wp/2016/11/16/post-truth-named-2016-word-of-the-year-by-oxford-dictionaries/?utm_term=.3a18aee33d75/ (noting that, when compared to 2015, in 2016 adjective post-truth

facts are less influential in shaping public opinion than appeals to emotion and personal belief.”¹⁰⁷ Put another way, a post-truth world is one in which “[t]ruth is dead” and “[f]acts are passe.”¹⁰⁸ Two primary threats ushered in this brave new world: “loss of trust in institutions,” including scientists, and changes in the way people receive information.¹⁰⁹ Further, the internet gives those who listen to emotions over logic the ability to select what sources of information they consider, without regard to accuracy.¹¹⁰ These tendencies may be particularly true with regard to nuclear reactors because they create “an instinctive or affective negative response.”¹¹¹

Educating the public about a complex scientific issue like nuclear technology becomes impossible if Group Two Actors either refuse to believe scientists and engineers or simply refuse to listen to the information. As discussed above, people find nuclear technology inherently terrifying.¹¹² When opponents of nuclear power release false or misleading information about nuclear power’s dangers, Group Two Actors could choose to hear only that information. Thus, if the nuclear industry undertakes a large-scale education campaign, that campaign will likely do nothing to convince those who refuse to even listen to the information it presents. Even if Group Two Actors listen to the data, they could simply rely on their emotions as opposed to objective facts. As others have noted, an education campaign to change the public’s perception of nuclear power requires “[e]ach side, expert and public, . . . [to] respect[] the insights and intelligence of the other.”¹¹³ As the public’s distrust of experts is a fundamental cause of the current post-truth order, an education campaign must necessarily fail among a portion of the population because it relies upon a respect and mutual understanding that does not exist.¹¹⁴ Consequently, education does not provide a viable option for convincing some people to accept new nuclear reactors near their homes.¹¹⁵

“appear[ed] with far more frequency in news articles and on social media in both the United Kingdom and the United States.”).

¹⁰⁷ *Word of the Year 2016 is . . .*, OXFORD ENGLISH DICTIONARIES, <https://en.oxforddictionaries.com/word-of-the-year/word-of-the-year-2016> [<https://perma.cc/G8QT-5ZGT>]; see also Wang, *supra* note 106.

¹⁰⁸ Wang, *supra* note 106.

¹⁰⁹ *Yes, I’d Lie to You*, THE ECONOMIST, Sept. 10, 2016, at 17, 18.

¹¹⁰ *See id.* at 20.

¹¹¹ Leiter, *supra* note 102, at 37.

¹¹² *See supra* Sections I.B, I.C (detailing public fear of nuclear power).

¹¹³ *Id.* at 45.

¹¹⁴ *See Yes, I’d Lie to You, supra* note 109, at 18-19 (arguing that increasing tendency to challenge and undermine experts and institutions has made post-truth politics possible).

¹¹⁵ To further clarify, an education campaign is not doomed to failure because of its precise content, but rather because people will either ignore such a campaign entirely or simply refuse

Because using methods that will only appeal to some people is both bad policy and a losing strategy, any strategy to address safety concerns must appeal both to those whom education can convince, and to those for whom facts are irrelevant. Thus, any approach to combat safety-based fears must involve methods that appeal to those who reject facts. As private actors cannot carry out such methods, safety concerns thus become a legislative problem for Congress to solve.¹¹⁶ As I shall discuss next, the best way to foster acceptance is through a community-based incentive program created by Congress.

III. FROM “NOT IN MY BACKYARD” TO “I GUESS IN MY BACKYARD”

As an initial matter, Congress does not need to reduce community fears in order for Group Two Actors to accept nuclear power in their communities, because accepting nuclear power does not require reducing fear. Rather, acceptance of nuclear power merely requires re-evaluation of fears. In other words, acceptance does not require turning “Not in My Backyard” into “Please in My Backyard,” but rather “I Guess in My Backyard.” As stated above, nuclear opponents will typically use NEPA litigation to delay the licensing process while they increase local opposition by stoking fears about reactor safety.¹¹⁷ These tactics lead to popular and political opposition as well as more litigation and increased costs.¹¹⁸ By taking actions to encourage Group Two Actors to re-evaluate their fears about nuclear safety, Congress can not only decrease local opposition to nuclear power, but also remove a strategy nuclear power’s opponents use. By blunting that strategy’s efficacy, Congress can disrupt Group One Actors’ large-scale opposition to nuclear power and can also encourage Group Two Actors to accept nuclear power’s expansion into their communities.

In order to determine what actions Congress should take to encourage Group Two Actors to re-evaluate their fears, Congress must first understand the manner in which Group Two Actors perceive nuclear power’s risks. Behavioral economics offers some insights into this perception that those hoping to combat this fear can use.¹¹⁹

to believe what they hear. Thus, even if an education campaign were to focus on the economic benefits of nuclear power, it would still fail.

¹¹⁶ The most obvious non-fact-based approach would seemingly involve money, like in other NIMBY contexts. *See supra* notes 94-96 and accompanying text. As noted above however, such a solution is likely not economically feasible given nuclear reactors’ large impact area. *See supra* notes 94-96 and accompanying text.

¹¹⁷ Binder, *supra* note 43, at 16-17.

¹¹⁸ *Id.*

¹¹⁹ However, some believe these insights would prove ineffective. *See Leiter, supra* note 102 (arguing that risk perception literature indicates that education campaign on nuclear power would not prove effective).

A. *Lessons from Behavioral Economics*¹²⁰

One current strategy to decrease resistance to nuclear expansion is to frame nuclear power as a solution to global climate change.¹²¹ Unfortunately, two major behavioral economics theories indicate that, among Group Two Actors, such efforts will prove fruitless.

1. Bounded Rationality

The basic idea behind bounded rationality is that “human cognitive abilities are” limited.¹²² To combat this limitation, humans rely on “mental shortcuts,” processes which “can produce predictable mistakes.”¹²³ These mistakes can include, among others, “overestim[ing] the magnitude of ‘dread’ risks,”¹²⁴ “normative bias,”¹²⁵ “the ‘availability heuristic,’”¹²⁶ “group polarization,”¹²⁷ and “probability neglect.”¹²⁸ Bounded rationality then divides risks into two categories: affective risks and other risks.¹²⁹ Affective risks trigger “strong

¹²⁰ This Section’s analysis was initially influenced by Alexander S. Rinn, Note, *A Behavioral Economic Approach to Nuclear Disarmament Advocacy*, 46 VAND. J. TRANSNAT’L L. 969, 989-1000 (2013). Rinn applied bounded willpower to nuclear disarmament. *Id.* at 996. Rinn also pointed me toward the foundational sources for bounded willpower. *Id.* at 992 n.124 (citing Christine Jolls, Cass R. Sunstein, & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1997-1998)).

