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Nuclear Weapons and Civilian Nuclear Power – Two Dangerous Interdependent Peas in a Pod #2.3

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Summary

This report draws from numerous sources to show the interdependence between nuclear weapons and civilian nuclear power. The US government's need to have nuclear power around to keep the perception of "the peaceful atom" and maintain the infrastructure (technical knowledge base, uranium mining, processing, fuel manufacturing and waste management) that are the same for both. Thus subsidies for nuclear power also support nuclear weapons and are available to mitigate maintaining an irrationally huge nuclear bomb infrastructure. There is no shortage of credible opposition to nuclear weapons and separately civilian nuclear power but few make the connection with the two.¹ This connection is crucial to strengthen the argument for opposition for both nuclear weapons and commercial nuclear power because both threaten basic human existence; one by immediate annihilation or nuclear winter; and the other by accident (Fukushima) and/or by diverting resources away from sustainable renewable power sources essential to preventing the existential looming climate disaster.² This paper can only focus on Idaho's involvement within this larger national process and will leave the bigger picture to others.

The government recognized from the very beginning of the nuclear age the need to convince the public about the "atoms for peace" via promoting commercial nuclear power. This government promotion uses numerous means at the local level that include charitable giving, community outreach³, university grants, transfer of nuclear technology⁴ and subsidies to the private sector nuclear power generators that make an otherwise uneconomic power program marginally feasible. To top this deal, the government will limit accident liability⁵ and also take ownership of the radioactive waste generated by commercial power. This also helps camouflage the radioactive waste generated by the bomb makers.⁶ From the beginning of the nuclear age, Idaho has played and continues to play a significant role in the nuclear weapons complex, civilian nuclear power programs and nuclear waste management.^{7 8 9}

¹ Stephen Mihm, "Nuclear Power's Original Mistake: Trying to Domesticize the Bomb," April 8, 2017. Mihm writes: "While Americans had generally supported the use of nuclear weapons on Japan, the growing specter of thermonuclear war in the 1950s sparked a growing desire to find peaceful applications for the new technology that would compensate for its destructive powers."

<https://www.bloomberg.com/view/articles/2017-04-08/nuclear-power-s-original-mistake-trying-to-domesticate-the-bomb>

And also see: The link between nuclear energy and nuclear weapons, *Nuclear Monitor* Issue: #509-510, 11/05/1999

² Karl Grossman, Nuclear Power/Nuclear Weapons and a Precarious Future May 11, 2013. "The only real way to end the threat of nuclear weapons spreading throughout the world is to abolish nuclear weaponry and eliminate nuclear power. Consider the alternative: trying to keep using carrots and sticks, juggling on the road to inevitable nuclear catastrophe."

https://www.huffingtonpost.com/karl-grossman/nuclear-power-nuclear-weap_b_2851985.html

³ See Attachment B and www.inl.gov/partner.

⁴ See Attachment A and https://factsheets.inl.gov/FactSheets/Community_Outreach.pdf

⁵ See Attachment C, The Price-Anderson Nuclear Industries Indemnity Act (commonly called the **Price-Anderson Act**) is a United States federal law, first passed in 1957 and since renewed several times, which governs liability-related issues for all non-military nuclear facilities constructed in the United States before 2026.

⁶ See Nuclear Waste Policy Act discussed below

⁷ Final Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research & Development and Isotope Production Missions in the US, Including the Role of the Fast Flux Test Facility, DOE/EIS-0310, 12/00. This PEIS outlines INL role in producing plutonium-238 used in space power sources for military space control/command applications. This plutonium is

Military nuclear industrial complexes

Over the decades whole communities/states become economically dependent on military nuclear related industrial complexes. National Nuclear Security Administration (NNSA) is the section of Department of Energy (DOE) that manages the military's nuclear programs that spans eight sites, including three national laboratories, with more than six decades of operations that include:

“Kansas City National Security Campus, located near Kansas City, MO, is responsible for manufacturing and procuring nonnuclear components for nuclear weapons, including electronic, mechanical, and engineered material components. It supports national laboratories, universities, and U.S. industry. The KCNSC is operated by Honeywell Federal Manufacturing & Technologies.

Lawrence Livermore National Laboratory (LLNL) is a design laboratory that is responsible for the safety and reliability of the nuclear explosives package in nuclear weapons. It supports surveillance, assessment, and refurbishment of the nuclear weapons stockpile. LLNL also possesses unique high-energy-density physics capabilities and scientific computing assets. The lab is managed by Lawrence Livermore National Security, LLC and is located in Livermore, California.

Los Alamos National Laboratory (LANL) is a design laboratory responsible for the safety and reliability of the nuclear explosives package in nuclear weapons. This lab possesses unique capabilities in neutron scattering, enhanced surveillance, radiography, and plutonium science and engineering. LANL is contractor-run by Los Alamos National Security, LLC, and located in Los Alamos, NM.

Nevada National Security Site (NNSS) safely conducts high-hazard operations, testing, and training in support of NNSA, the U.S. Department of Defense, and other agencies. NNSS is run by Mission Support and Test Services, LLC. NNSA is located near Bonnie Claire (north of Los Vegas), NV.

Pantex Plant, near Amarillo, Texas, is charged with maintaining the safety, security and effectiveness of the nation's nuclear weapons stockpile. It is managed and operated by Consolidated Nuclear Security, LLC for the NNSA Production Office. Work performed at Pantex includes support of the nuclear weapons life extension programs; nuclear weapons dismantlement; the development, testing and fabrication of high explosive components; and interim storage and surveillance of plutonium pits.

Sandia National Laboratories are responsible for the development, testing, and production of specialized nonnuclear components and quality assurance and systems engineering for all of the United States' nuclear weapons. Sandia has locations in Albuquerque, NM; Livermore, CA; Kauai, HI; and Tonopah, NV. The labs are operated by National Technology and Engineering Solutions of Sandia.

Savannah River Site operates facilities to supply and process tritium, a radioactive form of hydrogen that is a key component of nuclear weapons. SRS loads tritium and non-tritium reservoirs; including reclamation of previously used tritium reservoirs, processing of reservoirs; recycling, extraction, and enrichment of tritium gas and lab operations. SRS also plays a critical role in NNSA's nonproliferation missions. SRS is run by Savannah River Nuclear Solutions. Near Jackson SC

Y-12 National Security Complex is the nation's only source of enriched uranium nuclear weapons components and provides enriched uranium for the U.S. Navy. It excels in materials science and precision manufacturing and stores enriched uranium. Y-12 supports efforts to reduce nuclear proliferation risk and performs work for other government agencies. It is managed by the NNSA Production Office and run by Consolidated Nuclear Security, LLC, near Knoxville, Tennessee.”¹⁰

“Naval Nuclear Propulsion Program includes the civilian and military personnel, who design, build, operate, maintain, and manage the nuclear-powered ships. The Program has cradle-to-grave responsibility for all naval nuclear propulsion matters. Shipyards include: Electric Boat, Gorton, CT; Norfolk Naval Shipyard, Portsmouth, VA; Newport News, Newport News, VA; Pearl Harbor Naval Shipyard, Pearl Harbor, HI; Portsmouth Naval Shipyard, Kittery, ME; Puget Sound Naval Shipyard and Intermediate Maintenance Facility, Bremerton, WA.”¹¹

for use in advanced radioisotope power systems (RPS) for military surveillance satellites, National Aeronautics and Space Administration (NASA) space exploration missions, and support of the nation's civilian nuclear energy research and development needs.”

⁸ See EDI Citizens Guide to INL for the operating history of the site. <http://environmental-defense-institute.org/inlguide.html>

⁹ Final Environmental Impact Statement for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling, October 2016, DOE/EIS-0453-F. “The NNPP has made over 820 container shipments of naval spent nuclear fuel to INL since 1957.” [Vol.1, pg. 1-16], www.ecfrecapitalization.us

¹⁰ <https://nnsa.energy.gov/about/ourlocations>

¹¹ <https://navalnuclearlab.energy.gov/about-us/naval-nuclear-propulsion-program/>

As the above listing of military nuclear industrial complexes shows - it's significantly large. In Idaho, the nuclear operations are run by Department of Energy's Office of Nuclear Energy at the Idaho National Laboratory (INL). This Office of Nuclear Energy focus "is to discover, demonstrate and secure innovative nuclear energy solutions, other clean energy options and critical infrastructure."¹² "Nuclear energy solutions" is the continuation of the INL's long history of developing nuclear power for military (Navy and space¹³) and commercial nuclear power applications.¹⁴ INL also hosts the Nuclear Navy's Naval Reactors Facility where all used spent nuclear fuel (SNF) is sent for examination and preparation for disposal.¹⁵ "The Program has cradle-to-grave responsibility for all naval nuclear propulsion matters. Program responsibilities are delineated in Presidential Executive Order 12344 of Feb. 1, 1982, and prescribed by Public Laws."¹⁶ The Navy got the "cradle" part but never got to the "grave" part with respect to the SNF and disposition of all the other radioactive waste generated by the Nuclear Navy that turns all their waste over to DOE/INL to manage.

When government nuclear agencies and site contractors encourage this local dependence via contributions to local colleges/ universities and civic organizations (i.e., Chamber of Commerce) that support government programs they develop a constituency.¹⁷ See Attachment B for details. In Idaho's case, INL contributes to its "partners" at MIT, the Ohio State University, North Carolina State University, University of New Mexico, and Oregon State University, University of Idaho, Idaho State University, and Boise State University, Idaho Southern State University.¹⁸ The advantage for DOE to have universities as "partners" under the guise of commercial nuclear power research is that it can fund programs for health physics and nuclear science, which provides professionals for the DOE weapons complex while not readily admitting its influence. Currently universities are grossly under-funded, so DOE grants have a significant influence in dictating policy. This is discussed more in Attachment A.

It's no secret that our well established addiction to nuclear weapons and military full spectrum world dominance¹⁹ are related and demonstrated by massive funding (\$1.2 trillion)²⁰ regardless who is in the Whitehouse or which party controls Congress.²¹ The irrational nuclear weapons race with the former

¹² <https://www.inl.gov/about-inl/general-information/organization/>

¹³ "SPACE POWER SYSTEMS: Radioisotope power systems can heat and power autonomous machinery for extended operation periods. INL assembles such generators by adding the radioactive power source. A team of INL experts then conducts extensive testing to ensure the device will be able to withstand conditions it will experience during the rocket launch and deep space journey. Generators fueled and tested at INL are currently powering the New Horizons mission to Pluto and the Mars Science Laboratory's Curiosity rover." <https://energy.gov/management/office-management/operational-management/history/brief-history-department-energy>

¹⁴ Weapons plutonium was largely been produced by Hanford DOE-run plutonium production reactors, and the Savannah River Sire reactors, that ran on the enriched uranium reprocessed at INL.

¹⁵ Final Environmental Impact Statement for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling at the Idaho National Laboratory (DOE/EIS-0453-F). (www.ecfrecapitalization.us)

¹⁶ Public Law: 98-525 of Oct. 19, 1984 (42 USC 7158), and 106-65 of Oct. 5, 1999 (50 USC 2406) <https://navalnuclearlab.energy.gov/about-us/naval-nuclear-propulsion-program/>

¹⁷ Robert Alvarez, "Rebranding the nuclear weapons complex won't reform it" Institute for Policy Studies." Given that weapons facilities dominate the wage and benefit structures of large areas in several states, such [DOE] streamlining will no doubt meet stiff congressional resistance. Still, the downsizing sword could eliminate redundant facilities and free up funding to rebuild those that are truly needed."

¹⁸ <https://www.inl.gov/about-inl/general-information/organization/>

¹⁹ Jim Garamone, Joint Vision 2020 Emphasizes Full-spectrum Dominance. <http://archive.defense.gov/news/newsarticle.aspx?id=45289>

²⁰ David E. Sanger, et.al., "Pentagon Suggests Countering Devastating Cyberattacks with Nuclear Arms," By D. E. Sanger and William J. Broad, JAN. 16, 2018 New York Times. <https://www.nytimes.com/2018/01/16/us/politics/pentagon-nuclear-review-cyberattack-trump.html?action=click&module=Top%20Stories&pgtype=Homepage&mtref=www.nytimes.com&r=0>

²¹ Robert Alvarez, "Rebranding the nuclear weapons complex won't reform it" Institute for Policy Studies." **"Too big to succeed.** Perhaps the most significant aspect of management reform in the nuclear weapons complex is coming to terms with its size. From the start, this newest review panel was directed to place the thorny problem of downsizing the weapons complex—an issue raised by several expert

Soviet Union was nothing more than the US military-industrial complex (that President Eisenhower warned about) excuse to keep the bomb industry churning along.²² As the cold war “ended,” wars like Iraq popped up with imaginary nuclear weapons of mass destruction.²³²⁴ As we discuss below, trillions of dollars continue to pour into this military industry that has no demonstrable use other than international intimidation and feeding the coffers of corporations that develop, produce and maintain the bomb and civilian nuclear power complex. See below discussion on contractor profits.

“In 1949, the U.S. Atomic Energy Commission established the National Reactor Testing Station – now known as Idaho National Laboratory (INL) – to take on the top-priority mission of harnessing the power of the atom for peaceful applications. During the early Cold War years, the AEC focused on designing and producing nuclear weapons and developing nuclear reactors for naval propulsion. The Atomic Energy Act of 1954 ended exclusive government use of the atom and began the growth of the commercial nuclear power industry, giving the AEC authority to regulate the new industry. Until the 1970s, the Federal government played a limited role in formulating national energy policy in an era of relatively cheap and abundant energy. The nation relied on the private sector to fulfill most of its energy needs. Historically, Americans expected private industry to establish production, distribution, marketing, and pricing policies. When free market conditions were absent, Federal regulations were established to control energy pricing.” [i.e., subsidies]²⁵

Idaho plays a significant role in both the nuclear weapons production²⁶ and nuclear power.²⁷ DOE’s Idaho National Laboratory (INL) Integral Breeder Reactor No. I was the first to produce electricity to

panels over some 20 years—off the table. By focusing on organizational boxes, Congress made sure that the panel would not tackle a most obvious problem: The nuclear weapons production and laboratory system is simply too large for the nation's current needs. Lab overcapacity, in particular, contributes to an inflated weapons complex cost structure, within which the average full time employee is two to three times as expensive as in the private sector. Since 2006, when management of the weapons labs was transferred from the nonprofit University of California to for-profit entities, administrative fees have jumped by 650 percent at Los Alamos. The bloat in the weapons complex is hardly limited to the national labs; the Y-12 nuclear weapons plant in Tennessee has excess capacity that is comparable, in size, to two auto assembly plants.”