¹²¹ See MURRAY, *supra* note 5, at 118 (arguing that growing acceptance of nuclear energy is partly due to realization that it “does not release greenhouse gases that contribute to global warming”).

¹²² Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1477 (1997-1998) (“We have limited computational skills and seriously flawed memories.”).

¹²³ *Id.* (explaining that these mistakes occur because “human behavior differs in systematic ways from that predicted by the standard economic model of unbounded rationality,” and that these departures fall into categories of judgment and decisionmaking).

¹²⁴ In other words, overestimation of the magnitude of “dread” risks involves overestimating “an uncontrollable risk, imposed involuntarily, with lethal consequences that are unfairly distributed across society.” Leiter, *supra* note 102, at 42.

¹²⁵ *Id.* Normative bias causes individuals to overestimate the risks of activities of which they disapprove. *Id.*

¹²⁶ *Id.* The availability heuristic involves the assumption an individual could make that a risk is higher if one can “call a specific incidence of a risk to mind.” *Id.*

¹²⁷ *Id.* Group polarization is the tendency of groups of “like-minded people” to “sharpen and confirm each other’s views” about risks. *Id.*

¹²⁸ *Id.* Probability neglect is the tendency to “worry about worst-case scenarios” regardless of how unlikely they are. *Id.* at 43.

¹²⁹ *Id.* at 43, 68. This source terms these risks hot and cold risks, respectively. *Id.* This Note will refer to them as affective and other risks respectively to avoid confusion because it discusses nuclear technology and climate change, where hot and cold can have many different meanings.

affective responses” and “cultural and political biases,” while other risks do not.¹³⁰ Attempts to change the public’s acceptance of affective risks through “dire predictions about” other risks will likely fail.¹³¹ As others have noted, nuclear power is an affective risk while climate change is an other risk.¹³² As such, efforts to get Group Two Actors to accept nuclear power plants as a solution to climate change will likely fail.¹³³

2. Bounded Willpower

Bounded willpower refers to the idea that humans often take actions contrary to their “long-term interests.”¹³⁴ Put another way, humans “tend to discount the utility of future gains and losses.”¹³⁵ Group Two Actors opposing nuclear power believe they will experience the reactor-imposed risks in the relatively near future.¹³⁶ In contrast, Group Two Actors will not suffer climate change’s worst consequences for some time.¹³⁷ Consequently, Group Two Actors will likely discount climate change’s long-term risks relative to short-term reactor-imposed risks, and will thus likely not accept new reactors as a solution to climate change.

3. A Behavioral Economics-Informed Theory

As bounded rationality teaches, using the dangers of an other risk, such as climate change, to make Group Two Actors re-evaluate their fears about an affective risk, such as nuclear power, will likely fail.¹³⁸ Thus, in order to succeed, Congress should base any legislative program designed to encourage the public’s re-evaluation of its nuclear-power-based fears on incentives that alleviate even more affective risks.¹³⁹ Further, bounded willpower teaches that the longer the time until that risk precipitates, the more likely people are to

¹³⁰ *Id.* at 43, 68.

¹³¹ *Id.* at 68-69.

¹³² *Id.* at 68.

¹³³ *See id.* at 68-69 (seeking to “temper the enthusiasm” of people who assume that regulators can “reinvigorate the nuclear industry in response to climate change . . . without considering public opinion”).

¹³⁴ Jolls, Sunstein & Thaler, *supra* note 122, at 1479 (noting for example that “[m]ost smokers say they would prefer not to smoke,” and many take steps to get help quitting).

¹³⁵ Rinn, *supra* note 120, at 992 (stating that economists call this phenomenon “time discounting”).

¹³⁶ *See* Leiter, *supra* note 102, at 58.

¹³⁷ *See, e.g., The Consequences of Climate Change, supra* note 2 (noting that by 2100 “[s]ea level[s] will rise 1-4 feet”).

¹³⁸ Leiter, *supra* note 102, at 68.

¹³⁹ One example of such an affective risk could be economic fears. *See infra* notes 141-147 and accompanying text.

discount the risk.¹⁴⁰ Consequently, as nuclear reactors create risk in the near future, bounded willpower dictates that incentives should target risks that pose harms at least as soon as, if not sooner than, new reactors.

The 2016 election may provide some clues as to what types of incentives would be successful. As others, including Senator Bernie Sanders, have noted, the election results reflect economic pain and people's fears about "feed[ing] their kids."¹⁴¹ Given this fear's political manifestation, Americans likely view the economy and jobs as both incredibly affective and immediate risks. Thus, both bounded rationality and bounded willpower indicate that Group Two Actors may accept reactor-based risks in their communities if incentives offset those risks by reducing economic ones.

Polling data further back up this assessment. Every month *Gallup* asks Americans what "the [m]ost [i]mportant [p]roblem [f]acing the [c]ountry" on that day is.¹⁴² Between July 2016 and January 2017, Americans rated the economy in general as the most concerning problem facing the country four times, as tied for the country's biggest problem twice, and as the third most concerning issue once.¹⁴³ On average, over those seven months, Americans said the four biggest problems facing the United States in descending order are: the "[e]conomy in general," "[d]isatisfaction with government/[p]oor leadership,"

¹⁴⁰ See Rinn, *supra* note 120, at 992 (noting that "people tend to discount the utility of future gains and losses").

¹⁴¹ See Matt Taibbi, *Where We Go from Here*, ROLLING STONE, Dec. 15-29, 2016, at 42, 42-46, 66; see also Brian Schaffner, *White Support for Donald Trump Was Driven by Economic Anxiety, but also by Racism and Sexism*, VOX (Nov. 16, 2016, 12:10 PM), <https://www.vox.com/mischiefs-of-faction/2016/11/16/13651184/trump-support-economic-anxiety-racism-sexism> [<https://perma.cc/A9PE-BZCW>] (noting that according to pre-election data "there is no single cause of Trump's success among whites" because economic anxiety, racism, and sexism all "played an important role"). While some disagree with this view and argue that cultural anxiety explains Trump's election, Niraj Chokshi, *Trump Voters Driven by Fear of Losing Status, Not Economic Anxiety, Study Finds*, N.Y. TIMES (Apr. 24, 2018), <https://www.nytimes.com/2018/04/24/us/politics/trump-economic-anxiety.html>, others have, convincingly, argued that economic issues necessarily played a significant role because economic and cultural anxiety are inseparable. Andrew J. Cherlin, *You Can't Separate Money from Culture*, N.Y. TIMES (May 7, 2018), <https://www.nytimes.com/2018/05/06/opinion/trump-supporters-economy-racism.html> ("It is a mistake to see economics and culture as distinct forces. Both propelled Mr. Trump to victory."); David Leonhardt, *Yes, the Economy Helped Elect Trump*, N.Y. TIMES (May, 8, 2018), <https://www.nytimes.com/2018/05/08/opinion/economy-trump-election.html> (arguing that both economic and cultural anxiety rather than just cultural anxiety explain the 2016 election results).

¹⁴² *Most Important Problem*, GALLUP, <https://web.archive.org/web/20170206102731/http://www.gallup.com/poll/1675/Most-Important-Problem.aspx> [<https://perma.cc/J3A3-22ZH>] (last visited Sept. 27, 2018) [hereinafter *Archived Most Important Problem*] (providing a table depicting responses to the question).

¹⁴³ *Id.*

“[r]ace relations/[r]acism,” and “[u]nemployment/[j]obs.”¹⁴⁴ Thus, Americans likely view economic stress as a highly affective and immediate risk.¹⁴⁵ Unfortunately, none of the problems measured by *Gallup* give insight into how Group Two Actors would view reactor-based risks relative to economic-based risks.¹⁴⁶ During the seven-month time frame, however, people consistently ranked both the economy in general and unemployment as much more important than environmental concerns.¹⁴⁷ At the very least Group Two Actors likely consider economic stress more affective and immediate than the risks from climate change.

Thus, according to bounded rationality and willpower, incentives that tie acceptance of nuclear power to economic improvements likely have the greatest chance of succeeding at getting the general public to re-evaluate its fears about nuclear reactor safety. While the doctrines of bounded rationality and willpower

¹⁴⁴ *Id.* Note however, that *Gallup* did not provide this order. Rather, I looked at *Gallup*'s results and determined this order.

¹⁴⁵ While *Gallup*'s most recent data shows fewer people listing the “[e]conomy in general” as their biggest concern, *Most Important Problem*, GALLUP, <http://news.gallup.com/poll/1675/most-important-problem.aspx> [https://perma.cc/9T68-JNTM] (last visited Sept. 27, 2018) [hereinafter *Updated Most Important Problem*] (showing that from August 2017 to February 2018, “[e]conomy in general” did not once rank as largest concern), this shift likely represents increased frustration with the current administration, rather than increased confidence in the economy. Compare *id.* (displaying that in December of 2017, twenty-two percent of respondents felt that “[d]issatisfaction with government/[p]oor leadership” was “the most important problem”), with *Archived Most Important Problem*, *supra* note 142 (displaying that in December of 2016, only nine percent of respondents felt that “[d]issatisfaction with government/[p]oor leadership” was “the [m]ost [i]mportant [p]roblem”). The decrease in people citing the economy as their biggest concern may also reflect short-term spikes in other responses that seem to correspond with major news stories. For example, significantly more people named “[r]ace relations/[r]acism” as the most pressing issue in September, October, and November, shortly after the riots in Charlottesville and the President’s infamous response. *Updated Most Important Problem*. (displaying three highest percentage rankings for these months on this issue than in any other month in seven months of data); see Andrew Rafferty, Marianna Sotomayor & Daniel Arkin, *Trump Says ‘Two Sides’ Share Blame for Charlottesville Rally Violence*, NBC NEWS (Aug. 16, 2017, 7:19 AM), <https://www.nbcnews.com/news/us-news/trump-defends-all-sides-comment-n793001> [https://perma.cc/7Z2A-JUBW] (discussing President Trump’s remarks following the rally and violence in Charlottesville). Overall, given the concern people displayed toward economic issues over the past decade, *Updated Most Important Problem*, *supra*, it seems reasonable to think that those concerns still exist.

¹⁴⁶ See *Archived Most Important Problem*, *supra* note 142.

¹⁴⁷ *Id.* (depicting, for example, that in any month polled, highest percentage of respondents that listed “[e]nvironment/[p]ollution” as “[m]ost [i]mportant [p]roblem” was three percent, percentage never surpassing that of percentage of respondents listing either “[e]conomy in general” or “[u]nemployment/[j]obs” as most important).

do not offer guidance on exactly what those incentives should look like, previous congressional incentive programs may provide such guidance.

B. *Lessons from Past Congressional Incentives*

1. Energy Policy Act of 2005

The Energy Policy Act of 2005 (“EP Act”) contains many provisions that promote nuclear power.¹⁴⁸ Unfortunately, the EP Act provides little guidance on incentives aimed at overcoming the public’s nuclear fears. It primarily incentivizes utilities to construct nuclear power plants by giving corporate-based, not community-based, incentives. The EP Act extends government indemnification in a nuclear accident.¹⁴⁹ It also provides significant financial incentives for the first utilities willing to construct new nuclear power plants.¹⁵⁰ As this statutory framework contains only corporate incentives, it does not provide guidance on how to encourage local communities to re-evaluate their fears of nuclear technology. Given that this framework does not provide community-based incentives, getting Group Two Actors to re-evaluate their fears of nuclear power requires significant work by Congress.

While the EP Act framework fails to provide significant guidance on potential congressionally-created, community-based incentives, it provides some useful information. First, it indicates that Congress is willing to incentivize nuclear power’s expansion. Second, it shows Congress will actually spend money to incentivize reactor construction. Third, the EP Act’s passage by a relatively recent, entirely Republican government¹⁵¹ indicates that the current Republican-

¹⁴⁸ Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified as amended in scattered sections of 42 U.S.C.).