²² Paul Jay, “Historian Peter Kuznick says that in spite of his famous warning, Eisenhower can be called the father of the industrial-military complex; when he takes office, the U.S. has a 1,000 nuclear weapons, when he leaves, it’s 22,000,” with host Paul Jay, *Truthdig.com*

²³ “CIA’s final report: No WMD found in Iraq,” “In his final word, the CIA’s top weapons inspector in Iraq said Monday that the hunt for weapons of mass destruction has “gone as far as feasible” and has found nothing, closing an investigation into the purported programs of Saddam Hussein that were used to justify the 2003 invasion.” “Another addendum also noted that military forces in Iraq may continue to find small numbers of degraded chemical weapons — most likely misplaced or improperly destroyed before the 1991 Gulf War. In an insurgent’s hands, “the use of a single even ineffectual chemical weapon would likely cause more terror than deadlier conventional explosives,” another addendum said. 2013 *The Associated Press and NBC News*. http://www.nbcnews.com/id/7634313/ns/world_news-mideast_n_africa/t/cias-final-report-no-wmd-found-iraq/#.WntysWnwaUk

²⁴ Sharon Tennison, “Understanding,” Also read other stories at <https://consortiumnews.com/>,

²⁵ <https://factsheets.inl.gov/FactSheets/NuclearProgramsOverview1.pdf>

²⁶ In the early development of the Manhattan Project production of plutonium/highly enriched uranium required for nuclear bombs, INL had a spent nuclear fuel (SNF) reprocessing program at the Idaho Chemical Processing Plant (ICPP) now called Idaho Nuclear and Environmental Complex (INTEC) that supplied Hanford’s plutonium production. “The Idaho Chemical Processing Plant (ICPP) conducted 11 process runs in 1953 for the capture of Krypton-85 and 113 process runs between May 1954 and February 1963 to recover Barium-140, Uranium-235, and Lanthanum-140 (RaLa) for the radiological/chemical weapons program. These isotopes were produced for Atomic Energy Commission’s Los Alamos National Laboratory. RaLa was used to produce material which Los Alamos used as a “substitute” for plutonium in certain types of radiological weapons tests. The government moved the RaLa project to Idaho from Oak Ridge, Tenn. because of concerns over the iodine releases connected with the processing “green fuel.” According to the extremely limited documentation EDI has on the Ba-140/La-140 shipments from ICPP to Los Alamos, over 502,000 curies were sent and used in open air tests to evaluate the killing power of this radiological weapon.” [Citizens Guide pg. 35] The ICPP continued to reprocess SNF (primarily Navy fuel) for military programs up until 1992 when the President ended the program due to the Nuclear Test Treaty that ended the need for bomb grade materials.” For a complete INL operating history see: <http://environmental-defense-institute.org/inlguide.html>

²⁷ ADVANCED NUCLEAR FUELS: Next-generation nuclear reactor fuels are designed to be more efficient and exhibit accident tolerant characteristics. To test and confirm such assumptions, INL scientists are working with collaborators around the world. <https://energy.gov/management/office-management/operational-management/history/brief-history-department-energy>

the town of Arco, Idaho in 1951. INL holds the world record for the largest (52) concentration of nuclear reactors.²⁸ INL also gave birth to the Nuclear Navy and now Idaho's most recent contribution to commercial nuclear power is called NuScale slated to be built on the INL site. The NuScale nuclear power plant is similar to the Columbia Generating Station (CGS) at Hanford, Washington, with respect to its being on a DOE nuclear reservation. The CGS (originally part of the Washington Public Power Supply System (WPPSS) was the only one of five planned power reactors built in the 1980s because:

“The plants, initially slated to cost about \$4.5 billion, were estimated in 1981 at \$23.9 billion. In 1982, bowing to the inevitable, the agency terminated Projects 4 and 5, the ones without Bonneville's financial backing. Bonneville ratepayers get the energy from Columbia Generating Station but must pay bondholders for that reactor and two projects the Supply System terminated in 1994. Approximately 15 percent of a residential ratepayer's electric bill still goes for principal and interest on the three plants.” “In what was then the nation's largest municipal bond default, the Washington Public Power Supply System [WPPSS] told creditors it could not make payment on a **\$2.25 billion debt** it incurred to build two large nuclear plants. Today, as we contemplate regional energy options, the Supply System's abandoned projects still cast a shadow.”²⁹

In Idaho, NuScale's nuclear power is *Deja-vu*; local and state proponents joining with Department of Energy officials supporting NuScale's industry partner, Utah Associated Municipal Power Systems (UAMPS) are leading the proponents of nuclear power in Idaho.³⁰ NuScale will start with a single reactor (50 Mw) but can expand to be a complex of 12 power reactors (600 Mw).³¹ The INL is one of the largest employers in Idaho which in itself wields significant economic and political power that blocks lessons-learned from WPPSS from the discussion. “In fiscal year 2017, Idaho National Laboratory operations added \$1.94 billion to Idaho's gross domestic product, and the lab spent \$139 million with Idaho businesses. Other highlights include:

- “INL directly employed an average of 4,256 workers during the fiscal year. That makes the laboratory contractor Battelle Energy Alliance Idaho's sixth-largest private employer and ninth-largest employer when compared to all public and private businesses.
- “INL increased personal income in Idaho by \$862 million. INL economic impacts accounted for 1.3 percent of all personal income in the state.
- “Nearly \$935 million of economic output was generated through INL suppliers and employee household spending.
- “INL operations accounted for 12,027 jobs across Idaho, a 6.7 percent increase over FY 2016.
- “INL spent \$139 million with Idaho subcontractors located throughout the state.
- “Battelle Energy Alliance employees contributed more than \$610,000 to charitable giving.”³²

Zack Colman writes in *Energy and Environment*, June 20, 2017, “A reactor in Idaho could change the future of nuclear energy — if it survives Trump's budget.”

“The future of the nuclear energy in the United States may well run through rural Idaho, where the federal Energy Department, a nuclear technology company and a power utility are collaborating on a

²⁸ <https://energy.gov/management/office-management/operational-management/history/brief-history-department-energy>

²⁹ Dan Pope, A Northwest distaste for nuclear power, Originally published Seattle Times, July 31, 2008, Updated July 31, 2008

³⁰ Utah Associated Municipal Power Systems (UAMPS) is a political subdivision of the State of Utah that provides comprehensive wholesale electric-energy, transmission, and other energy services, on a nonprofit basis, to community-owned power systems throughout the Intermountain West. UAMPS members are located Utah, California, Idaho, Nevada, New Mexico and Wyoming. <http://www.uamps.com/>

³¹ Tami Thatcher, NuScale Small Modular Reactor Site at the INL Announced, for September 2016.

<http://environmental-defense-institute.org/inlrisk.html>; also see; <http://www.nuscalepower.com/about-us/>

³² “Idaho National Laboratory a major contributor to Idaho's economy”, January 4, 2018. <https://www.id.energy.gov/>

power plant that nuclear advocates hope will boost the industry's flagging fortunes.

“While the rest of the industry has struggled — with old plants shuttering and the first new reactors built in decades labor through massive delays and cost overruns — advocates are promising the Idaho project will be different. There, the companies and federal government are collaborating on what's known as a small “modular” nuclear reactor. Unlike their larger relatives, modular reactors are to be factory-built, eliminating the safety and installation issues that often bloat construction costs, and they come with fewer nuclear waste concerns. Much smaller than the behemoths of midcentury, installers can adjust them to fill different electricity needs. Some could be small enough to power a single manufacturing facility. Advocates say small modular reactors will be safer, cheaper and more nimble than the older reactors utilities are fighting to preserve.

“But the still-nascent technology faces a threat: President Trump's budget would not renew the expiring grant that the Energy Department is using to help fund the project as it goes through a lengthy and expensive development phase. So far NuScale, the technology company after which the project is named, has spent more than \$400 million designing its reactor and still has about \$600 million more spend through the final push. But even if everything proceeds on schedule, the plant won't produce any power or draw any revenue until 2025.”³³

INL in Search of a Mission

After 1993, when the US signed the Nuclear Test Ban Treaty, the nuclear bomb production complex was no longer needed.³⁴ No more bombs to be built and tested at the Nevada Test Site, Pacific islands and the reprocessing of irradiated reactor fuel for plutonium was no longer a mission of the DOE Complex, so INL found itself with no mission except the massive nuclear cleanup from 6 decades of waste mismanagement.³⁵³⁶ Then when plutonium production and weapons manufacture was stopped, the messes were often just left for other agencies.³⁷ The previous INL nuclear weapons production of bomb grade plutonium-239 and highly enriched uranium from reprocessing SNF was shifted to tritium that also included the US commercial nuclear power tritium production.³⁸ Tritium produced at INL's Advanced Test Reactor is needed to enhance the power of hydrogen bombs but it has a short half-life (12.26 yr.) so unlike plutonium (half-life 24,110 yr.) must be replaced frequently. The six decades of

³³ Zack Colman, “A reactor in Idaho could change the future of nuclear energy — if it survives Trump's budget,” Energy and Environment, June 20, 2017.

https://www.washingtonpost.com/news/energy-environment/wp/2017/06/20/a-reactor-in-idaho-could-change-the-future-of-nuclear-energy-if-it-survives-trumps-budget/?utm_term=.7287243d2480

³⁴ “On August 5, 1963, after more than eight years of difficult negotiations, the United States, the United Kingdom, and the Soviet Union signed the Limited Nuclear Test Ban Treaty. A Comprehensive Ban: Thirty-three years later, the United Nations General Assembly adopted the Comprehensive Nuclear Test Ban Treaty. Signed by 71 nations, including those possessing nuclear weapons, the treaty prohibited all nuclear test explosions including those conducted underground. Though it was signed by President Bill Clinton, the Senate rejected the treaty by a vote of 51 to 48.”

<https://www.jfklibrary.org/JFK/JFK-in-History/Nuclear-Test-Ban-Treaty.aspx>

³⁵ Long, Robert, Ph.D. Testimony to U.S. House of Representatives, Hearing on Nuclear R&D and the Idaho National Laboratory, 6/24/04. “Some facilities should be shut down or not considered for further development. This includes the uncompleted [INL/INTEC] Fuel Processing Facility...and others such as the Fluorinel Dissolution Process Cell (FDP).”

³⁶ Bob Alvarez, MEMORANDUM Subject: High Burnup Spent Power Reactor Fuel, December 17, 2013. “While the move to high burnup in U.S. power reactors has improved the nuclear power sales, it remains a significant impediment to the safe storage and disposal of spent nuclear fuel. For more than a decade the problems and concerns associated with high burnup spent nuclear fuels have increased, while the resolution of these problems remains elusive.”

³⁷ Chuck Broschious, “Review of Idaho Nuclear Technology and Engineering Center INTEC Tank Farm Soil and Groundwater CERCLA Cleanup Plan and Tank Farm Closure Plan at Department of Energy Idaho National Laboratory,” Revision F, February 8, 2016. RE: Public Comments on INTEC Tank Farm Soil and Groundwater Cleanup Plan, Operable Unit 3-14, Idaho National Laboratory, Idaho Department of Environmental Quality, August 22, 2007, Notice of Intent to Approve Plan for Closure of Hazardous Waste Units at INL, Docket # 10HW-0706.

³⁸ Draft EIS for the Proposed Consolidation of Nuclear Operations Related to Production of Radioisotope Power Systems; DOE/EIS-0373D; 6/05. This program started plutonium-238 which is used as a power source in the space programs.

waste mismanagement left a massive Superfund site. Tami Thatcher reports on the inadequacy of INL CERCLA Cleanup on EDI's web site:

"INL is currently undergoing Superfund cleanup of its 368 contamination sites estimated to cost (FY-2012) \$33 billion. INL has released over 40 million curies of radioactivity into the environment over its history. Hundreds of millions of curies of radioactive waste are in unsafe dumps and storage facilities at the site. The State and EPA are not fully exercising their enforcement role by allowing significant amounts of radioactive and hazardous waste to remain in INL's dumps. Consequently, public participation is essential to keep the enforcement agencies from allowing DOE to take cleanup short cuts. EDI is advocating for INL environmental restoration through its interaction with federal (EPA) and state (Idaho Department of Environmental Quality) enforcement agencies to ensure substantive public participation and oversight throughout the cleanup and restoration process."

"DOE and enforcement agencies are not providing candid information upon which the public can make informed decisions. A vast number of CERCLA cleanup documents are online³⁹ yet the extent that cleanup remedies at the Idaho National Laboratory will never meet cleanup standards is often obscured. The continued finding of new CERCLA sites at INL is also obscured. And the many mistakes made along the way are carefully omitted or downplayed such as the inadequate aquifer monitoring at the ATR Complex (formerly Test Reactor Area), inadequate characterization of radionuclide inventory in the soil at the ATR Complex which invalidates the analysis of the proposed replacement for the Radioactive Waste Management Complex to be located at the ATR Complex, and the inadequate investigation of past disposal well practices at the ATR Complex.

"The CERCLA administrative record hides the fact that it fails to consider radioactive waste migration after 10,000 years at the Radioactive Waste Management Complex, waste migration that was modeled to delay migration largely until after 10,000 years. Then after 10,000 years, the aquifer contamination levels skyrocket and stay elevated for hundreds of thousands of years. The radiation ingestion doses will be 100 mrem/yr. unless the soil cap is perfectly maintained throughout millennia in which case the doses are assumed to be an impossibly steady 30 mrem/yr. The doses estimates are not conservative and will rise whenever precipitation or flooding increases water infiltration."⁴⁰

The Navy continues operations at the INL Naval Reactors Facility where all of its used/spent nuclear fuel (SNF)⁴¹ is processed for storage/disposal,⁴² but the 3 previous NRF training reactors were shut down. The five decades old INL Advanced Test Reactor continues to test fuels and materials for the Navy and other commercial nuclear interests.⁴³ The ATR is also used to produce plutonium-238 for space power sources.

"The decay heat of Pu-238 (0.57 W/g) enables its use as an electricity source in the **radioisotope thermoelectric generators (RTGs)** of some cardiac pacemakers, space satellites, navigation beacons, *etc.* Plutonium has powered some 30 US space vehicles and enabled the *Voyager* spacecraft to send back pictures of distant planets.

"Plutonium-238 is made by irradiating neptunium-237, recovered from research reactor fuel or special targets, in

³⁹ <http://www.ar.icp.doe.gov>

⁴⁰ Tami Thatcher interties on Environmental Defense Institute web site. <http://environmental-defense-institute.org/cleanup.html>

⁴¹ Robert Alvarez, "Rebranding the nuclear weapons complex won't reform it," "Although it [Office of Naval Reactors] is also technically under the aegis of the Energy Department, the US nuclear weapons complex has operated for decades on an entirely different philosophy. Called "least interference," it is a philosophy based on an "undocumented policy of blind faith in its contractors' performance," in the words of a 1996 Government Accountability Office report. Despite several attempts at reform, the Energy Department's management of the weapons complex was widely conceded to be an extraordinary and expensive mess."

⁴² Final Environmental Impact Statement for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling, October 2016, DOE/EIS-0453-F, www.ecfrecapitalization.us. "The NNPP has made over 820 container shipments of naval spent nuclear fuel to INL since 1957." [Vol.1, pg. 1-16]

⁴³ David McCoy, J.D. and Chuck Broschious, Unacceptable Risk at the Idaho National Laboratory Advanced Test Reactor, The Case for Closure Volume I, Updated January 2013, Revision No. 6-05, Environmental Defense Institute. <http://environmental-defense-institute.org/publications/ATR.Risk.Rpt.Rev.6-03.wPics.pdf>

research reactors. Np-238 is formed and quickly decays to Pu-238. Both the reprocessing to obtain Np-137 and subsequent irradiation were carried out at Savannah River in USA. Pu-238 was then recovered by further reprocessing at the H Canyon plant there. The last of Savannah River's neptunium inventory was transferred to Idaho National Laboratory (INL) in 2008. This was essentially Cold War-origin material.”⁴⁴

The Chernobyl, Three-Mile-Island and Fukushima melt-downs chilled any new nuclear power plants. But the nuclear navy and nuclear bomb complex still had to be maintained and justified. Consequently, new subsidies/incentives were needed to revive the civilian nuclear power program. The community of Idaho Falls where most of the INL workforce lives want to help create a new mission for INL and DOE is anxious to revive the civilian nuclear power cover for its military nuclear mission that is expected to invest >\$1.2 trillion in the next decade.⁴⁵ Thus local leadership with economic nuclear interests joined corporate and government interests to advocate again for nuclear power to be INL's new mission mandate.⁴⁶

Idaho's Governor Otter, Idaho Falls mayor Rebecca Casper, the Leadership in Nuclear Energy Commission (LINE)⁴⁷, the Idaho Department of Environmental Quality, the head of the Idaho Falls electrical power Jackie Flowers being the chairman of the board on NuScale's industry partner, Utah Associated Municipal Power Systems (UAMPS), and American Nuclear Society are the leading the proponents of NuScale's civilian nuclear power in Idaho.⁴⁸

And there is also the fact that Fluor Corp. (INL's current primary site contractor) is involved with NuScale. They are a powerful political presence to promote NuScale not only as INL's contractor but also as a technology transfer supplier to the private commercial nuclear power entities.

“NuScale Power, LLC is developing a new kind of nuclear plant; a safer, smaller, scalable version of pressurized water reactor technology - a technology initially developed and tested at Oregon State University. Fluor Corporation (NYSE: FLR), a global engineering, procurement, and construction company with a 60-year history in commercial nuclear power, is the majority investor in NuScale. NuScale's design offers the benefits of carbon-free nuclear power and reduces the financial commitments associated with giga-watt size nuclear facilities.”⁴⁹

⁴⁴ Plutonium, *World Nuclear Association*, (Updated October 2017)

<http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/fuel-recycling/plutonium.aspx#UkjGAYZ6a7k>

⁴⁵ The U.S. Nuclear Energy Enterprise: A Key National Security Enabler A Special Report from Energy Futures Initiative, Inc. August 2017. “U.S. efforts include an early site permit for an SMR at the Department of Energy's (DOE) Idaho National Laboratory (INL).” <https://www.energy.gov/ne/articles/department-energy-continues-commitment-development-innovative-small-modular-reactors20>

⁴⁶ Matthew Evans, “INEEL gets a new mission,” “with Mondays [7/16/02] announcement the INL will put renewed efforts into nuclear energy. Eventually, the INL will spearhead the nation's effort to research and develop the next generation of nuclear power and work on development of advanced fuels as part of President Bush's national energy policy.” Idaho Falls, *Post Register*.