¹⁴⁹ *Id.* at § 602 (extending time period in which licenses granted by Nuclear Regulatory Commission come with indemnification for these occurrences).

¹⁵⁰ *Id.* § 638 (providing that Secretary of Energy can enter contracts to cover costs of certain delays for those who have been granted license to construct and operate advanced nuclear facilities); *id.* at § 1306 (providing tax credit for taxpayers owning “advanced nuclear facility”); *id.* § 1703 (making “[a]dvanced nuclear energy facilities” eligible for government loan guarantee not greater than eighty percent of its cost); *see also* EISEN ET AL., *supra* note 16, at 428-30 (describing financial incentives provided by EP Act).

¹⁵¹ *See U.S. Presidents*, INSIDEGOV.COM, <http://us-presidents.insidegov.com/> [<https://perma.cc/R97U-P8KC>] (last visited Sept. 27, 2018) (noting that George W. Bush, Republican, was president from 2001 to 2009); *U.S. Senate: Party Division*, UNITED STATES SENATE, <https://www.senate.gov/history/partydiv.htm> [<https://perma.cc/UE7E-H2F9>] (last visited Sept. 27, 2018) (demonstrating that Republican Party held majority in Senate in 2005); *Party Divisions of the House of Representatives*, UNITED STATES HOUSE OF REPRESENTATIVES, <http://history.house.gov/Institution/Party-Divisions/Party-Divisions/> [<https://perma.cc/2M3H-MZK7>] (last visited Sept. 27, 2018) (demonstrating that Republican Party held majority in House in 2005).

controlled government¹⁵² may be willing to create financial incentives to promote nuclear power's expansion. While the EP Act may not provide specific guidance on community-based incentives, other nuclear technologies can provide guidance on how this new framework should look.

2. Nuclear Waste Policy Act of 1982

The United States has attempted to develop an SNF repository since 1982.¹⁵³ Unfortunately, for the past thirty-five years, these attempts have failed.¹⁵⁴ During that time, Congress has tried to incentivize state and local governments to cooperate with a repository's development. In one provision, Congress authorized the Secretary of Energy¹⁵⁵ to "enter into a benefits agreement with the State of Nevada^[156] concerning a repository or with a State or Indian tribe concerning a monitored retrievable storage facility . . . in that State or on the reservation of that tribe."¹⁵⁷ These benefits agreements will theoretically consist of payments for largely unrestricted purposes to the State or tribe in accordance with a statutorily created schedule.¹⁵⁸ In another provision, Congress ordered the Secretary of Energy to "give special consideration to proposals from States where a repository is located" when "siting Federal research projects."¹⁵⁹ Unfortunately, as others have noted, the Nuclear Waste Policy Act of 1982 ("NWPA") and its 1987 Amendments created "inadequate" incentives to encourage communities, and in particular Nevada, to support a SNF repository.¹⁶⁰

¹⁵² 2016 *Election Results*, CNN, <http://www.cnn.com/election/2016/results> (last visited Sept. 27, 2018) (following 2016 elections, Presidency, Senate, and House are all Republican-controlled).

¹⁵³ Nuclear Waste Policy Act of 1982, Pub. L. No. 97-425, 96 Stat. 2201 (codified as amended in scattered sections of 42 U.S.C.) ("To provide for the development of repositories for the disposal of high-level radioactive waste and spent nuclear fuel.").

¹⁵⁴ See *Used Nuclear Fuel*, NUCLEAR ENERGY INSTITUTE, <http://www.nei.org/Issues-Policy/Used-Nuclear-Fuel-Management/Disposal-Yucca-Mountain-Repository> [<https://perma.cc/XXG6-SM9C>] (discussing Yucca Mountain's failure in Nevada, despite billions of invested dollars).

¹⁵⁵ The statutes cited throughout this discussion refer to the Secretary without clarifying to which they refer. For the purposes of this discussion, those statutes mean the Secretary of Energy. 42 U.S.C. § 10101(20) (2012).

¹⁵⁶ The statute specifies Nevada because Congress statutorily required the first SNF repository be built at Yucca Mountain in Nevada. 42 U.S.C. § 10133 (providing responsibilities and restrictions of Secretary of Energy regarding "site characterization activities at the Yucca Mountain site").

¹⁵⁷ 42 U.S.C. § 10173(a)(1).

¹⁵⁸ 42 U.S.C. § 10173a(a).

¹⁵⁹ 42 U.S.C. § 10174.

¹⁶⁰ Alex Funk & Benjamin K. Sovacool, *Wasted Opportunities: Resolving the Impasse in United States Nuclear Waste Policy*, 34 *ENERGY L.J.* 113, 145 (2013).

Given many of the factors responsible for the repository's failure,¹⁶¹ incentives similar to those found in the NWPA may be enough to help communities re-evaluate their fears. While that may be the case, attempting to use incentives that have already failed in a similar, albeit different, context seems foolish and inefficient. Further, unspecified cash grants may be too tenuously tied to the economy for Group Two Actors to realize the connection between nuclear power and the economy. Thus, for Congress to succeed in convincing local communities to re-evaluate their fears and support nuclear power, it likely needs to provide more attractive incentives than those found in the NWPA. In order to get Group Two Actors to re-evaluate their fears about nuclear power, these community-based incentives likely need to be more specific and more economically targeted than the NWPA's large, unrestricted cash grants. While the NWPA and its amendments do not offer guidance on what community-based incentives will succeed, they do show that Congress has, in the past, provided for community-based incentives.

3. Waste Isolation Pilot Plant

One final Congressional program that may provide guidance on incentives is the Waste Isolation Pilot Plant ("WIPP"). In 1980, Congress authorized the creation of a defense waste repository known as WIPP.¹⁶² In its authorization, Congress required the Department of Energy ("DOE") to "consult and cooperate" with New Mexico, the facility's host state.¹⁶³ Under this provision, DOE agreed to many conditions in subsequent agreements with New Mexico, including helping New Mexico "obtain federal funds to upgrade state highways" so the state could monitor and inspect waste shipments,¹⁶⁴ "providing financial support . . . for emergency-response preparedness,"¹⁶⁵ adopting preferential hiring practices for "New Mexico residents at the WIPP Project,"¹⁶⁶ and funding

¹⁶¹ These include Congressional attempts to force the facility on the State because it was politically weak and the fact that Nevada had never generated any electricity with nuclear power, which are not present when considering a nuclear power plant. *See generally* RICHARD BURLESON STEWART & JANE BLOOM STEWART, *FUEL CYCLE TO NOWHERE: U.S. LAW AND POLICY ON NUCLEAR WASTE* (2011) (comprehensively reviewing U.S. SNF policy and noting reasons for Yucca Mountain's failure).