⁴⁷ “LINE Commission: Under new [Executive Order 2017-11](#), LINE 3.0 will continue to make recommendations to the Governor on policies and actions of the State of Idaho to support and enhance the long-term viability and mission of the Idaho National Laboratory and other nuclear industries in Idaho. The Leadership in Nuclear Energy Commission 2.0 was created by Governor C.L. "Butch" Otter through [Executive Order 2013-02](#). LINE 2.0 is charged with implementing and overseeing progress on recommendations from the original LINE Commission (LINE 1.0). Governor Otter extended the work of LINE 1.0 in March 2013 after it completed its initial scope of work. The LINE 1.0 Commission identified a robust and expansive nuclear industries sector in the state—anchored by the Idaho National Laboratory—that consists of more than 20 firms that employ thousands of Idahoans, contribute millions of dollars to Idaho's general fund and help realize our state's goal of achieving.” [Project 60](#). <https://line.idaho.gov/>

⁴⁸ Utah Associated Municipal Power Systems (UAMPS) is a political subdivision of the State of Utah that provides comprehensive wholesale electric-energy, transmission, and other energy services, on a nonprofit basis, to community-owned power systems throughout the Intermountain West. UAMPS members are located Utah, California, Idaho, Nevada, New Mexico and Wyoming. <http://www.uamps.com/>

⁴⁹ <http://newsroom.nuscalepower.com/press-release/nuscale-power-llc-submits-part-ii-doe-loan-guarantee-application>

Tami Thatcher writes about NuScale's Small Modular Reactors and other INL nuclear power projects on EDI's website:

“There are numerous Small Modular Reactors being designed; so far none have been licensed or built. There are plans to build one at INL. SMRs are less than 300 megawatts and the hope is to offer shorter construction time tables, less up front financial risk, and economies from manufacturing in one location then transporting to the build site for final assembly. However, even Idaho's Line commission progress report in 2012 noted that SMRs economic viability is currently uncertain.

“The DOE has provided research money for SMRs and in 2012 began a program to provide licensing support. SMRs will be licensed by the US Nuclear Regulatory Commission.

“Of numerous designs, the improved safety of a single SMR is unlikely to compensate for the higher risk of multiple units, each capable of meltdown. SMRs will be susceptible to accidents, terrorist acts, and do not address the problem spent fuel storage problem.

“NuScale and Energy Northwest, formerly known as Washington Public Power Supply System, famous for its unfinished reactor at Hanford, hope to begin to build a 100 MW SMR prototype in the Idaho National Laboratory by 2020 and have it operating in 2023. Another SMR promotor, “mPower America” plans to build an SMR at TVA's Clinch River Site.

“Traveling Wave Reactor: Research is being conducted at INL for Bill Gates “Terrapower” Traveling wave reactor. The hype is impressive. The realities are that this fast reactor concept is unlikely to overcome the huge hurdles that billions of dollars spent worldwide have not.

“TREAT Reactor: The transient reactor test facility (TREAT) reactor is being refurbished for resumption of nuclear fuels testing at INL. The reactor's design allows testing materials to mimic accident conditions involving sodium-cooled systems. TREAT was first operated in 1959 and last operated in 1994.”⁵⁰

TREAT Restarted: “On 11/15/17, the U.S. Department of Energy’s Idaho National Laboratory (INL) achieved an important step towards restoring U.S. nuclear energy transient testing capability with the resumption of operations at the Transient Reactor Test (TREAT) Facility. The TREAT facility has been shut down and maintained in standby status since 1994.

“TREAT is designed specifically to test nuclear reactor fuels and materials under extreme conditions. It can produce sudden bursts of energy that are more than five times more powerful than a commercial power plant—allowing scientists to examine fuel performance. This capability is an important asset to nuclear scientists and engineers as they work to increase the safety and performance of current and future nuclear reactors.

“The Department of Energy’s decision to restore transient testing capability at INL is part of our efforts to revitalize the nation’s nuclear energy capacity,” said Ed McGinnis, Principal Deputy Assistant Secretary for Nuclear Energy. “By investing in innovative fuel cycle infrastructure, we can advance nuclear as a key source of clean, resilient power and maintain U.S. leadership in developing advanced nuclear technologies.”^{51 52}

Government Subsidies for Military and Commercial Reactor Fuel Enrichment

To illustrate the US government’s extensive involvement in commercial nuclear power we must look at

⁵⁰ <http://environmental-defense-institute.org/inlrisk.html> also see Tami Thatcher comments on TREAT at: <http://environmental-defense-institute.org/publications/TREATcommentsFINAL.pdf>

⁵¹ INL News Media Release: November 15, 2017. www.inl.gov

⁵² Kevin Trevellyan, “DOE studying new fast reactor,” ktrevellyan@postregister.com, April 21, 2017 “A three year research and development process is underway regarding a potential new test reactor at Idaho National Laboratory’s desert site. The study to find the cost and capabilities of a Versatile Reactor-based Fast Neutron Source began in March.”

its record. DOE Secretary Rick Perry said: “you need enrichment facilities for weapons and it helps pay for them if they are also producing enriched uranium for the commercial power industry.” The US Enrichment Co., a subsidiary of Centrus Energy Corp. (formerly USEC Inc.) contracts with US Department of Energy to produce enriched uranium for use in nuclear power.⁵³

“The Energy Policy Act of 1992, a U.S. federal law, created USEC to privatize uranium enrichment for civilian use, and in July 1993 USEC took over the facilities. The sale of USEC was completed on July 28, 1998 through an initial public offering of USEC stock. The U.S. government received about **three billion dollars** for USEC.

“USEC had gaseous diffusion plants at Piketon, Ohio near Portsmouth. In May 2001, USEC ceased uranium enrichment operations in Piketon and consolidated operations in Paducah, Kentucky. The following year, transfer and shipping operations were also consolidated at Paducah.

“A demonstration gas centrifuge plant was being built at Piketon for initial commercial operation in 2009, with a full-size plant is planned there for operation in 2012. However, in July 2009 the DOE did not grant a \$2 billion loan guarantee for a planned uranium-enrichment facility in Piketon, Ohio, “causing the initiative to go into financial meltdown,” the company USEC spokesperson Elizabeth Stuckle said, adding ‘we are now forced to initiate steps to demobilize the project.’

“On July 28, 2009, the company said that it was suspending work on the project because of the Department of Energy’s decision not to provide loan guarantees. The Energy Department said that the proposed plant was not ready for commercial production and therefore ineligible for the loan guarantees. **The department said that if USEC withdraws its application, it will receive \$45 million over the next 18 months to conduct further research.**

“Before its downsizing and final cessation of uranium enrichment on May 31, 2013, the Paducah Gaseous Diffusion Plant consumed about **3,000 megawatts** of electricity at peak operation. Power for the Paducah gaseous diffusion plant came from the Tennessee Valley Authority (TVA). In 2012 the majority of the TVA grid was generated by coal fired plants, with three nuclear power plants counting for about 30 percent of TVA’s energy. The Department of Energy remains responsible for clean-up of the sites of materials left there prior to 1993. On December 16, 2013, USEC announced that it had reached an agreement with a majority of its debt holders to file a prearranged and voluntary Chapter 11 bankruptcy restructuring in the first quarter of 2014. On September 30, 2014, executives announced that the company had emerged from bankruptcy proceedings with a new name, Centrus Energy Corp.”⁵⁴

As the above discussion of USEC shows that the uranium enrichment “Paducah Gaseous Diffusion Plant consumed about **3,000 megawatts** of electricity at peak operation” produced from coal fired power plants, show how wrong the NuScale claims of “Carbon Free Power” is. When evaluating nuclear power’s “carbon foot-print,” it’s essential to consider the entire fuel cycle that must also include uranium mining,⁵⁵ ore processing, final nuclear fuel rod manufacturing plants, and waste management.

“In the United States, the federal government has paid US \$74 billion for energy subsidies to support R&D for nuclear power (\$50 billion) and fossil fuels (\$24 billion) from 1973 to 2003.

Nuclear power benefited from \$73 billion in federal subsidies, 9% of the total, largely in the form of R&D, while hydro power received \$90 billion in federal subsidies, and 12% of the total.”⁵⁶

⁵³ Steven Overly September 30, 2014, Washington Post. https://www.washingtonpost.com/business/capitalbusiness/centrus-energy-formerly-known-as-usec-emerges-from-chapter-11-bankruptcy/2014/09/30/df84fde4-48bc-11e4-891d-713f052086a0_story.html

⁵⁴ https://en.wikipedia.org/wiki/United_States_Enrichment_Corporation

⁵⁵ Jonathan P. Thompson, “On the 26,000 tons of radioactive waste under Lake Powell. And more,” Bulletin of Atomic Scientists 1/2/18 reported “Beneath the murky green waters on the north end of Lake Powell, entombed within the tons of silt that have been carried down the Colorado River over the years, lies a 26,000-ton pile of un-remediated uranium mill tailings. It’s just one polonium-, bismuth-, thorium- and radium-tainted reminder of the way the uranium industry, enabled by the federal government, ravaged the West and its people for decades.” 1/5/18. <https://thebulletin.org/26000-tons-radioactive-waste-under-lake-powell-and-more11389>

⁵⁶ https://en.wikipedia.org/wiki/Energy_subsidies#Allocation_of_subsidies_in_the_United_States

The US government is also subsidizing civilian nuclear fuel production by using surplus weapons grade plutonium in reactor fuel.

“Plutonium can also be used in fast neutron reactors, where a much higher proportion of Pu-239 fissions and in fact all the plutonium isotopes fission, and so function as a fuel. As with uranium, the energy potential of plutonium is more fully realized in a fast reactor. Four of the six 'Generation IV' reactor designs currently under development are fast neutron reactors and will thus utilize plutonium in some way, plutonium production will take place in the core, where burn-up is high and the proportion of plutonium isotopes other than Pu-239 will remain high.

Developments under the Global Nuclear Energy Partnership (GNEP) make it very likely that the some military plutonium will be used in fast reactors in the USA.

“In June 2000, the USA and Russia agreed to dispose of 34 tons each of weapons-grade plutonium by 2014, and since then the US government has released further surplus weapons plutonium. The US government planned to pursue the first two options above, though it has since dropped the first one for any significant amount of material. Construction on the Mixed Oxide Fuel Fabrication Facility at the Savannah River Site near Aiken, South Carolina commenced in August 2007. The plant is designed to convert 3.5 t/yr. of weapons-grade plutonium into mixed oxide (MOX) fuel. Initial trials of MOX fuel made with weapons plutonium have been successful. Russia plans to use all its military plutonium in fast-neutron reactors, and the USA will contribute \$400 million towards effecting this. The 2000 agreement was reaffirmed in 2010.”^{57 58}

Why US Insists on Fossil Fuel Oil-based Energy Economy Rather than Renewables

The American financial system is totally dependent the US Dollar being the world's reserve currency. A crucial part of that depends on having control of the largest financial commodity (oil) and having all oil transactions being in US Dollars.⁵⁹ Many of US regime change campaigns (i.e., Iran - Venezuela)⁶⁰ or wars (i.e., Iraq – Libya – Syria) were over oil or countries threatening to trade in another currency.⁶¹ Maintaining this world hegemony requires military bases (~800 in 80 countries)⁶² and space command⁶³ and control systems to implement and maintain effective control.⁶⁴ Huge military budgets currently

⁵⁷ “Plutonium,” *World Nuclear Association*, (Updated October 2017)

http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/fuel-recycling/plutonium.aspx#_UkjGAYZ6a7k

⁵⁸ The U.S. Nuclear Energy Enterprise: A Key National Security Enabler A Special Report from Energy Futures Initiative, Inc. August 2017. “U.S. efforts include an early site permit for an [small modular reactor]SMR at the Department of Energy’s (DOE) Idaho National Laboratory (INL).” <https://www.energy.gov/ne/articles/department-energy-continues-commitment-development-innovative-small-modular-reactors20>

⁵⁹ Ira Iosebashvili, “U.S. Politics Could Diminish Dollar’s Role as Global Reserve Currency,” Washington dysfunction might lead investors and central banks to pare their dollar-denominated holdings, Is the dollar about to get taken down a peg? *Wall Street Journal*, Sept. 24, 2017. <https://www.wsj.com/articles/u-s-politics-could-diminish-dollars-role-as-global-reserve-currency-1506305161>

⁶⁰ Ben Jacobs, “Trump threatens ‘military option’ in Venezuela as crisis escalates” “In a surprise intervention, Donald Trump said he would not rule out using military force as the country descends further into civil unrest.” *The Guardian*, August 11, 2017. <https://www.theguardian.com/world/2017/aug/11/donald-trump-venezuela-crisis-military-intervention>

⁶¹ Kimberly Amadeo, “Dollar Strength: Why Is It So Strong Right Now?” *The Balance*, “In January and February, the Dow fell to 15,660.18. It reacted to higher Fed interest rates. Investors didn’t like falling oil prices...” July 15, 2017. <https://www.thebalance.com/dollar-strength-why-is-it-so-strong-right-now-3305726>

⁶² Will Griffin, “What I Learned Most at the Conference Against U.S. Foreign Military Bases,” January 16-17, 2018, NoForeignBases.org. “We aren’t just opposed to the wars, we are opposed to empire itself: the 800 military bases around the world in 80 countries that perpetuates endless war and the policies that follow.”

⁶³ “DOE taps Idaho for space project; a government project to produce a plutonium isotope used to power deep-space probes once headed at the Oak Ridge National Laboratory is now destined for Idaho.” *Associated Press*, 12/3/04.

⁶⁴ Dot Surlock, “Nuclear Power, Nuclear Weapons, and Nuclear Terrorism,” Study Guide, Physicians for Social Responsibility (PSR-SC).

“The issues of militarization and climate change are strongly linked. Nuclear power proponents claim that nuclear power can provide energy for the world without the CO2 emissions that the planet is currently getting from our mostly fossil fuel energy. In order to think about these questions, *you need to know more about nuclear power and particularly the connections between nuclear power*

the FY 2018 Department of Defense is \$824.6 billion.⁶⁵ Ironically, the DOD base budget does not include the cost of wars. That falls under Overseas Contingency Operations (OCO). It's budgeted at \$64.6 billion for DOD and \$12 billion for the State Department.⁶⁶ Nuclear weapons are the big hammer backstopping the US world military hegemony.⁶⁷

“Those nations that consider producing them [nuclear weapons] are quite likely **acting somewhat in their own self-defense. Ownership of a nuclear arsenal is pretty much guarantee that no one is going to invade you.** Much of the world fears and distrusts the nuclear powers because they quite literally have doomsday machines, and that isn't something most people want to exist at all.”⁶⁸

In an article titled “Time to Close Our Foreign Military Bases” authors note: “The United States cannot be a moral or ethical country until it faces up to the realities of US Empire and the destruction it causes around the world. The U.S. undermines governments (including democracies), kills millions of people, causes mass migrations of people fleeing their homes, communities and countries and produces vast environmental damage.”⁶⁹

Soviet Union/Russia is a huge supplier of fossil fuels to Europe and a historical and ideologically manufactured threat that US has spent ~100 years trying to contain Russia (i.e., invaded 1918, Ukraine - Bosnia). NATO is all about Russian containment and speculative news reports tell of expansion to Japan and Australia. DOD's Russia budget enables the department to take an inordinately strong approach to respond to Russia's “aggression” in Eastern Europe.

- “We are countering Russia's aggressive policies through investments in a broad range of capabilities. The FY 2017 budget request will allow us to modify and expand air defense systems, develop new unmanned systems, design a new long-range bomber and a new long-range stand-off cruise missile, and modernize our nuclear arsenal.
- “The budget quadruples last year's request for the European Reassurance Initiative (ERI) to \$3.4 billion in FY 2017 to reassure our NATO allies and deter Russian aggression. This funding supports repositioning additional combat equipment, conducting additional training exercises, and enabling a continuous brigade-size rotation which will ensure we have three Army brigade combat teams in Europe at all times.”⁷⁰

and nuclear weapons. These chapters are devoted to explaining the relationship between nuclear power, nuclear weapons, and nuclear terrorism.” [Download the Study Guide \(pdf\)](#)

⁶⁵ [Kimberly Amadeo](#), “U.S. Military Budget: Components, Challenges, Growth,” “Here's the \$250 Billion in Hidden Military Spending, Updated January 10, 2018. There are four components. First is the \$574.5 billion base budget for the Department of Defense. Second is the Overseas Contingency Operations for DOD to fight the Islamic State group (\$64.6 billion). Third is the total of other agencies that protect our nation. These expenses are \$173.5 billion.”

<https://www.thebalance.com/u-s-military-budget-components-challenges-growth-3306320>

⁶⁶ Source: “2018 Budget, Table 2,” OMB, March 16, 2017. See for OCO spending, see War on Terror Facts.

<https://www.thebalance.com/u-s-military-budget-components-challenges-growth-3306320>

⁶⁷ “The political will of the UN Security Council seems to be steady on this issue. They **do not want** weapons proliferation for several reasons. First of all, nuclear weapons terrify most of the people in the developed world. It would be political suicide in the developed world to advocate policies that clearly lead to weapons proliferation. Secondly, nuclear weapons are part of the reason why the UN Security Council has the members that it does. The superior military power of the members of the nuclear club is not something they would like to see taken away from them. **At the very least this is an area in which they do not want a level playing field where many states have nuclear weapons.**”

<http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/usa-nuclear-power.aspx>

⁶⁸ “Does nuclear power lead to weapons proliferation?” September 5, 2010/February 23, 2016 Featured Articles, News, Nuclear Myth And Fact, Nuclear Power, Slideshow Articles.

⁶⁹ Kevin Zeese, Margaret Flowers, Time to Close Our Foreign Military Bases, [Popular Resistance](#), Jan. 17, 2018.

⁷⁰ <https://www.defense.gov/News/News-Releases/News-Release-View/Article/652687/department-of-defense-dod-releases-fiscal-year-2017-presidents-budget-proposal/>

Subsidies for Nuclear Power but Not Renewable Energy

Renewable energy sources threaten this American fossil fuel political/economic system because it undercuts US control via the Dollar's⁷¹ current monopoly by reducing value of fossil fuels, via decentralized renewable energy production/distribution. Instead, DOE pushes new generation of nuclear power plants.

“One part of this program to develop improved nuclear power plants is the ‘Next Generation Nuclear Plant’ or NGNP, which would be the demonstration of a new way to use nuclear energy for more than electricity. The heat generated from nuclear fission in the plant could provide process heat for hydrogen production and other industrial purposes, while also generating electricity. And the NGNP would use a high-temperature gas reactor, which would have redundant safety systems that rely on natural physical processes more than human or mechanical intervention.”⁷²

Idahoans have these INL nuclear power promoters⁷³ doing all they can to forget about the now economically competitive and carbon-neutral solar⁷⁴ and wind power while doing all they can to promote NuScale via technology transfer and subsidies via \$217 M DOE cooperative agreement in 2014 and later a \$12.5 billion USDOE Loan Guarantee Program in 2017 that make this otherwise uneconomic project feasible.

“NuScale Power, LLC, announced 9/6/17 that the company has successfully submitted Part II of its Title XVII loan guarantee application to the U.S. Department of Energy (USDOE) under the Department’s Advanced Nuclear Energy Projects Solicitation.” “Under this solicitation, USDOE seeks applications for loan guarantees to finance projects located in the United States that employ innovative advanced nuclear energy technologies that avoid, reduce or sequester anthropogenic emission of greenhouse gases. The USDOE Loan Guarantee Program was established under Title XVII of the Energy Policy Act of 2005, and has **\$12.5 billion** in loan guarantee authority for Advanced Nuclear Energy Projects.

“This application is another step in our successful partnership with the Department of Energy,” said John Hopkins, Chairman and CEO of NuScale Power. “With their ongoing support, we are well along the path to bringing this innovative design to market, creating jobs and preserving American leadership in nuclear technology.”⁷⁵

“NuScale’s innovative thinking led the development of an Integral Pressurized Water Reactor (IPWR). The reactor, steam generator, pressurizer, and containment are integrated into a single module. The NuScale Power Module™ is only 50MWe (gross), and a plant can be designed to accommodate growing electrical demand by simply adding additional modules as the need arises.”⁷⁶

Idahoans share the experience of residents living near Chernobyl, Three-Mile Island and Fukushima to a limited degree when the US Army SL-1 reactor explosion occurred on the INL site. At the time (1961) the Atomic Energy Commission considered this disaster classified so limited information about the

⁷¹ [Kimberly Amadeo](#), “What Is the Value of a Dollar Today? Why the Dollar Is Worth So Much Less Than It Used to Be,”

August 03, 2017 “How Much Value Has the Dollar Lost? The dollar has lost a lot of value in the last 100 years. In 1915, a person with only \$4.26 could buy the same amount of food, clothing and other necessities as \$100 would buy today. By 1920, he'd need double that amount or \$8.44. That's because hyperinflation after World War I cut the dollar's value in half.”

<https://www.thebalance.com/what-is-the-value-of-a-dollar-today-3306105>.

⁷² INL Nuclear Energy Projects, https://en.wikipedia.org/wiki/Idaho_National_Laboratory

⁷³ Luke Ramseth, “A nuclear power plant near Howe?” *Post Register* 12/9/14; “A local investment group has picked a location for development of a commercial nuclear power plant in Butte County, just north of Idaho National Laboratory’s desert site.”

⁷⁴ Brian Eckhouse, Ari Natter and Christopher Martin, By [/Bloomberg](#), January 22, 2018. “In the biggest blow he’s dealt to the renewable energy industry yet, President Donald Trump decided on Monday to slap tariffs on imported solar panels. President Trump Slaps Tariffs on Solar Panels in Major Blow to Renewable Energy, <http://time.com/5113472/donald-trump-solar-panel-tariff/>

⁷⁵ <http://newsroom.nuscalepower.com/press-release/nuscale-power-llc-submits-part-ii-doe-loan-guarantee-application>

⁷⁶ <http://www.nuscalepower.com/about-us/>

details did not surface until decades later. And much like Fukushima, the AEC did not tell Idaho residents the truth about the radiation that was released or the cause of the explosion. This typifies government sequestering damaging information that would let the public know the truth about the hazards of nuclear power. Tami Thatcher writes in her EDI special report: “The Truth about the SL-1 Accident — Understanding the Reactor Excursion and Safety Problems at SL-1:”

“On the night of January 3, 1961, the SL-1 nuclear reactor, a prototype for a military installation to be used in remote Arctic locations, exploded, killing the three member military crew. The crew had been performing the routine process of re-assembling the reactor control rod drive mechanisms during a reactor outage. The SL-1 was a small 3 Mega-Watt-thermal (MWt) boiling water reactor, complete with a turbine-generator and condenser designed to generate both electric power and building heat.⁷⁷ The SL-1 was designed, constructed and initially operated by Argonne National Laboratory. It was located at the Idaho National Laboratory, then called the National Reactor Testing Station. Combustion Engineering became the operating contractor for the Atomic Energy Commission (now the Department of Energy) for SL-1 on February 5, 1959. The crews that night were young military men in their twenties, all with families. There were three 8-hr shifts working around the clock. Combustion Engineering’s request for funding to provide staffing to supervise more than the 8-hr day shift had been denied by the AEC, the agency that was predecessor to the Department of Energy. The three-man crew on the evening shift had a large number of tasks to perform on the operating room floor and there was no one in the control room to keep logs books, monitor plant conditions, or inform emergency responders of plant radiation status or the whereabouts of the crew.”

“The complexity of the accident and the long months of investigation would play a role in the speculation of what caused the accident. But, carefully crafted statements had two objectives (1) divert blame from the AEC and its contractors and (2) do nothing to undermine public faith in the nuclear industry. The careful omissions and downplaying of a multitude of serious design, operational, and oversight problems emphasized in official reports about the SL-1 reactor are revealing. It’s way past time to acknowledge that the rod stuck and it was jerked free by a tired worker put in harm’s way by a multitude of poor design and safety management decisions that the crew had no control of.”⁷⁸

History of Nuclear Power – “Original Mistake:” Where it all Started

Stephen Mihm writes in *Bloomberg Press* about nuclear powers “Original Mistake:”

“In 1946, Congress consolidated control over the nation’s nuclear energy in a civilian agency known as the Atomic Energy Commission. The Commission oversaw research on nuclear power at sites like the Bettis Atomic Power Laboratory outside Pittsburgh, though it turned to Westinghouse to run it. At this early stage, research remained focused on military applications: nuclear submarines, ships, and eventually, planes.

“Westinghouse helped design and build the reactor that would eventually propel the Nautilus, the first nuclear sub. As he laid down the keel for the Nautilus on June 14, 1952, President Harry Truman also began bending the arc of atomic history toward peacetime needs at home. “This vessel is the forerunner of atomic-powered merchant ships and airplanes, of atomic power plants producing electricity for factories, farms, and homes,” he said.

“The election of Dwight Eisenhower later that year helped make this vision a reality; so, too, did the members of the Joint Committee on Atomic Energy in Congress. In July 1953, the construction of the nation’s first full-scale civilian nuclear power plant was funded.

“Much of this, as historian Paul Boyer has observed, was driven by a desire to find a “silver lining” in the mushroom cloud. While Americans had generally supported the use of nuclear weapons on Japan, the

⁷⁷ Thatcher citing: Various DOE reports released by Freedom of Information Act request about SL-1 are at <http://www.id.doe.gov/foia/archive.htm>

⁷⁸ Tami Thatcher EDI report: “The Truth about the SL-1 Accident — Understanding the Reactor Excursion and Safety Problems at SL-1:” <http://environmental-defense-institute.org/publications/SL-1Article%20Rev5.pdf>

growing specter of thermonuclear war in the 1950s sparked a growing desire to find peaceful applications for the new technology that would compensate for its destructive powers.

“The government sought private partners for the project, eventually settling on the Duquesne Light Company in Pittsburgh. It was a pragmatic alliance: the new plant in the nearby town of Shippingport would be very close to the Bettis Atomic Power Laboratory run by Westinghouse. Westinghouse would design and build the reactor, and Duquesne Light would build and maintain the non-nuclear portions of the facility.

“Eisenhower wasted no time in trumpeting the news of the new plant. In December 1953, he appeared before the United Nations and delivered his “Atoms for Peace” speech. Eisenhower pledged that the United States would solve what he called the “fearful atomic dilemma” -- to figure out how the new technology could improve life on Earth rather than destroy it.”^{79 80}

“Atoms for Peace” soothes Idahoan’s understandable concerns on nuclear programs given the impact of accidents like SL-1, Chernobyl, Three-Mile Island and Fukushima that had massive health impacts. Additionally, governments claims of “0” carbon emissions from nuclear power shows its “climate change concerns” are illegitimate. The NuScale Nuclear Power claims “For the **carbon free power** to be successful, we need to be competitive.”⁸¹ So NuScale pitches a false “green-washed” message.

Like the above DOE nuclear power subsidy that states: “USDOE seeks applications for loan guarantees to finance projects located in the United States that employ innovative advanced nuclear energy technologies that avoid, reduce or sequester anthropogenic emission of greenhouse gases.” Free technology transfers and subsidies aside, comparing nuclear power to credible renewable alternative electrical power is false because proponents are not including the carbon foot-print of the entire nuclear fuel cycle that includes uranium mining, processing, enrichment,⁸² reactor decommissioning and nuclear waste management/disposal.⁸³ The current government is so scared of credible renewable alternative electrical power that they slap tariffs on it.

“As Donald Trump launches his latest assault on renewable energy—imposing a 30 percent tariff on solar panels imported from China—a major crisis in the nuclear power industry is threatening to shut four high-profile reactors, with more shutdowns to come. These closures could pave the way for thousands of new jobs in wind and solar, offsetting at least some of the losses from Trump’s attack.”⁸⁴

Mixing nuclear power development and nuclear weapons within one agency (Department of Energy) ameliorates public resistance to massive costs to maintain the technological infrastructure for the nuclear weapons complex. Despite the fact that there is simply no legitimate economic reason for such intense irrational government support/ subsidies for private nuclear power corporations other than its nuclear

⁷⁹ Stephen Mihm, “Nuclear Power’s Original Mistake: Trying to Domesticate the Bomb,” April 8, 2017 <https://www.bloomberg.com/view/articles/2017-04-08/nuclear-power-s-original-mistake-trying-to-domesticate-the-bomb>

⁸⁰ Karl Grossman, Nuclear Power/Nuclear Weapons — and a Precarious Future.” May 11, 2013. “It all started with technology Transfer corporations making money. That’s how India got The Bomb in 1974. Canada supplied a reactor for ‘peaceful purposes’ and the U.S. Atomic Energy Commission trained Indian engineers. And lo and behold, India had nuclear weapons.” https://www.huffingtonpost.com/karl-grossman/nuclear-power-nuclear-weap_b_2851985.html

⁸¹ <http://www.nuscalepower.com/about-us/>

⁸² Processing uranium for reactor fuel at the Ohio plant requires two coal fired power plants to operate and is representative of the huge carbon foot-print left by nuclear reactors fuel cycle that is never included by proponents of nuclear power. Additionally, the enrichment plant was given an exemption for huge carbon emissions that greatly increase climate sensitive conditions.

⁸³ Arjun Makhijani, *Short paper on Nuclear Power and Low-Carbon Alternatives*, Prepared for the Nuclear Fuel Cycle Royal Commission Public Session of, 1 October 2015, Institute for Energy and Environmental Research. <http://ieer.org>

⁸⁴ Harvey Wasserman, *Trump’s Assault on Solar Masks an Epic Crisis in the Nuclear Industry*, by January 25, 2018. <http://progressive.org/dispatches/trumps-assault-on-solar-masks-an-epic-crisis-in-nuclear-180125/>

relationship with nuclear weapons.⁸⁵ The link between nuclear energy and nuclear weapons is discussed in *Nuclear Monitor*:

“The myth of ‘the peaceful atom’ must be definitely exposed. Only all steps of the ‘civil’ nuclear energy industry are the same as for the military nuclear industry: from uranium mining to uranium enrichment, from nuclear fuel fabrication to reprocessing: all steps, materials, technology, and equipment are the same. Only one step is missing in the civil nuclear chain, compared to the military chain: production of nuclear weapons themselves. But civil uranium enrichment plants as well as military enrichment plants can produce high enriched uranium: it is the same technology. The same applies for uranium mining: military uranium is the same as civil uranium. Nothing different for civil and military reprocessing plants: both use the same technology to separate the plutonium from used nuclear fuel. Another myth being told by the nuclear industry is that plutonium from civil nuclear plants cannot be used for the production of nuclear bombs. **That's not true:** ‘civil’ or reactor-grade plutonium does explode just as well in nuclear bombs as ‘military’ or weapons-grade plutonium. Nevertheless, the commercial or ‘civil’ nuclear industry likes to state that ‘civil’ nuclear energy has no impact on nuclear proliferation.”

“The borderline between civil and military use of nuclear energy evidently exists more in theory than in practice, as we have seen above. Nuclear proliferation more often than not starts from countries with civil nuclear energy programs. Many times that borderline is non-existent. An example was recently provided by the US: the US government decided to produce tritium, for their nuclear arms, in civil US nuclear power plants”⁸⁶ [emphasis added]

Nuclear Energy Information Service (NIRS) writes about the connection between nuclear power and nuclear weapons:

“There are an increasing number of people in the United States today who are standing up and speaking out against the dangers of nuclear weapons. At the same time a large number of these people are in favor of the use of nuclear power as a means of generating electricity. They believe, perhaps correctly, that the threat from the former is greater and more imminent, and further, that there is no connection between nuclear power and nuclear weapons.

“The facts, however, seem to point to a different conclusion.