¹⁶² Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980, Pub. L. No. 96-164, § 213, 93 Stat. 1259, 1265 (1979); *see, e.g.*, STEWART & STEWART, *supra* note 161, at 170 (describing legislative history leading up to WIPP's authorization).

¹⁶³ STEWART & STEWART, *supra* note 161, at 170.

¹⁶⁴ *Id.* at 173.

¹⁶⁵ *Id.*

¹⁶⁶ *Id.* at 175.

bypasses around cities for waste transportation and relief routes.¹⁶⁷ Congress later codified many transportation-related contractual obligations, including new highway construction and three hundred million dollars in unrestricted grants.¹⁶⁸ Unlike those in the NWPA, WIPP's incentives succeeded.¹⁶⁹

Although the initial act did not provide for financial incentives to the community, both DOE and Congress authorized such incentives in subsequent measures. These authorizations demonstrate a potential willingness on the part of Congress to use such incentives to foster community acceptance of a nuclear-related project. Additionally, WIPP's success demonstrates that strong, community-based incentives, such as those eventually used in WIPP and especially those targeted at the economy, will likely prove most successful in helping Group Two Actors re-evaluate their fears of nuclear reactors and accepting new reactors in their communities.

As this review of current legislative incentives related to nuclear technology reveals, Congress likely needs to offer incentives stronger than unrestricted grants if it hopes to change fears and encourage local acceptance. As others have noted, incentives should consist of "substantially higher amount[s]" of money, "infrastructure investments," and "local hiring preferences."¹⁷⁰ Further, incentives such as "in-kind grants for community beautification or development . . . employment guarantees, [and] direct monetary payments" have successfully obtained public acceptance for similarly unattractive but necessary projects, such as landfills and hazardous waste facilities.¹⁷¹ Such incentives would directly address the country's current economic fears and thus, according to behavioral economics, present the most likely chance to override the public's ingrained fears of nuclear power. Given infrastructure incentives' success at WIPP, the long-running failure of offering no community incentives, and unrestricted block grants' failure at Yucca Mountain, a legislative program

¹⁶⁷ *Id.* ("Further, DOE and New Mexico agreed to amend the supplemental stipulated agreement to provide for new sources of funding for waste transportation—specifically for bypasses around cities and for relief routes.").

¹⁶⁸ *Id.* at 179 ("In 1992, Congress enacted the WIPP Land Withdrawal Act (["WIPPLWA"]) . . . WIPPLWA . . . barred the transportation of TRU from Los Alamos National Lab to WIPP until a Santa Fe bypass highway was constructed or funded by the federal government. . . . [T]he new law authorized federal grants to New Mexico totaling \$300 million over fifteen years.").

¹⁶⁹ *Id.* at 181 (noting that WIPP successfully opened and began accepting waste); *see also id.* at 184 ("The history of WIPP illustrates vividly how a working relationship between the federal government and a host locality and states can evolve in a mixed dynamic of contention and cooperation that ultimately succeeds in satisfying the basic interests of most major stakeholders.").

¹⁷⁰ Funk & Sovacool, *supra* note 160, at 145 (citing BLUE RIBBON COMM'N ON AMERICA'S NUCLEAR FUTURE, REPORT TO THE SEC'Y OF ENERGY 59 (2012)).

¹⁷¹ STEWART & STEWART, *supra* note 161, at 263.

offering community-based incentives is likely the best way to mitigate the American public's fear.

C. *A Congressionally-Created Community-Based Incentive Program*

As this Part argues, the best way to increase local acceptance of nuclear power is through a community-based incentive program. Unfortunately, the current statutory framework fails to even remotely address this issue. Consequently, Congress's only path forward consists of creating an entirely new statutory scheme. As demonstrated by the similar SNF repository context, unrestricted grants to states will likely fail to encourage communities to re-evaluate their fears.¹⁷² Thus, the current Congress should mimic the actions of Congresses past. Its most likely path to success would be to pass a fairly vague statute authorizing either DOE or the Nuclear Regulatory Commission (the "NRC") to "consult and cooperate" with local communities when siting nuclear power plants, as it did with WIPP.¹⁷³ This statute, even if vague, allows DOE or the NRC to directly address the economic concerns plaguing particular communities. In this way, the agency "consult[ing] and cooperat[ing]" with the local community will best be able to apply behavioral economics' teachings to precisely target its community-based incentives at each community's specific economic concerns. This framework maximizes the chances that the risks the incentives address are affective and will thus encourage Group Two Actors to re-evaluate their fears about nuclear power and accept new reactors.

While WIPP required Congress to later appropriate funds for DOE's contractual obligations with New Mexico, a similar process will not be effective when incentivizing nuclear power plants.¹⁷⁴ WIPP is a single facility, while these incentives would, ideally, encourage communities across the country to accept nuclear power plants. If Congress needed to approve a specific incentive package for each plant, the process would become prohibitively inefficient. Additionally, Congress could always decide to use a particular incentive package as political leverage, undermining the incentives' purpose: combating Group Two fears and expanding nuclear power. Consequently, this new legislative scheme should appropriate DOE or the NRC a set amount of funding each year with which to carry out this "consult[ation] and cooperat[ion]" with local communities without further Congressional approval. Further, in order to guide this money's distribution, Congress should set a statutory limit on how much money can go to a particular community. Communities surrounding proposed reactor sites could then apply to DOE or the NRC for these incentives. The communities would be able to negotiate with DOE or the NRC for exactly

¹⁷² See *supra* Section III.B.2 (reviewing incentives of NWPA).

¹⁷³ See *supra* note 162 and accompanying text.