“A 1951 study undertaken by the AEC concluded that commercial nuclear reactors would **not** be economically feasible if they were used solely to produce electricity; they would be, however, if they also produced plutonium which could be sold. Utilities themselves were only mildly intrigued with the notion of being able to produce ‘too cheap to meter electricity,’ and only so long as someone else took over the responsibility for the waste products, and indemnified them against catastrophic nuclear plant accidents. The 1952 Annual Report for Commonwealth Edison is instructive on the former point.”

“The first year's study has been completed and a report has been made to the Commission. Included in the report were preliminary designs of two dual-purpose reactor plants. **By ‘dual-purpose’** we mean that the plants would be primarily for the production of power but would also produce plutonium for military purposes as a by-product. In our judgment, these plants...would be justified from an economic standpoint **only** if a substantial value were assigned to the plutonium produced.

“It was this fact which interested utilities in getting involved with nuclear reactors. This point was again made by the AEC's director of reactor development, Lawrence Hafsted, who in 1951 said it was the **multi-purpose reactor**, ‘rather than the imminence of cheap civilian power’ which lies behind the increased interest on the part of industry in certain phases of the atomic energy business.”⁸⁷ [emphasis added]

⁸⁵ John Quiggin, George W. Bush signed the [Energy Policy Act of 2005](#), which was designed to promote US nuclear reactor construction, through incentives and subsidies, including cost-override support up to a total of \$2 billion for six new nuclear plants.^[69] *The Guardian*. (8 November 2013). [“Reviving nuclear power debates is a distraction. We need to use less energy”](#).

⁸⁶ The link between nuclear energy and nuclear weapons, *Nuclear Monitor* Issue: #509-510, 11/05/1999. <https://www.nirs.org/nuclear-monitor/>

⁸⁷ Nuclear Energy Information Service, NEIS, “Atoms for Peace” <http://www.neis.org/literature/Brochures/weaponcon.htm>

Civilian Nuclear Power Failure - Lessons Not Learned

Daniel Pope writes in the *Seattle Times* about the north-west distaste for nuclear power after the WPPSS debacle when a grandiose plan for five nuclear power plants crashed leaving electric rate payers with a huge \$2.25 billion debt:

“Twenty-five years ago this summer, prospects for a nuclear-powered Northwest imploded. In what was then the nation’s largest municipal bond default, the Washington Public Power Supply System (WPPSS) told creditors it could not make payment on a **\$2.25 billion debt** it incurred to build two large nuclear plants. Today, as we contemplate regional energy options, the Supply System’s abandoned projects still cast a shadow.”⁸⁸

“The nuclear species is going extinct,” according to Mycle Schneider, lead author, World Nuclear Industry 2017 Status Report, who writes:

“On March 29, 2017, Westinghouse, the only company that was actually building nuclear plants in the country, declared bankruptcy. And in July, after **\$9-10 billion** had already been spent on construction, two South Carolina utilities abandoned two new Westinghouse reactors that were just 40% complete.

“The push now is for the industry to receive special subsidies to remain economically viable. The idea really started in Illinois, where Exelon said that without subsidies, it would have to shutter three nuclear plants after the company lost **\$700 million** in the last few years operating the plants.

“And Exelon has also threatened to close other nuclear units. It’s become uncompetitive: Three-Mile Island didn’t clear PJM capacity auction in May and has lost **\$300 million** over the last eight years.”⁸⁹

The number of nuclear power accidents in the US alone is over 46.⁹⁰ This accident record is reason enough to show these highly technical machines that can do enormous damage to the surrounding region

USDOE’s 2018 Budget for Maintaining its Vast Nuclear Complex Shows Priorities for Nuclear Weapons and Civilian Nuclear Power

DOE Programs FY2018 (\$M)

•National Nuclear Security Administration including nuclear weapons & Navy.....	13,931
•Science.....	4,473
•Energy innovation and security	2,214
•Environmental Management (cleanup Manhattan Project, Cold War, and nuclear energy research	6,508
•Other Defense Activities.....	816
•Power Marketing Administrations.....	82
•Administration and Oversight.....	178
•Savings and Receipts.....	- 159
DOE Total.....	28,042 ⁹¹

⁸⁸ Daniel Pope article in the Seattle Times: <https://www.seattletimes.com/opinion/a-northwest-distaste-for-nuclear-power/>

⁸⁹ Nuclear Subsidies Are Bad Energy Policy, Sept. 29 2017, <https://www.forbes.com/sites/judeclemente/2017/09/29/nuclear-subsidies-are-bad-energy-policy/#66b2cac67b2c>

⁹⁰ Nuclear power accidents in USA https://en.wikipedia.org/wiki/List_of_nuclear_power_accidents_by_country

⁹¹ https://energy.gov/sites/prod/files/2017/05/f34/FY2018BudgetinBrief_3.pdf

INL Environmental Management Cleanup Budget FY-2016-18 Funding in (\$K) ⁹²

	FY 2016 Enacted	FY 2017 Annualized	FY 2018 Request
Defense Environmental Cleanup			
Idaho National Laboratory			
Idaho Cleanup and Waste Disposition			
ID-0012B-D / SNF Stabilization and Disposition-2012 (Defense)	15,250	15,221	19,975
ID-0013 / Solid Waste Stabilization and Disposition	202,348	201,963	170,101
ID-0014B / Radioactive Liquid Tank Waste Stabilization and	126,413	126,173	111,352
ID-0030B / Soil and Water Remediation-2012			
Subtotal, Idaho Cleanup and Waste Disposition	393,000	392,253	346,155
Idaho Community and Regulatory Support			
ID-0100 / Idaho Community and Regulatory Support			
Total, Idaho National Laboratory	396,000	395,247	350,226
Non-Defense Environmental Cleanup			
Small Sites			
Idaho National Laboratory			
ID-0012B-N / SNF Stabilization and Disposition-2012 (Non- Defense)	5,919	5,907	9,000
Total, Idaho	401,919	401,154	359,226

Direct maintenance and repair at the Idaho Site is estimated to be..... **\$24,132,000**

Basis for Building the Nuclear Complex for Bombs and Civilian Nuclear Power

“Why the desire for so many nukes? There is, in fact, a dirty little secret behind the massive US arsenal: it has more to do with the power and profits of this country’s major weapons makers than it does with any imaginable strategic considerations. It may not surprise you to learn that there’s nothing new about the influence the nuclear weapons lobby has over Pentagon spending priorities. The successful machinations of the makers of strategic bombers and intercontinental ballistic missiles, intended to keep taxpayer dollars flowing their way, date back to the dawn of the nuclear age and are the primary reason President Dwight D. Eisenhower coined the term “military-industrial complex” and warned of its dangers in his 1961 farewell address.” ⁹³ See below for more on contractor profits.

What Government Accountability Office Found about the Costs of Nuclear Weapons that Could be Applied to Transitioning to a Sustainable Energy Future

“The Departments of Energy’s (DOE) and Defense’s (DOD) **\$263.8 billion, 10-year estimates** in their 2014 report to Congress for sustaining and modernizing U.S. nuclear weapons capabilities are generally consistent with their funding plans through fiscal year 2018. However, GAO identified shortcomings with respect to the completeness of the budget estimates and the transparency of the assumptions and limitations that underlie the 10-year estimate. Specifically:

⁹² <https://energy.gov/sites/prod/files/2017/06/f34/FY2018BudgetVolume5.pdf>

⁹³ Greg Mitchell, Ellsberg, In Upcoming Book, Warns of Nuclear Dangers in the Era of Trump, **October 6, 2017.**

“Nuclear stockpile and infrastructure: Based on GAO’s recent review of DOE’s long-term plans and estimates for sustaining and modernizing the nuclear enterprise, we found that **DOE’s \$97.5 billion** estimate in the report includes less funding than will be needed through fiscal year 2018 to meet program milestones for planned nuclear weapon life extensions, and through fiscal year 2023 to meet milestones for constructing key facilities.

“Nuclear delivery systems: DOD’s **\$125.5 billion** estimate in the report does not include potential budget estimates for Air Force efforts to modernize intercontinental ballistic missiles or to develop a new bomber. Instead, DOD treated these efforts as zero-cost in the estimate. Consequently, DOD may be significantly **underreporting** its 10-year estimate, depending on the magnitude of the costs resulting from upcoming decisions about how to modernize these delivery systems.

“Nuclear command, control, and communications (NC3): DOD’s methodology for preparing its **\$40.8 billion** estimate to sustain and modernize its system for assuring connectivity between the President and nuclear forces is not fully transparent because key assumptions and potential limitations are not documented in the report to Congress.

“The report **omits estimates** for certain programs, such as the new bomber, and is not fully transparent in describing key assumptions and limitations for estimating nuclear command, control, and communications system funding, which limits its utility for budgetary planning.

“U.S. Government’s Environmental Liability - High Risk Issue

“The federal government’s estimated liability for environmental cleanup activities has been growing for the past 20 years and is likely to continue to increase. When addressing these environmental liabilities, it is important to reduce risks to the public and the environment in cost-effective ways.

“Federal Government’s Environmental Liability

“When federal government activities contaminate the environment, various federal laws, agreements with states, and court decisions put the government on the hook for the cleaning bill. The federal government’s environmental liability has been growing for the past 20 years and is likely to continue to increase as agencies continue to better understand the complexities of the clean-up mission. The combination of this growing financial liability and the risk to public and environmental health has propelled the issue of federal environmental liabilities onto the High Risk list.

“For fiscal year 2016, the federal government’s estimated environmental liability was **\$447 billion**—up from \$212 billion for fiscal year 1997. The Department of Energy (DOE) is responsible for by far the largest share of the liability (83 percent or **\$372 billion** in fiscal year 2016) and the Department of Defense (DOD) is responsible for the second largest share (14 percent or **\$63 billion**). **However, these estimates do not reflect all of the future cleanup responsibilities facing federal agencies.**”⁹⁴

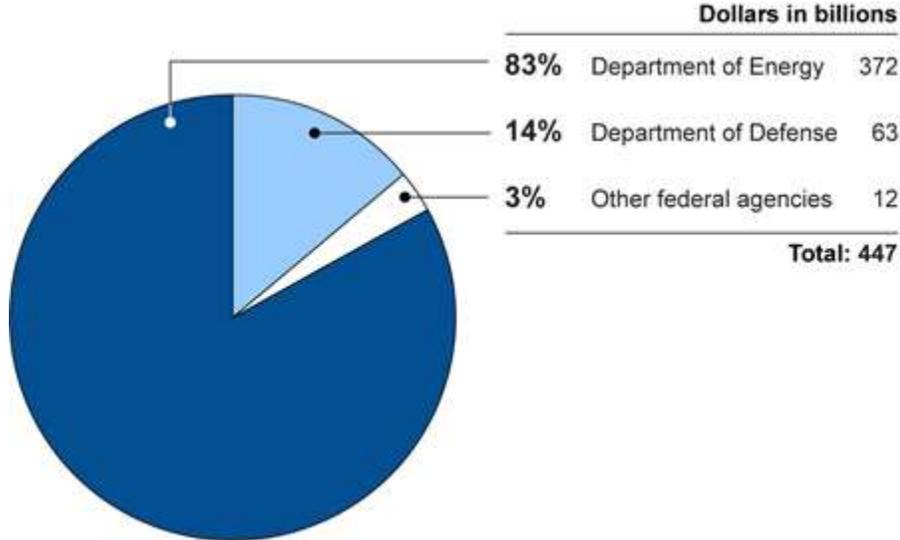
Department of Energy Cleanup

“Over the past 2 decades DOE has spent billions on environmental cleanup, but DOE’s environmental liability has roughly doubled **from \$176 billion in fiscal year 1997 to the fiscal year 2016 estimate of \$372 billion**. **Moreover, DOE’s estimated liability does not include billions in future costs.** For example, DOE has not yet developed a cleanup plan or cost estimate for the Nevada National Security Site and, as a result, the cost of future cleanup of this site is not included in DOE’s fiscal year 2015 reported environmental liability. DOE needs to take a nation-wide approach to cleaning up these sites—one that identifies which risks pose the greatest threat to human health and the environment and prioritizes addressing them accordingly—which could reduce costs while also reducing environmental risks faster.”⁹⁵ [emphasis added]

⁹⁴ Ten-Year Budget Estimates for Modernization Omit Key Efforts, and Assumptions and Limitations Are Not Fully Transparent, GAO-14-373: Published: Jun 10, 2014. Publicly Released: Jun 10, 2014, <http://www.gao.gov/products/GAO-14-373>

⁹⁵ Ten-Year Budget Estimates for Modernization Omit Key Efforts, and Assumptions and Limitations Are Not Fully Transparent, GAO-14-373: Published: Jun 10, 2014. Publicly Released: Jun 10, 2014, <http://www.gao.gov/products/GAO-14-373>

Total GAO Reported U.S. Environmental Liability, Fiscal Year 2016



Source: GAO analysis of the Financial Report of the U.S. Government, fiscal year 2016. | GAO-17-317

“Note: We [GAO] did not adjust environmental liability estimates for inflation because information about the amount of the liability applicable to each fiscal year was not available.”

Robert Alvarez writes about “Cost Estimation of Nuclear Modernization Omits Hazardous Cleanup”, CBO Cost Estimation of Nuclear Modernization Omits Hazardous Cleanup, High-level radioactive waste pose threats to environment around nuclear management facilities.

“With its \$1.2 trillion price tag for the modernization of the U.S. nuclear weapons arsenal and production complex, the U.S. Congressional Budget Office has induced “sticker shock” on Capitol Hill. Yet despite this enormous projected cost for rebuilding the U.S. triad of land, submarine, and bomber nuclear forces, the CBO has in fact lowballed its estimate by excluding the costs for environmental restoration and waste management of the Energy Department’s nuclear weapons complex.

“Even though the cleanup of nuclear weapons sites comes from the same congressional spending account as DOE nuclear weapons modernization, the CBO chose to exclude an additional \$541 billion in legacy costs. If these costs are included, the total price tag goes to **\$1.74 trillion** over three decades.

“The largest of these cleanup costs, at **\$179.5 billion**, is attributed to the stabilization and disposal of high-level radioactive wastes generated from the production of plutonium. The U.S. Government Accountability Office (GAO) informed Congress in 2013 that these wastes are ‘considered one of the most hazardous substances on earth.’

“About 100 million gallons are stored in 227 underground tanks, many larger than state capitol domes and ranging in age from 43 to 73 years. Over 1 million gallons of these contaminants have leaked at the DOE’s Hanford site in Washington State, threatening the Columbia River.

“The removal and stabilization of these wastes at Hanford by mixing them with molten glass, at an estimated cost of as much as **\$72.3 billion**, represents the single largest, most expensive, and potentially riskiest nuclear cleanup project ever undertaken by the United States. It’s roughly comparable to the Apollo moon program in cost and risk, except there’s no moon.

“Even without factoring in cleanup, an analysis of the DOE costs for the nuclear warheads program shows that while the U.S. nuclear weapons stockpile has shrunk by 56 percent since 2003, the annual per-warhead cost has increased by about 422 percent. This huge cost growth in the nuclear stockpile budget is largely due to ever-growing overhead expenses for abandoned and antiquated structures not formally part of the DOE cleanup program. Many of these facilities contain hazardous materials and have been ignored for several decades.

“To keep the lights on, the DOE weapons complex must pay for things like collapses, flooding, fires, and preventing roofs from falling in. In 2015, the DOE Inspector General warned that, “delays in the cleanup and disposition of contaminated excess facilities expose the Department, its employees, and the public to ever-increasing levels of risk [and] lead to escalating disposition costs.

“In a December 2016 DOE report to Congress, the unaccounted-for liability of getting rid of 2,349 of the DOE’s

abandoned facilities over the next 10 years was roughly estimated at **\$32 billion**. The DOE finds that among those are 203 unattended “high-risk” facilities and estimates a cost of **\$11.6 billion** to close them down safely.”⁹⁶ [emphasis added]

Lawrence Wittner writes in *History News Network* about “The Trillion Dollar Question” to modernize the US nuclear arsenal production facilities:

“The expenditure for a 30-year program to “modernize” the US nuclear arsenal and production facilities. Although President Obama began his administration with a dramatic public commitment to build a nuclear weapons-free world, that commitment has long ago dwindled and died. It has been replaced by an administration plan to build a new generation of US nuclear weapons and nuclear production facilities to last the nation well into the second half of the 21st century. This plan, which has received almost no attention by the mass media, includes redesigned nuclear warheads, as well as new nuclear bombers, submarines, land-based missiles, weapons labs and production plants. The estimated cost? \$1,000,000,000,000.00 — or, for those readers unfamiliar with such lofty figures, **\$1 trillion**.

“Critics charge that the expenditure of this staggering sum will either bankrupt the country or, at the least, require massive cutbacks in funding for other federal government programs.

“We’re... wondering how the heck we’re going to pay for it,” admitted Brian McKeon, an undersecretary of defense. And we’re “probably thanking our stars we won’t be here to have to have to answer the question,” he added with a chuckle.⁹⁷ [emphasis added]

Indirect Nuclear Insurance Subsidy Required by Nuclear Power Owners Before Projects Can Even Get Off the Drawing Board

“Kristin Shrader-Frechette has said ‘if reactors were safe, nuclear industries would not demand government-guaranteed, accident-liability protection, as a condition for their generating electricity’. No private insurance company or even consortium of insurance companies would shoulder the fearsome liabilities arising from severe nuclear accidents”.⁹⁸

Kurt Kleiner writes in "Nuclear Energy: Assessing the emissions," about the hidden liability costs of civilian nuclear power seldom acknowledged.

“The potential costs resulting from a nuclear accident (including one caused by a terrorist attack or a natural disaster) are great. The liability of owners of nuclear power plants in the U.S. is currently limited under the Price-Anderson Act (PAA).⁹⁹ The Price-Anderson Act, introduced in 1957, was “an implicit admission that nuclear power provided risks that producers were unwilling to assume without federal backing.” The PAA “shields nuclear utilities, vendors and suppliers against liability claims in the event of a catastrophic accident by imposing an upper limit on private sector liability”. Without such protection, private companies were unwilling to be involved. No other technology in the history of American industry has enjoyed such continuing blanket protection.

“The Price-Anderson Act (PAA) was due to expire in 2002, and the former U.S. vice-president Dick Cheney said in 2001 that **“nobody's going to invest in nuclear power plants”** if the PAA is not

⁹⁶ Robert Alvarez, “Cost Estimation of Nuclear Modernization Omits Hazardous Cleanup, CBO Cost Estimation of Nuclear Modernization Omits Hazardous Cleanup, High-level radioactive waste pose threats to environment around nuclear management facilities, Washington Spectator, December 20, 2017.

⁹⁷ Lawrence Wittner, “The Trillion Dollar Question the Media Have Neglected to Ask Presidential Candidates:” The American people will be footing the bill — but, by and large, they haven’t heard much about our country’s planned trillion-dollar nuclear weapons upgrade, March 21, 2016 This post originally appeared at *History News Network* and appeared on Moyers and Co.

⁹⁸ Kristin Shrader-Frechette, — https://en.wikipedia.org/wiki/Kristin_Shrader-Frechette#cite_note-biosket-1

⁹⁹ “The **Price-Anderson Nuclear Industries Indemnity Act** (commonly called the **Price-Anderson Act**) is a United States federal law, first passed in 1957 and since renewed several times, which governs liability-related issues for all non-military nuclear facilities constructed in the United States before 2026.” See Attachment C below.
https://en.wikipedia.org/wiki/Price%E2%80%93Anderson_Nuclear_Industries_Indemnity_Act

renewed. The U.S. Nuclear Regulatory Commission (USNRC) concluded that the liability limits placed on nuclear insurance were significant enough to constitute a **subsidy**, but a quantification of the amount was not attempted at that time. Shortly after this in 1990, Dubin and Rothwell were the first to estimate the value to the U.S. nuclear industry of the limitation on liability for nuclear power plants under the Price Anderson Act. Their underlying method was to extrapolate the premiums operators currently pay versus the full liability they would have to pay for full insurance in the absence of the PAA limits. **The size of the estimated subsidy** per reactor per year was \$60 million prior to the 1982 amendments, and up to \$22 million following the 1988 amendments. In a separate article in 2003, Anthony Heyes updates the 1988 estimate of \$22 million per year to **\$33 million** (in 2001 dollars).

“In case of a nuclear accident, should claims exceed this primary liability, the PAA requires all licensees to additionally provide a maximum of \$95.8 million into the accident pool – totaling roughly \$10 billion if all reactors were required to pay the maximum. This is still not sufficient in the case of a serious accident, as the cost of damages could exceed **\$10 billion**. According to the PAA, should the costs of accident damages exceed the \$10 billion pool, the process for covering the remainder of the costs would be defined by Congress? In 1982, a Sandia National Laboratories study concluded that depending on the reactor size and 'unfavorable conditions' a serious nuclear accident could lead to property damages as high as **\$314 billion while fatalities could reach 50,000.**”¹⁰⁰ “

“Opponents say that nuclear power poses numerous threats to people and the environment and point to studies in the literature that question if it will ever be a sustainable energy source. These threats include health risks, accidents and environmental damage from uranium mining, processing and transport. Along with the fears associated with nuclear weapons proliferation, nuclear power opponents fear sabotage by terrorists of nuclear plants, diversion and misuse of radioactive fuels or fuel waste, as well as naturally-occurring leakage from the unsolved and imperfect long-term storage process of radioactive nuclear waste. They also contend that reactors themselves are enormously complex machines where many things can and do go wrong, and there have been many serious nuclear accidents. Critics do not believe that these risks can be reduced through new technology. They further argue that when all the energy-intensive stages of the nuclear fuel chain are considered, from uranium mining to nuclear decommissioning, **nuclear power is not a low-carbon electricity source.**”^{101 102} [emphasis added]

An ulterior motive for passage of the Price-Anderson Act was not only to indemnify civilian nuclear power operators but also to indemnify the DOE’s nuclear reactors and nuclear facilities from accident liability. This legislation further limits DOE contractor accident liability under indemnification of contractors by DOE that states:

“The Secretary [of Energy] may require the contractor to provide and maintain financial protection of such a type and in such amounts as the Secretary shall determine to be appropriate to cover public liability arising out of or in connection with the contractual activity; and (B) shall indemnify the persons indemnified against such liability above the amount of the financial protection required, in the amount of **\$10,000,000,000** (subject to adjustment for inflation under subsection (t)), in the aggregate, for all persons indemnified in connection with the contract and for each nuclear incident, including such legal costs of the contractor as are approved by the Secretary.”¹⁰³

As previously discussed above; “a serious nuclear accident could lead to property damages as high as **\$314 billion while fatalities could reach 50,000.**”¹⁰⁴ Clearly the difference between \$314 billion and the government PAA indemnity limit of \$10 billion will leave the residents living near the accident

¹⁰⁰ “Nuclear power debate.” https://en.wikipedia.org/wiki/Nuclear_power_debate#cite_note-84

¹⁰¹ Kleiner, Kurt (2008). "Nuclear energy: Assessing the emissions". *Nature Reports Climate Change* (810): 130.

doi: 10.1038/climate.2008.99. Nuclear power debate” https://en.wikipedia.org/wiki/Nuclear_power_debate#cite_note-22.

¹⁰² Nuclear power debate https://en.wikipedia.org/wiki/Nuclear_power_debate#cite_note-22

¹⁰³ 42 U.S. Code § 2210 (d) (1) (A)

¹⁰⁴ “Nuclear power debate.” https://en.wikipedia.org/wiki/Nuclear_power_debate#cite_note-84

devastated. We must remember the Nevada Test Site Downwinders precedent setting lawsuit against the government for radiation illness caused by detonating over 1,200 nuclear bombs who were completely abandoned by the US Supreme Court.

“Witness the 10th U.S. Circuit Court of Appeals decision to overturn US District Judge Bruce Jenkins’ finding in 1984 that the government negligently failed to warn or educate downwind residents of radiation hazards from tests conducted by the Atomic Energy Commission at the Nevada Test Site from 1951 to 1962. Jenkins’ earlier ruling came after a trial of 24 “bellwether” claims which represented nearly 1,200 plaintiffs suing the government for some 500 deaths and injuries. The U.S. Supreme Court subsequently refused to hear an appeal on the 10th Circuit Court decision because the Atomic Energy Act provides government-contractor exemption from liability. Congress has steadfastly refused to repeal the Atomic Energy Act; however, they recently awarded some very limited compensation to Nevada Test Site Downwinders.”¹⁰⁵

Nuclear power plants are dangerous places to work. There are 23 aging plants in the US that utilize the same design and containment system as Fukushima. Richard Schiffman reports in *The Guardian* (12 March 2013). “Two years on, America hasn’t learned lessons of Fukushima nuclear disaster”:

“Following the 2011 Japanese Fukushima nuclear disaster, authorities shut down the nation’s 54 nuclear power plants. As of 2013, the Fukushima site remains highly radioactive, with some 160,000 evacuees still living in temporary housing, and some land will be un-farmable for centuries. The difficult cleanup job will take 40 or more years, and cost tens of billions of dollars.”¹⁰⁶

Tami Thatcher’s writes in, *Radiological and Chemical Exposures at the Idaho National Laboratory that Workers May Not Have Known About*, how health is harmed by uranium, plutonium and other radiological and chemical exposures and possible nutritional support strategies.

“Radiation workers and non-radiation workers at the Idaho National Laboratory since 1952 have been exposed to direct radiation sources, airborne radiological releases, contaminated soil, and contaminated drinking water — often without their knowledge. This report highlights historical operations at what is now called the Idaho National Laboratory and the contaminants. It discusses shortcomings in worker radiation protection standards and radiological monitoring. Former workers often have little idea of their potential exposures or health risks of the exposures. This report discusses the radiation exposure, ingestion and inhalation of radionuclides and exposure to chemical hazards that may be affecting their health — information that may be helpful as they receive care from health care providers to address their health challenges. The oxidative stress caused by ionizing radiation is described. The role of antioxidant systems, detoxification systems and nutritional support is also described which may aid a reader to seek further information to address chronic health issues.”¹⁰⁷

Significant Cost of Decommissioning Nuclear Power Plants Must be Included in the Economic Calculous of Subsidizing Commercial Nuclear Power

“The price of energy inputs and the environmental costs of every nuclear power plant continue long after the facility has finished generating its last useful electricity. Both nuclear reactors and uranium enrichment facilities must be decommissioned, returning the facility and its parts to a safe enough level to be entrusted for other uses. After a cooling-off period that may last as long as a century, reactors must be dismantled and cut into small pieces to be packed in containers for final disposal. The process is very expensive, time-consuming, and dangerous for workers, hazardous to the natural environment, and presents new

¹⁰⁵ Chuck Brosious, Citizens Guide to INL, Environmental Defense Institute Special Report, pg. 204.

<http://environmental-defense-institute.org/inlguide.html>

¹⁰⁶ Originally reported : https://en.wikipedia.org/wiki/Anti-nuclear_movement#cite_note-38

¹⁰⁷ Tami Thatcher, *Radiological and Chemical Exposures at the Idaho National Laboratory that Workers May Not Have Known About*, April 2017, Environmental Defense Institute Special Report. <http://environmental-defense-institute.org/publications/Radchemreport.pdf>

opportunities for human error, accidents or sabotage.

“The total energy required for decommissioning can be as much as 50% more than the energy needed for the original construction. In most cases, the decommissioning process costs between US \$300 million to US **\$5.6 billion**. Decommissioning at nuclear sites which have experienced a serious accident are the most expensive and time-consuming. In the U.S. there are 13 reactors that have permanently shut down and are in some phase of decommissioning, and none of them have completed the process.”¹⁰⁸

Since INL hosted 52 nuclear reactors over its history, the site incurred enormous reactor decommissioning costs. DOE has the responsibility to cleanup (using taxpayer funds) under the oversight of EPA and the Idaho Department of Environmental Quality using CERCLA.¹⁰⁹ INL CERCLA is called the Idaho Cleanup Project and divided up in 10 Waste Area Groups that covers all the major cleanup areas. The DOE’s Revised Proposed Plan for Waste Area Group 1 - Test Area North (TAN) dated November 1998, 1 the New Proposed April 2003 remediation Plan, 2 and Five-Year Review of CERCLA Response Actions 2010-2014 3 contain major discrepancies with the Comprehensive Remedial Investigation / Feasibility Investigation Report data and other internal INL waste characterization report data on TAN 4 These data discrepancies are in the range of many orders-of-magnitude.¹¹⁰

The Waste Area Group 2 D&D teams for the Idaho Cleanup Project have marginal progress in 2007, nearing completion on several highly complex former nuclear facility demolitions as well as many other obsolete or unneeded facilities across the INL Site. Reactor Removal is a milestone for the project; the Engineering Test Reactor (ETR) was removed from the Reactor Technology Complex. Active from 1957-1982, the ETR reactor was used to evaluate fuels, coolant. The Environmental Defense Institute (EDI) submitted a review of the disposition of the waste generated by the decommissioning/ decontamination (D&D) and CERCLA cleanup of the Engineering Test Reactor (ETR), Materials Test Reactor (MTR) and the TRA Retention Basin at the Reactor Technology Center (RTC), now called Advanced Test Reactor Complex and waste disposal at the INL CERCLA Disposal Facility (ICDF).”¹¹¹

¹⁰⁸ Benjamin K. Sovacool (2011). *Contesting the Future of Nuclear Power: A Critical Global Assessment of Atomic Energy*, World Scientific, p. 118-119. https://en.wikipedia.org/wiki/Nuclear_power_debate#cite_note-sov11-68

¹⁰⁹ Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1986, as amended by the Superfund Amendments and Reauthorization Act, the National Oil and Hazardous Substances Pollution Contingency Plan is the U. S. Congress’ response to huge environmental contamination sites. Subsequently, Congress passed the Federal Facility Compliance Act that forced government agencies (like the DOE) to comply with these environmental laws via legally enforceable Consent Orders.

¹¹⁰ Chuck Broschious, Comprehensive Review of Test Area North CERCLA Cleanup Plan at the Idaho National Laboratory Submitted On behalf of the Environmental Defense Institute Amended June 2016 Revision B. <http://www.environmental-defense-institute.org/publications/CERCLA.TAN.pdf>

¹¹¹ Chuck Broschious, “Review of CERCLA Cleanup and Decommissioning and Decontamination at Engineering Test Reactor TRA Retention Basin Materials Test Reactor at Reactor Technology Center now Called Advanced Test Reactor Complex Waste Area Group 2 Idaho National Laboratory Submitted May 2016 Revision G.” <http://www.environmental-defense-institute.org/publications/y2016ETRMTRcleanup.pdf>

Promoting Nuclear Power Subsidies



“George W. Bush signing the Energy Policy Act of 2005, which was designed to promote US nuclear reactor construction, through incentives and subsidies, including cost-overrun support up to a total of **\$2 billion** for six new nuclear plants.¹¹² The Energy Policy Act of 2005 also “authorizes 'standby support' for new reactor delays that offset the financial impact of delays beyond the industry's control for the first six reactors, including 100% coverage of the first two plants with up to \$500 million each and 50% of the cost of delays for plants three through six with up to \$350 million each.”¹¹³

“Critics of nuclear power claim that it is the beneficiary of inappropriately large economic subsidies, taking the form of research and development, financing support for building new reactors and decommissioning old reactors and waste, and that these subsidies are often overlooked when comparing the economics of nuclear against other forms of power generation. Nuclear power proponents argue that competing energy sources also receive subsidies. Fossil fuels receive large direct and indirect subsidies, such as tax benefits and not having to pay for the greenhouse gases they emit. Renewables receive proportionately large direct production subsidies and tax breaks in many nations, although in absolute terms they are often less than subsidies received by other sources.”¹¹⁴

Largest Subsidy to Civilian Nuclear Power is Government’s Accepting Responsibility for the Massive Radioactive Waste Generated by Corporate Utility Owners

“The Nuclear Waste Policy Act of 1982 is a United States federal law which established a comprehensive national program for the safe, permanent disposal of highly radioactive wastes. During the first 40 years that nuclear waste was being created in the United States, no legislation was enacted to manage its disposal.”¹¹⁵

Since Idaho hosts the DOE’s Idaho National Laboratory (INL) that manages vast quantities of radioactive waste materials from six decades of nuclear operations (including the highest concentration of nuclear reactors in the world),¹¹⁶ ¹¹⁷ the State has a unique interest in nuclear waste. “The INL stores

¹¹² John Quiggin (8 November 2013). *“Reviving nuclear power debates is a distraction. We need to use less energy.”*. *The Guardian*. https://en.wikipedia.org/wiki/Nuclear_power_debate#cite_note-69

¹¹³ The Energy Policy Act of 2005 (Pub.L. 109–58) cited by https://en.wikipedia.org/wiki/Energy_Policy_Act_of_2005

¹¹⁴ *“Energy Subsidies and External Costs”*. *Information and Issue Briefs*. World Nuclear Association. 2005. Retrieved 2006-11-10. https://en.wikipedia.org/wiki/Nuclear_power_debate#cite_note-73

¹¹⁵ The official text of the NWPA is available in [the United States Code on FDSys](http://www.fdsys.gov), from the U.S. Government Printing Office.