¹⁷⁴ STEWART & STEWART, *supra* note 161, at 171-80 (reviewing back-and-forth between DOE, New Mexico, and Congress to bring WIPP into operation).

which projects within the statutory limit would get funded. For example, suppose Congress allocates x dollars to this incentive program where local communities can each receive up to x/y dollars in incentives. A community with crumbling roads could get x/y dollars to rebuild its infrastructure. Alternatively, a community with some poor roads but many failing small businesses could receive $2x/(3y)$ dollars for a low-interest, small business loan program and $x/(3y)$ dollars to re-pave roads.

While this incentive program may seem vague, that is largely by design. Flexibility is one of this program's most important pieces. While many communities may be suffering from economic concerns, the solutions to those concerns likely vary from community to community. Methods that alleviate a former manufacturing community's economic concerns likely differ significantly from those that would remove a heavily agricultural or white-collar community's concerns. Thus, legislatively keeping this program vague allows DOE or the NRC to more effectively "consult and cooperate" with each local community. To provide some idea, some projects this program could fund include infrastructure renewal, a low-interest loan program for small businesses, or a job training program for workers who lost their jobs to technology. In fact, leaving the projects this program can fund undefined by Congress allows for true creativity. If a community's businesses are failing because people are moving away, it could negotiate funding to improve its local school system to incentivize remaining in the community.

Despite a flexible incentive program's benefits, Congress would likely need to place some restrictions on how this money could be used. It might go without saying, but Congress should clearly state that communities must use this money for the public good, not enriching city governments. Further, Congress should require the locality to show how a specific proposal will alleviate its residents' economic concerns. Finally, such an incentive program would likely need to exclude some uses for Constitutional reasons.¹⁷⁵

As a practical matter, Congress should attach certain obligations to funds from this program. Most importantly, Congress should explicitly prohibit local governments that accept this program's funds from taking actions to delay or

¹⁷⁵ For example, while a monument to a town's founder in the center of town could potentially alleviate economic concerns by creating construction jobs, a large, government-funded monument to the Ten Commandments could violate the First Amendment. See, for example, *Glassroth v. Moore*, 229 F. Supp. 2d 1290, 1319 (M.D. Ala. 2002), *aff'd*, 335 F.3d 1282 (11th Cir. 2003), which found that the presence of a monument to the Ten Commandments installed in the rotunda of the Alabama State Judicial Building by then-Chief Justice Roy S. Moore violated the Establishment Clause of the First Amendment. In fact, given that tax dollars would necessarily fund any monument produced by this program and that tax dollars did not fund the monument at issue in *Glassroth*, *id.* at 1294, constructing such a monument under this program would seemingly create an even bigger constitutional problem.

derail plant construction. That being said, withholding funding to communities until the reactor's completion would likely defeat this program's purpose because the people living in the communities would, for a time, experience the fears of having a nuclear reactor without the program's benefits. At the same time, if communities received the money upfront with no future negative consequences for opposition, they could accept the money and then still oppose reactors through legal stall tactics. Thus, to maximize this program's effectiveness and to ensure local acceptance, localities should receive the incentive payments up front but be required to pay that money back if the reactor does not become operational.

Finally, because this program would target specific localities, the states would necessarily have a minimal, if any, role in the process. States would likely play a minimal role because projects that address the State's economic concerns may not address the relevant locality's concerns in particular.

This is not to say, however, that Congress should become a bully pulpit for the nuclear industry. This strategy depends on obtaining local consent for new reactors. If local communities feel Congress is browbeating them into accepting facilities, Group One Actors will still be able to use NEPA litigation as a delaying tactic to drum up local, and then political, opposition to the facility. In fact, if Group Two Actors feel the federal government's coercive force bearing down on them, Group One Actors' opposition strategy will likely become even more effective. In that case, this plan would have the exact opposite of its intended effect.

D. *Environmental/Social Justice*

Opponents could, and likely would, argue that this legislative program largely amounts to bribery. They would argue that this program uses economic distress to convince poor communities, in many cases likely heavily populated by people of color, to accept reactor-based risks. Under this logic, this incentive program could be seen as disproportionately placing risks on disadvantaged communities, thus violating environmental and social justice norms.

First, as shall be discussed, this legislative program is more than a mere bribe. Even assuming it were just a bribe, however, that fact would not reduce its efficacy. To be clear, bribing disadvantaged communities to accept health and environmental risks they would otherwise reject is unacceptable. From an objective standpoint, however, nuclear power is one of the safest electricity generation methods.¹⁷⁶ Both domestically and internationally, nuclear power has caused fewer deaths on a per trillion kilowatt-hour basis than wind, solar, natural

¹⁷⁶ EISEN ET AL., *supra* note 16, at 403 (citing Conca, *supra* note 34) ("The safety of nuclear power is given high priority across the fuel cycle, and nuclear power has one of the best safety records of all the fuel sources for electricity.").

gas, and hydroelectric power.¹⁷⁷ In fact, while it can be difficult to definitively attribute specific cancers to reactors, the “prevailing view” is that American reactors, including those involved in the TMI accident, have never caused any deaths.¹⁷⁸

Faced with this information, critics might argue that although nuclear power does not pose significant day-to-day risks, this data masks nuclear power’s true dangers. Such critics would argue that nuclear accidents’ rarity skews these numbers and that when accidents do occur, they are catastrophic, such that reasonable people cannot ignore the possibility of a meltdown.¹⁷⁹ Thus, according to these critics, this program would use federal funds to bribe disadvantaged communities into accepting cataclysmic risks.

Under closer examination, this argument falls away. TMI, the first nuclear reactor accident, released a negligible amount of radioactive material.¹⁸⁰ Further, while the government-ordered evacuation following the Fukushima Dai-ichi accident caused approximately one thousand deaths,¹⁸¹ no one died from radiation.¹⁸² Even with those consequences, TMI and Fukushima Dai-ichi will

¹⁷⁷ Conca, *supra* note 34 (noting that nuclear power has lowest “deathprint,” which measures “number of people killed by one kind of energy or another per kWhr produced” out of these sources). The low international number is particularly impressive because it includes deaths caused by both Chernobyl and Fukushima Dai-ichi. *Id.*

¹⁷⁸ Willoughby Mariano, *Isakson Claims No Deaths in U.S. from Nuke Plant Operations*, POLITIFACT (Apr. 1, 2011, 6:00 AM), <http://www.politifact.com/georgia/statements/2011/apr/01/johnny-isakson/isakson-claims-no-deaths-us-nuke-plant-operations/> [<https://perma.cc/58H8-QQD7>].

¹⁷⁹ See Richard Goldsmith, *Regulatory Reform and the Revival of Nuclear Power*, 20 HOFSTRA L. REV. 159, 160 (1991-1992) (“More than twelve hundred ‘reactor-years’ of operation in the United States without a single public fatality is a remarkably good safety record, but it does not ‘prove’ that an accident with the catastrophic consequences of a Chernobyl cannot happen here. The public has demanded such ‘proof’” (footnote omitted)).

¹⁸⁰ *In re TMI Litigation*, 193 F.3d 613, 658 n.77 (3d Cir. 1999), *amended by* 199 F.3d 158 (3d Cir. 2000) (“The Nuclear Regulatory Commission’s Special Inquiry Group concluded that the quantity of radioactive materials contained in the liquid released into the Susquehanna River was not significant.”).

¹⁸¹ These evacuation-related deaths were primarily caused by the “somatic effects and spiritual fatigue” from living in shelters, “the mental or physical burden” imposed on “fragile individuals” by leaving their homes, and “delays in obtaining needed medical support because of the enormous destruction caused by the earthquake and tsunami.” *Fukushima Accident*, WORLD NUCLEAR ASS’N, <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx> [<https://perma.cc/9U9L-3C5Y>] (last updated June 2018). Interestingly, a similar number of “evacuees from tsunami- and earthquake-affected prefectures” died. *Id.*

¹⁸² *Id.* (“The death toll directly due to the nuclear accident or radiation exposure [was] zero”).

soon become irrelevant when considering the risks new reactors pose. The NRC is currently evaluating a new reactor design that physically cannot experience a meltdown.¹⁸³ Because small modular reactors are likely the future of the nuclear industry for a variety of reasons,¹⁸⁴ accidents like those at TMI and Fukushima Dai-ichi will not be able to occur at new plants. Thus, new reactors will only be safer than their older counterparts. Finally, despite Chernobyl's place as the archetypal nuclear disaster, it resulted in surprisingly few deaths.¹⁸⁵ While Chernobyl did have devastating environmental consequences, a unique

¹⁸³ James Conca, *NuScale's Small Modular Nuclear Reactor Passes Biggest Hurdle Yet*, FORBES (May 15, 2018, 6:00 AM), <https://www.forbes.com/sites/jamesconca/2018/05/15/nuscales-small-modular-nuclear-reactor-passes-biggest-hurdle-yet/#3e7184935bb5> [https://perma.cc/P9QB-XEEB].

¹⁸⁴ See *id.*; Erin Winick, *Small Nuclear Reactors—Now with 20 Percent More Power!*, MIT TECH. REV. (June 6th, 2018, 3:41 PM), <https://www.technologyreview.com/the-download/611373/small-nuclear-reactors-now-with-20-percent-more-power> [https://perma.cc/86NM-LUVW] (“[Small modular reactors] in general promise a future in which nuclear power is cheap and easy to export around the world, without fear of weaponization . . . NuScale says its advance will save costs and put [small modular reactors] on a more level playing field with other energy sources.”).

¹⁸⁵ See EISEN ET AL., *supra* note 16, at 408 (“[The radiation-related sicknesses Chernobyl caused] are far lower than initial speculations of tens of thousands of radiation-related deaths.”); *Chernobyl Accident 1986*, WORLD NUCLEAR ASS'N, <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/chernobyl-accident.aspx> [https://perma.cc/E4TW-TEV6] (last updated Apr. 2018).

combination of incompetence, bad physics,¹⁸⁶ and “procedural violations”¹⁸⁷ caused it, making it largely irrelevant when discussing potential consequences for American nuclear reactors.¹⁸⁸ Thus, this legislative program is not an attempt to coerce disadvantaged communities into ignoring their rational fears. Rather, it helps them reevaluate and overcome their irrational fears. In fact, if a program such as this were nothing more than environmental racism, it seems unlikely that communities surrounding nuclear power plants would so overwhelmingly support nuclear power.¹⁸⁹ Consequently, far from violating principles of social or environmental justice, this strategy is a matter of good public policy.

¹⁸⁶ Reactors have what is known as a k factor which “gives the net change in the number of thermal neutrons,” neutrons with an energy of 0.025 electron volts, after each fission. KENNETH S. KRANE, *INTRODUCTORY NUCLEAR PHYSICS* 501-506 (1985) (defining k); PAUL A. TIPLER & RALPH A. LLEWELLYN, *MODERN PHYSICS* 540 (6th ed. 2012) (defining thermal neutrons). Thermal neutrons are important because they are more likely “to induce new fission events” than the fast neutrons emitted in fission reactions. KRANE, *supra*, at 488. Reactors also have another property known as reactivity, which depends on an idealized version of k . See JOHN R. LAMARSH, *INTRODUCTION TO NUCLEAR REACTOR THEORY* 424 (1966) (defining reactivity); see also KRANE, *supra*, at 503-04 (defining k_{∞}). A reactor’s temperature changes based on the reactor’s power output, which can itself change based on k . LAMARSH, *supra*, at 417. Because of these various properties, and the mathematical relationships between these properties, changes in reactor temperature can change reactivity. *Id.* at 448. This complex relationship is summed up by what’s known as the temperature-reactivity coefficient, α_T . *Id.* α_T ’s sign, whether positive or negative, tells engineers how a reactor will respond to changes in temperature. *Id.* at 449. For example, if α_T is positive and the reactor’s temperature increases, the reactor’s power output will also increase. *Id.* This power increase causes the temperature to increase in an endless spiral until the reactor operators regain control or until a meltdown occurs. *Id.* However, if α_T is negative, increases in temperature will decrease power output which, in turn, decreases temperature. *Id.* Consequently, reactors designed to have a “positive [α_T] are inherently *unstable*” whereas reactors with “negative [α_T] are [inherently] *stable*.” *Id.* (emphasis in original). The reactor used at Chernobyl, the Soviet Union’s RBMK design, was engineered to have a positive temperature-reactivity coefficient and was thus inherently unstable and designed using bad physics. See JAMES E. TURNER, *ATOMS RADIATION, AND RADIATION PROTECTION* 418 (3d. ed. 2007); Berger, *supra* note 39, at 342-43.

¹⁸⁷ TURNER, *supra* note 186, at 418.