¹¹⁶ The original name for INL was the National Reactor Testing Station that built/tested over 52 reactor designs for civilian, and military (Naval propulsion and remote Army power reactors). All of the Nuclear Navy’s spent (used) nuclear fuel is shipped to INL’s Naval Reactor Facility where it is cut up separating the uranium fuel from other highly radioactive components that are then dumped in INL’s Radioactive Waste Management Complex. <http://environmental-defense-institute.org/inlguide.html>

¹¹⁷ Final Environmental Impact Statement for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling at the Idaho National Laboratory (DOE/EIS-0453-F). (www.ecfrecapitalization.us)

275 MTHM of spent nuclear fuel (SNF) consisting of **150 MTHM of commercial fuel** including core debris from the Three-Mile Island Unit 2 (TMI-2); **56 MTHM of sodium-bonded fuels from EBR-II, FFTF, and Fermi reactors**; and an additional **~69 MTHM from a variety of defense, government research, and commercial demonstration programs**. Although INL fuels account for only ~12% of the MTHM in DOE's total SNF inventory, they are expected to account for over half of the spent fuel canisters.¹¹⁸ INL's inventory also includes solid Calcine high-level waste, **3,800 cubic meters**;¹¹⁹ liquid high-level waste **7,200 cubic meters**;¹²⁰ Solid Plutonium, **6 metric tons** (enough for ~34 nuclear bombs).^{121 122}

The state, fearing that Idaho would become a defacto nuclear waste dump, filed a law suit in federal court and succeeded in gaining Settlement Agreement and Consent Order.¹²³ These agreements initially lead by then Governor Andrus and later enforced by Governor Batt laid out DOE's responsibilities in removing all transuranic and high-level nuclear waste from Idaho. Subsequent governors started to renege on the Settlement Agreement, so Cecil D. Andrus stepped back into the debate to write the following:

"Most Idahoans know that since January [2015], former Gov. Phil Batt and I have been raising questions about a plan by the U.S. Department of Energy to bring additional shipments of commercial spent nuclear fuel (SNF) to the Idaho National Laboratory (INL) for 'research.'

"Our opposition to these shipments involves several concerns including, most importantly, that the DOE action violates the historic agreement Gov. Batt negotiated with the feds in 1995 that specifically prohibits commercial SNF from coming to Idaho.

"We also object to the fact that DOE still has no permanent disposal site for this material, which effectively means once it's here it will stay here for a very long time. The fact that DOE has also missed key milestones to treat highly radioactive liquid waste at INL further complicates the picture.

"When I first learned of DOE's plans to bring additional SNF to Idaho back in January, I started to gather information and ask questions. It seemed a logical step to request under the Freedom of Information Act (FOIA) copies of correspondence, internal memos, etc., that I felt certain then - and still feel certain now - would shed light on just what the federal government has planned for Idaho.

"My odyssey in search of those documents has been both eye-opening and disturbing. The fact that the

¹¹⁸ The unit metric tons heavy metal (MTHM) refers to the actual nuclear fuel weight not the total weight of the fuel assembly. http://nsnfp.inl/program/strategymtg/fact%20sheets/inl_factsheet_final.pdf

¹¹⁹ RCRA PART B PERMIT REAPPLICATION FOR THE IDAHO NATIONAL LABORATORY Volume 22, Idaho Nuclear Technology and Engineering Center Calcined Solids Storage Facility May 2016 (DOE/ID-10131)

¹²⁰ U.S. Department of Energy Integrated Data Base for 1991, Revision 7, October 1991, U.S. Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics, Prepared by Oak Ridge National Laboratory, DOE/RW-0006.Rev.7.

¹²¹ US Department of Energy Openness Press Conference Fact Sheets, February 6, 1996.

¹²² Chuck Broschious and David B. McCoy, Preliminary Comments on Calcined Solids Storage Facility Draft Hazardous Waste Management Act Resource Conservation and Recovery Act Storage Facility Partial Permit Renewal for the Idaho Nuclear Technology & Engineering Center on the Idaho National Laboratory To Idaho Department of Environmental Quality Waste and Remediation Division RE: Draft Hazardous Waste Management Act/Resource Conservation and Recovery Act Storage Facility Partial Permit Renewal for the Calcined Solids Storage Facility at the Idaho Nuclear Technology & Engineering Center on the Idaho National Laboratory, EPA ID# ID4890008952. on behalf of the Environmental Defense Institute May 9, 2017 [Rev. S]. <http://environmental-defense-institute.org/publications/EDI-CSSF-Permit-S.pdf>

¹²³ "Consistent with the principles set forth in that certain Settlement Agreement and Order dated October 13, 1995 in the matter of Public Service Co. of Colorado v. Batt, No. CV 91-0035-S-EJL (D. Id.) and United States v. Batt, No. CV-91-0054-S-EJL (D. Id.) ("1995 Agreement"), the purpose of this Agreement is to provide for efficient and safe development of research capacities at the Idaho National Laboratory (INL) related to the next generation of nuclear reactor fuels while continuing to ensure Idaho does not become a defacto repository for the Nation's spent nuclear fuel from commercial nuclear power plants." Memorandum of Agreement Concerning Receipt, Storage, and Handling of Research Quantities of Commercial Spent Nuclear Fuel at the Idaho National Laboratory, January 6, 1995.

federal government has refused to release information pertaining to its internal planning and how Idaho fits into its plans should raise red flags for the state and its citizens.

“After taking months to respond to my request for information and finally producing page after page of redacted or blacked out, documents, I appealed the decision to stonewall on public information.

“Perhaps not surprisingly, DOE rejected my appeal recently saying that releasing information about its plans in Idaho would cause the harm of chilling open and frank discussion, limit government personnel’s range of options ... and detract from the quality of Agency decisions.’

“DOE simply decided the release of the information I requested and would have shared with Idahoans ‘would not be in the public interest.’

“But wait just a minute. It is hardly the job of a bureaucrat sitting in office in the Forrestal Building in Washington, D.C. to decide what information about nuclear waste management in Idaho is “in the public interest.” What about our interest regarding what goes on within the borders of our state?

“A careful reading of DOE’s rationale shows the department wants to consider waste options in secret without involving or in any way consulting Idahoans and then tell us what they have decided. I can guarantee that public knowledge of DOE’s “open and frank discussions” about its “options” would be “chilled” by public awareness in Idaho.

“DOE’s culture of secrecy was, I believe, born during World War II when nuclear weapons were first developed and secrecy during wartime was a paramount consideration. But the agency never adapted, as the current situation in Idaho demonstrates, to a culture of transparency and engagement that engenders trust and confidence and, when warranted, public acceptance.

“I’m left to conclude that the agency does have plans for Idaho that likely would not pass muster in the sunlight. We do know that DOE has briefed the LINE Commission on the possibility of future “research” at INL involving more than 20 metric tons of spent fuel. What else do they have in mind? They’re not saying.

“Some DOE apologists have attempted to make this dispute about whether Idahoans “support the INL,” but that is not the issue. The issues Gov. Batt and I have focused on are bigger and much more important: what ultimately happens to the significant quantities of nuclear waste already in Idaho, what is DOE’s plan to honor commitments already made and what happens if we agree to take even more waste?

“DOE owes all of us a real discussion about those questions followed by real answers.”¹²⁴

The National Problem of What to do With Nuclear Bomb and Civilian Nuclear Power Waste

This is a significant problem for Idaho because there is no deep geological repository for high-level radioactive waste for DOE to ship INL waste to, so it stays here. But DOE’s legal commitment under the Settlement Agreement/Consent Order¹²⁵ to treat existing INL waste to meet repository acceptance criteria has slipped by six years. Treatment operations like the Integral Waste Treatment Unit (IWTU) that is supposed to turn the 900,000 gallons of liquid highly radioactive waste (HLLW) by 2012 is not functioning as designed.¹²⁶ The Hanford vitrification plant that was to treat the sites 53 million gallons of HLLW waste in 177 tanks also is not functioning despite tens-of-billions of dollars spent.¹²⁷

¹²⁴ Cecil D. Andrus, Post Register Posted Commentary: [September 13, 2015](#), By former Idaho Governor Cecil D. Andrus

¹²⁵ **AGREEMENT TO IMPLEMENT, U.S. DISTRICT COURT ORDER DATED MAY 25, 2006.** The Parties to this Agreement are the United States Department of Energy (“DOE”), the United States Navy, Naval Nuclear Propulsion Program (“Navy”) 1 and the State of Idaho (by and through the Governor of the State of Idaho, C.L. “Butch” Otter, and the Idaho Attorney General, Lawrence G. Wasden) and the Governor of the State of Idaho, C.L. “Butch” Otter, individually in his official capacity (collectively “Idaho”).

¹²⁶ [http://environmental-defense-institute.org/publications/EDI%20Permit.Mod.Com.IWTU.A%20\(6-Short\)%20\(Autosaved\).pdf](http://environmental-defense-institute.org/publications/EDI%20Permit.Mod.Com.IWTU.A%20(6-Short)%20(Autosaved).pdf)

¹²⁷ Five huge plants in the center of the Hanford Site processed 110,000 tons of fuel from the reactors, discharging an estimated 450 billion gallons of liquids to soil disposal sites and 53 million gallons of radioactive waste to 177 large underground tanks. <https://energy.gov/em/hanford-site>

Tami Thatcher's report *The 'Forever' Contamination Sites at the Idaho National Laboratory*

"It is fitting to understand the "forever" contamination sites the Idaho National Laboratory's cleanup is leaving behind. Ignoring the spent nuclear fuel and calcine that will supposedly be shipped out of state someday, there are roughly 55 "forever" radioactively contaminated sites of various sizes, and about 30 "forever" asbestos, mercury or military ordnance sites.

"The areas contaminated with long-lived radioisotopes that are not being cleaned up will require institutional controls in order to claim that the "remediation" is protective of human health. People must be prevented from coming into contact with subsurface soil or drinking water near some of these sites — forever.

"The Department of Energy downplays the mess and usually doesn't specify how long the controls are required when the time frame is over thousands of years: they just say "indefinite." In some cases, the DOE earlier had claimed that these sites would be available for human contact in a hundred or so years. You can find a summary that includes the "forever" sites.¹²⁸ "Institutional control of "forever" contamination means they put up a sign, maybe a fence or a soil cap — and assume it will be maintained for millennia. "Don't worry about the cost. And besides," they always add, 'you and I won't be here.'

"DOE continues to find more contaminated sites and expectations are not always met by remediation. But no matter: DOE wants to bury more waste at INL as well as make more nuclear waste. Frequently cited stringent EPA standards such as 4 rem/yr. in drinking water are emphasized.

"But cleanup efforts often won't come close to achieving the advertised standards. "DOE argued against digging up meaningful amounts of transuranic and other long-lived radioactive waste at the Radioactive Waste Management Complex. Only the most egregious chemically laden waste is being removed.

"Denying that exorbitant cost to dig up waste and lack of another place to put it may have played a role, DOE argued that the incremental risk to a worker was too high given the small incremental benefit to the public.

"The analysis of the "worker" didn't come down to concern over radiation workers monitored under DOE programs — which they argued were by definition effective. They argued that a state worker inspecting radioactive shipments would get an excessive radiation dose if working 30 years at the job, unmonitored for radiation. Then the benefit to the public was minimized by ignoring post-10,000 year contamination. Despite "remediation" radionuclides trickle into the aquifer at RWMC over the next millennia creating 30 to 100 mrem/yr. doses, depending on the soil cap. And no attempt is made to estimate the total number of people ultimately exposed to water contaminated by wastes trickling into the aquifer at RWMC over the next millennia.

"Now efforts are being made to extend the mission for repackaging waste near RWMC for other DOE sites, conveniently forgetting all about the contrived concern over that unmonitored state worker inspecting shipments — an argument, that was restated just last year at an INL Citizens Advisory Board meeting, justifying the limited RWMC cleanup.

"Cleanup decisions need to protect workers and the public. But studies continue to find that US radiation protection standards aren't protective for either. A study of a large population of radiation workers getting an average 200 mrem/yr. found elevated cancer risk.

"Technical estimates of the rate of radionuclide migration to Idaho's Snake River Plain Aquifer from the Idaho National Laboratory are biased to minimize the migration in the short term, avoid discussing the migration of contaminants in the long term and to ignore the spikes of contaminant migration during times of higher water infiltration. Experts have not been right very often about predicting contamination migration over the last several decades; they continue to be surprised by contamination migration now and in no way are their estimates of future contamination reliable or conservative. Naturally, the INL is planning to dump more radioactive waste over the aquifer."¹²⁹

¹²⁸ https://cleanup.icp.doe.gov/ics/ic_report.pdf

¹²⁹ Tami Thatcher, special EDI report, "The 'Forever' Contamination Sites at the Idaho National Laboratory:" <http://environmental-defense-institute.org/publications/EarthDayINLreport.pdf>

Issues related to high-level waste are critical for Idaho that must not be left at INL where it continues to contaminate Idaho's sole source aquifer¹³⁰ and must go to a safe deep geologic repository include the following concerns¹³¹ about what's in this waste and why it's a significant threat forever:

"Of particular concern during nuclear waste disposal are two long-lived fission products, Tc-99 (half-life 220,000 years) and I-129 (half-life 17 million years), which dominate spent fuel radioactivity after a few thousand years. The most troublesome transuranic elements in spent fuel are Np-237 (half-life two million years) and Pu-239 (half-life 24,000 years).

"Most existing nuclear waste came from production of nuclear weapons. About 77 million gallons of military nuclear waste in liquid form was stored in steel tanks, mostly in South Carolina, Washington, and Idaho. In the private sector, 82 nuclear plants operating in 1982 used uranium fuel to produce electricity. Highly radioactive spent fuel rods were stored in pools of water at reactor sites, but many utilities were running out of storage space.

"The Nuclear Waste Policy Act of 1982 created a timetable and procedure for establishing a permanent, underground repository for high-level radioactive waste by the mid-1990s, and provided for some temporary federal storage of waste, including spent fuel from civilian nuclear reactors. State governments were authorized to veto a national government decision to place a waste repository within their borders, and the veto would stand unless both houses of Congress voted to override it. The Act also called for developing plans by 1985 to build monitored retrievable storage (MRS) facilities, where wastes could be kept for 50 to 100 years or more and then be removed for permanent disposal or for reprocessing.

"Congress assigned responsibility to the U.S. Department of Energy (DOE) to site, construct, operate, and close a repository for the disposal of spent nuclear fuel and high-level radioactive waste. The U.S. Environmental Protection Agency (EPA) was directed to set public health and safety standards for releases of radioactive materials from a repository, and the U.S. Nuclear Regulatory Commission (NRC) was required to promulgate regulations governing construction, operation, and closure of a repository. Generators and owners of spent nuclear fuel and high-level radioactive waste were required to pay the costs of disposal of such radioactive materials. The waste program, which was expected to cost billions of dollars, would be funded through a fee paid by electric utilities on nuclear-generated electricity. "An "Office of Civilian Radioactive Waste Management was established in the U.S. Department of Energy (DOE) to implement the Act." ¹³² See discussion on Yucca Mt repository below.