¹⁸⁸ While it may appear as if human error caused Chernobyl, the reactor operators’ behavior goes far beyond mere human error. Chernobyl specifically resulted from “procedural violations, failure to understand the reactor’s behavior, and poor communication between the responsible parties on site.” *Id.* Additionally, Chernobyl’s operators ran the reactor “with too few control rods, some safety systems shut off, and the emergency cooling system disabled.” *Id.* In particular, these deliberate technical decisions take Chernobyl outside the realm of relevant human error and make it largely irrelevant when considering worst case scenario events with American reactors.

¹⁸⁹ Nuclear Energy Inst., *supra* note 81. Importantly, this survey, conducted by Bisconti Research Inc., “excluded households with persons who work at nuclear power plants.” *Id.* It

Second, far from violating environmental or social justice norms, this program would actually help promote such norms. Economist James T. Hamilton conducted an analysis of where companies chose to locate hazardous waste plants.¹⁹⁰ After conducting his study, Hamilton concluded that companies locate hazardous waste plants where “they can expect the least locally organized opposition.”¹⁹¹ In Hamilton’s study, this meant that neighborhoods with a high percentage of homeownership and voting were “less likely to get hazardous waste plants than” renter-heavy neighborhoods where residents rarely voted.¹⁹² Assuming hazardous waste plants are analogous to nuclear reactors for NIMBY purposes, utilities likely act similarly to the hazardous waste companies Hamilton studied. Economic incentives could reduce resistance in localities experiencing limited economic distress. This could lead to utilities siting reactors in these localities as opposed to those experiencing the most distress. By moving reactors away from localities that get saddled with every undesirable piece of infrastructure, this plan would promote environmental and social justice norms.

Third, more than just serving as a bribe, this incentives program comports with other cultural ideals. For example, “socially constructed notions of fairness” can often help negotiators reach agreements.¹⁹³ Additionally, “[s]ocial convention demands reciprocity” such that “[w]hen one person gives something of value to another, we usually expect . . . the recipient [to] reciprocate in some way.”¹⁹⁴ In the case of nuclear power and climate change, society is asking local, potentially disadvantaged communities to accept localized, reactor-based risks in order to benefit society as a whole. Thus, cultural norms of both fairness and reciprocity demand that society give said communities something in return. Consequently, incentives just fulfill societal obligations toward these localities. Therefore, not only does this program not pose a social or environmental justice

should be noted however, that this study was commissioned by the Nuclear Energy Institute, *id.*, which is the nuclear industry’s trade group. *About NEI*, NUCLEAR ENERGY INST., <https://www.nei.org/about-nei> [<https://perma.cc/L4CW-BAW2>]. That being said, Bisconti Research Inc. is a legitimate public polling organization and has been hired by both the Department of Energy and the Department of Homeland Security. *Bisconti Research, Inc.*, BISCONTI, <http://www.bisconti.com/> [<https://perma.cc/99ND-9H3H>]; *Client List*, BISCONTI, <http://www.bisconti.com/clients.html> [<https://perma.cc/5P9Y-58NA>]. As such, the Nuclear Energy Institute’s involvement in this study should not discredit its findings.

¹⁹⁰ Robert D. Putnam, *Democracy*, in THE DEMOCRACY SOURCEBOOK 157, 163 (Robert A. Dahl, Ian Shapiro & José Antonio Cheibub eds., 2003).

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ RUSSELL KOROBKIN, NEGOTIATION THEORY AND STRATEGY 169 (3d ed. 2014); *see also* Rinn, *supra* note 120, at 992-93 (explaining that fairness is elusive concept often “thought of merely as similar to what has been done before”).

¹⁹⁴ KOROBKIN, *supra* note 193, at 186.

problem, it also ensures that disadvantaged communities receive compensation for playing their role in fighting climate change.

In sum, if Congress takes these simple legislative steps, which it has the authority to take, it will likely succeed in encouraging local communities to reevaluate their fears of nuclear power by tying acceptance to a more affective risk: the economy. Once Group Two Actors accept nuclear power, Group One Actors will no longer be able to stir up political opposition to new nuclear facilities. While Group One Actors may still be able to delay development through NEPA litigation, they will not be able to achieve their ultimate end of creating enough local opposition to stop new reactor development. As such, using community-based incentives to address the local community's fears will allow the United States to expand its nuclear capacity, and thus, combat climate change.

CONCLUSION

Nuclear power will play a role in any efforts to combat climate change. In fact, given the Republican Party's traditional support for the nuclear industry and the current political climate, expanding America's nuclear generating capacity may present a compromise between those hoping to fight climate change and those who deny climate change's existence. Consequently, nuclear energy may be the only viable option for avoiding climate change's worst effects. Nuclear power will not, however, play this necessary role if the United States does not expand its nuclear-generating capacity. Further, utilities will not be able to construct new reactors if Congress does not take action to encourage local communities to accept said reactors.

While the public's reluctance to accept new nuclear reactors comes from the complex interaction of historical accidents, misinformation designed to discredit the nuclear industry, pop culture, and residual Cold War-era paranoia, targeting one aspect of this reluctance will likely improve communities' willingness to accept nuclear expansion.

Congress must act to combat the public's fears about nuclear technology's safety. While certain non-legislative options, like an industry-supported education campaign, could play a role in obtaining local acceptance, a brief analysis shows that these solutions alone likely will not succeed. The best way to create community acceptance is through congressional action. This congressional action should be targeted at getting communities to reevaluate their fears before new facilities are built. Behavioral economics teaches that Congress can likely achieve this end by enacting legislation to create community-based incentives for localities that allow new nuclear power plants. People in those communities will view the incentives as relief from their more pressing economic concerns and will thus not actively oppose new nuclear reactors.

This new legislative framework should significantly increase local acceptance of new nuclear reactors, allowing the United States to increase its nuclear

generating capacity. While this framework will obviously not change everyone's opinion, any attempt to change everyone's opinion will necessarily fail. As such, this plan is not designed to create acceptance among everyone. Rather, this plan will likely allow Congress to create support for nuclear energy expansion among a large enough portion of the United States' population to noticeably reduce local opposition to nuclear power. If Congress succeeds in building that support, the United States will be able to expand its nuclear fleet and thus implement the best strategy for avoiding global climate change's worst effects.