The above discussion leaves out the whole problem of low-level radioactive waste for which there are no solutions other than continuing to dump it in shallow pits like the INL Radioactive Waste Management Complex that is contaminating our sole source aquifer. A logical perspective would determine that if there is no demonstrated way to treat low-level or high-level waste¹³³ and no repository to take the waste once it's made "road-ready," the government and civilian nuclear generators must stop making it in the first place. Moreover, the extensive subsidies the government gives nuclear

¹³⁰ Tami Thatcher, Tritium at 800 pCi/L in the Snake River Plain Aquifer in the Magic Valley at Kimama: Why This Matters, by Tami Thatcher, Updated *January 5, 2017* and click here for [Factsheet including uranium and thorium decay series](http://environmental-defense-institute.org/publications/kimamareport.pdf) <http://environmental-defense-institute.org/publications/kimamareport.pdf>

¹³¹ Chuck Broschius Comprehensive Review of Test Area North CERCLA Cleanup Plan at the Idaho National Laboratory Submitted On behalf of the Environmental Defense Institute Amended June 2016 Revision B <http://environmental-defense-institute.org/publications/CERCLA.TAN.pdf>

¹³² Comprehensive nuclear waste plan enacted. *Congressional Quarterly Almanac* 1982. Washington, DC: Congressional Quarterly, Inc., 304-310. Nuclear Waste Policy Act of 1982. 96 *Statutes at large* 2201, 42 *U.S. Code* 10101 *et seq.* https://en.wikipedia.org/wiki/Nuclear_Waste_Policy_Act#cite_note-3

¹³³ Comprehensive Review of Environmental Defense Institute Comments on Argonne National Laboratory –West now called Materials Fuel Complex at the Idaho National Laboratory December 2015 RE: Public Comments for inclusion in the public record on US Department of Energy (DOE) Draft HWMA/RCRA Partial Permit, Argonne National Laboratory-West (ANL-W) Idaho National Laboratory (INL) EPA ID No. ID4890008952 Idaho Department of Environmental Quality Public Notice April 12, 2004 Docket # 10HW-0404. <http://environmental-defense-institute.org/publications/y2016ANLWcleanup.pdf>

power look ludicrous, given the fact there's no permanent geologic repository for the waste. But we forget about our nuclear addiction to bombs and the interdependent nuclear power, and all rationality goes out the window. This is especially true with the Nuclear Navy Propulsion Program at INL where the entire Navy's (used fuel or spent nuclear fuel) SNF is sent. And the waste is left at INL for who know how long.¹³⁴

The Department of Defense (DOD's) 2017 budget for the Navy includes significant increases to include:

- “The proposed Budget (PB) 2017 grows the naval fleet by procuring seven major ships in FY 2017 and will increase the battle force by 28 ships, from 280 to 308 ships, in the next five years.
- The PB 2017 budget includes \$5.2 billion in FY 2017 to buy two Virginia-class attack submarines.
- The PB 2017 increases funding for advanced undersea capabilities, including \$37 million for an improved MK-48 torpedo, and \$106 million for unmanned underwater vehicles in FY 2017.
- The budget invests \$3.2 billion in FY 2017 to buy two DDG-51 Arleigh Burke-class guided missile destroyers.
- The budget reduces planned littoral combat ship/fast frigate (LCS/FF) procurement from 52 ships to 40.”¹³⁵

Obviously all of these well intentioned objectives in the Nuclear Waste Policy Act of 1982 have been shelved by agencies entrusted to implement them primarily because Congress has not provided funding and direction. Why? Congress authorized DOE, to develop Yucca Mt, NV as a high-level nuclear waste repository. However it failed to meet minimum requirements that EPA/NRC could permit. However recently, Trump plans to reopen Yucca Mt. regardless of the fact it is the wrong place and thus not permit able.

“President Donald Trump renewed his commitment to restart licensing on the controversial Yucca Mountain nuclear repository in Nevada on Monday with a funding request tucked into a \$4.4 trillion budget blueprint.

“Trump included \$120 million to restart licensing on the geologic site north of Las Vegas, as well as to establish an interim storage program to address the growing stockpile of nuclear waste produced by power plants in states across the nation. The funds are just part of the \$30.6 billion budget request for the Department of Energy for fiscal year 2019, which begins Oct. 1.

“Energy Secretary Rick Perry said the \$120 million would be used for the licensing application process. Application hearings must be held to hear challenges by Nevada and other stakeholders.

“The Nuclear Regulatory Commission must determine whether Yucca Mountain is safe for long-term storage, and issue a license for Energy to build the repository. ‘We have a legal responsibility. We have this waste out there. We need to have this licensing issue addressed,’ Perry said Monday.

“The NRC also is seeking more than \$47.7 million for the licensing process at Yucca Mountain, which was designated by Congress in 1987 as the sole site to permanently store nuclear waste. The licensing process was halted during the Obama administration.”

“Proponents of Yucca Mountain have already wasted more than \$15 billion on a hole in the ground and have nothing to show for it,’ Cortez Masto said.”

“The Trump administration sought \$120 million for DOE to jumpstart the licensing process last year. The House upped the figure to \$150 million, to include an interim storage process, but Senate budget writers zeroed out the request in its spending bill.”¹³⁶

¹³⁴ <http://environmental-defense-institute.org/publications/EDI%20Com.%20Final-RH-LLW-INL.-final.3.w-Pics.pdf>

¹³⁵ <https://www.defense.gov/News/News-Releases/News-Release-View/Article/652687/department-of-defense-dod-releases-fiscal-year-2017-presidents-budget-proposal/>

¹³⁶ Gary Martin, “Trump budget contains \$120M to restart licensing of Yucca Mountain,” February 12, 2018 Las Vegas Review Journal. <https://www.reviewjournal.com/news/politics-and-government/trump-budget-contains-120m-to-restart-licensing-of-yucca-mountain/>

The neo-liberal empire-centric mind-set of nuclear weapons advocates and the corporate interests making trillions off our taxes are exactly what reasonable Americans must address.¹³⁷ The result of “manifest destiny” and U.S. global empire has resulted in a defensive position that requires nuclear weapons to maintain military/economic “full spectrum dominance.”¹³⁸ But why so many bombs?

“Follow the money,” is the preverbal phrase that analysts elicit. “The federal facilities where nuclear weapons are produced are run by corporations that have collectively earned more than **\$2 billion in profit** from the work over the past decade.”¹³⁹ Many of the firms' officials have expressed chagrin at occasional publicity about their mishaps and accidents. They are pressuring the Trump Administration to remove the Defense Nuclear Facilities Safety Board that is the **only** federal agency that monitors the nuclear weapons complex.¹⁴⁰ The head of the federal agency that produces U.S. nuclear weapons has privately proposed to end public access to key safety reports from a federal watchdog group that monitors ten sites involved in weapons production.

“Frank Klotz, administrator of the Energy Department’s National Nuclear Security Administration [NNSA is in charge of the nuclear weapons programs], made the proposal to members of the Defense Nuclear Facilities Safety Board in an October 13 [2017] meeting in his office overlooking the Smithsonian Castle on the National Mall, multiple U.S. officials said.

“Klotz contended that recent media stories about safety lapses that relied partially on the board’s weekly disclosures were potentially counterproductive to the NNSA’s mission, the officials said. His solution was presented as the Trump administration considers an acceleration and expansion of nuclear warhead production at the federally owned sites inspected by the board in eight states, including California, New Mexico, South Carolina, Idaho and Tennessee.”¹⁴¹

Continuing to build an unrealistically large nuclear/military is what the power elite want because there is money to be made and world hegemony.¹⁴² Putting that funding into education does not offer the

¹³⁷ Noam Chomsky, “Neoliberalism An Accounting,” speech at Crotty Hall, UMass, April 13, 2017.

¹³⁸ Jim Garamone, Joint Vision 2020 Emphasizes Full-spectrum Dominance, American Forces Press Service, June 2, 2000 – “Full-spectrum dominance” is the key term in “Joint Vision 2020,” the blueprint DoD will follow in the future. “Joint Vision 2020, released May 30 and signed by the chairman of the Joint Chiefs of Staff, Army Gen. Henry Shelton, extends the concept laid out in Joint Vision 2010. Some things will not change. The mission of the U.S. military today and tomorrow is to fight and win the nation’s wars. How DOD goes about doing this is 2020’s focus. Full-spectrum dominance means the ability of U.S. forces, operating alone or with allies, to defeat any adversary and control any situation across the range of military operations. Joint Vision 2020 addresses full-spectrum dominance across the range of conflicts from nuclear war to major theater wars to smaller-scale contingencies.”

<http://archive.defense.gov/news/newsarticle.aspx?id=45289>

¹³⁹ Patrick Malone, Energy undersecretary wants nuclear safety reports hidden from public By Patrick Malone Center for Public Integrity, November 9, 2017.

¹⁴⁰ Robert Alvarez, “Rebranding the nuclear weapons complex won’t reform it” Institute for Policy Studies. “This advisory level of oversight apparently has proven to be too much to bear for the nuclear weapons program. The panel concludes that the safety board “exerts a dominant influence over the Energy Department’s risk management in nuclear safety policies and programs. In essence, it becomes a de facto regulatory arm. Even when the DNFSB engages informally, it exerts enormous influence, which can cause Energy Department staff to overreact.”

¹⁴¹ Patrick Malone Energy undersecretary wants nuclear safety reports hidden from public By Patrick Malone Center for Public Integrity, November 9, 2017

¹⁴² Yangyang Cheng, “The atomic age bears America’s original sin,” The Bulletin of Atomic Scientists, 6 FEBRUARY 2018. “The trust in American hegemony on nuclear power is bitterly ironic, considering that the United States remains the only country that has used nuclear weapons for war. Moreover, the existence of nuclear weapons has significantly weakened America’s democratic institutions, from the buildup of a massive security state to guard its nuclear secrets, to the expansion of executive power in bypassing Congress to take military action. America’s history of racism and discriminatory policies, remnants of which continue to this day, both narrows its thinking and weakens its credibility as it tries to uphold universal values and enforce them upon sovereign nations.”

same kind of profit opportunity. Moreover, an educated populace will resist the imbalance of resource allocation because this oversized military will drain from the public needs for infrastructure, health care and housing.¹⁴³

This blotted military-industrial complex is unsustainable not only economically but more importantly from the immediate “Climate Disaster” looming. The failure of US leadership to recognize this climate crisis as a national security issue and allocate scarce resources into adapting for rising sea-level and renewable power is a crucial error. If we fail to correct this raw political power strangle hold on our country’s resources, we will self-destruct either from nuclear war or climate disaster.¹⁴⁴ Rather than a soft landing, we will implode continuing the 2008 financial meltdown that has yet to be reconciled. All of this massive funding for nuclear weapons and subsidies for uneconomic nuclear power represents resources not going toward building renewable energy sources that will greatly mitigate the existential crisis of global climate disaster.¹⁴⁵ One effect of climate disaster is water scarcity especially here in the American west. Civilian power reactors consume huge quantities of water for coolant. For instance the Blue Castle-Green River Nuclear Power Plant proposed recently will tap the already over taxed Colorado River in Utah.

“As if the idea of building a nuclear power plant in the middle of the Utah desert isn’t bad enough, the project requires 56,400 acre feet of water per year to operate—much of which will be lost to evaporation in a backup storage reservoir. Each acre foot of water equals 325,829 gallons per year, or, in the case of the Blue Castle plant, 56,400 times 325,829 gallons of water from a water source that Utah’s own governor recently admitted is already over allocated.”¹⁴⁶

Fred Kaplan’s review of Daniel Ellsberg’s new book, *The Doomsday Machine: Confessions of a Nuclear War Planner*, notes:

“Ellsberg frankly notes that in the late 1950s, when he joined the ranks of elite nuclear strategists at RAND, the Air Force–funded think tank in Santa Monica, he was an entrenched Cold Warrior (and before then, an infantry platoon commander in the Marines), fully convinced that the Soviet Union posed an imminent threat and that the best way to stave off its aggression was to threaten to kill at least 20 million of its citizens in response.

“Ellsberg was in fact one of the leading scholars of deterrence theory; his widely hailed essays, “The Theory and Practice of Blackmail” and “The Political Uses of Madness,” which he wrote as a professor at Harvard, landed him his perch at RAND, where he fit right in.

“But his first foray into the nuts and bolts of nuclear warfare—a study of command-and-control procedures that gave him access to top secret documents and chats with top commanders—set off a gradual unraveling of his worldview. It turned out that the nuclear war plan—and there was just one plan, with no room for flexibility—called for the rapid firing of America’s entire arsenal of nuclear weapons in response to any armed conflict, even a small conventional skirmish, with the Soviet Union. And once the orders came down, the bombs would rain down not just on the USSR but also on Communist China, even if the Chinese weren’t involved in the war. (The intelligence at the time viewed the two countries as all

¹⁴³ [Nosheen Ali](#), Books vs Bombs? Humanitarian development and the narrative of terror in Northern Pakistan, Pages 541-559, published online: 28 Jun 2010.

¹⁴⁴ Nome Chomsky sees the only two major threats to America are nuclear war and climate change, neither of which the leadership are addressing. Democracy Now! April 24, 2017. <https://chomsky.info/>

¹⁴⁵ Dot Surlock, *Nuclear Power, Nuclear Weapons, and Nuclear Terrorism*, Study Guide by Dot Surlock, Physicians for Social Responsibility (PSR-SC). “We know that both militarization and climate change threaten the future of human civilization. Increasing numbers of people wanting more stuff challenge our finite resources including clean water and air. Throw into the picture growing numbers of weapons, some very, very dangerous and human fallibility, and things don’t look too promising. The Chinese have a saying, “Unless we change direction, we are likely to end up where we are headed. Time to change.”

¹⁴⁶ “Blue Castle-Green River Nuclear Power Plant. <https://utah.sierraclub.org/content/blue-castle-green-river-nuclear-power-plant>

but unified.)

“Another shock: The president, contrary to popular belief, was *not* the only person with his finger on the button. Rather, President Eisenhower had signed an order delegating authority to a small group of four-star generals and admirals, all outside Washington, to launch nuclear weapons in case he was incapacitated.

“Ellsberg accepted the logic of the idea: If the Russians thought they could shut down the U.S. nuclear war machine by launching a surprise nuclear attack on Washington, thus killing the only man who could order a retaliatory strike on Moscow, they might be tempted to do so. But as Ellsberg learned during his study, the delegations ‘reverberated downward in a widening circle’ to the point where—in case the top generals and admirals were killed—fairly junior commanders onboard ships in the middle of the ocean had the authority to launch nuclear weapons on their own. Finally, once bombers had been given the “GO” order, it was very difficult to call them back to base. (Missiles, which came into the arsenal later, were, of course, impossible to recall after launch.)

“Ellsberg sent a memo to the Joint Chiefs of Staff, under McNamara’s signature, asking how many people would die if the United States unleashed its full nuclear strike.* The answer came back in a memo for the president’s eyes only, though a few others, including Ellsberg, saw it: **between 275 million and 325 million in the USSR and China.** ‘This piece of paper should not exist,’ Ellsberg remembers thinking when he looked at the single-sheet memo. ‘It depicted evil beyond any human project ever. ... From that day on, I have had one overriding life purpose: to prevent the execution of any such plan.’”¹⁴⁷

Obviously, the above potential death toll is grossly understated not only using 1960s population numbers, but also the ludicrous assumption that with a “first strike” none of the Soviet bombs would land on Europe and the US. This is especially crucial, as Ellsberg points out about the strike authorization being broadly given to front-line commanders far removed from country leadership. Even back then, atmospheric scientists rightly predicted “nuclear winter” caused by the bomb detonations and the resulting fires would cause the next extinction. The sheer number “close calls” thankfully avoided, should give us pause.

President Trump’s flaunting “total destruction” of North Korea for building the only logical deterrent the US would recognize, given Libya’s recent example of ending its nuclear deterrent only to be “totally destroyed” by US and NATO.¹⁴⁸ The American public has never been given the whole truth about the realities of nuclear weapons, as the above Ellsberg book review documents. But Trump’s mental instability is an issue together with his choices of military leadership that agree with his statement: “Why have nuclear weapons if we aren’t going to use them,” and “my button is bigger than yours.”¹⁴⁹ This puts the whole world at immediate risk of the vagaries of a sociopathic administration that tragically is not much worse than previous leadership with respect to nuclear weapons. All nuclear states

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http://www.slate.com/articles/arts/books/2017/12/the_doomsday_machine_daniel_ellsberg_s_sobering_new_memoir_about_life_as.html

¹⁴⁸ Jonathan Marshall, “Although the North Korea crisis has largely faded from the headlines, the chances of war breaking out are still unacceptably high – requiring greater attention from both the peace movement and Congress,” states.

<https://consortiumnews.com/2018/02/07/no-time-for-complacency-over-korea-war-threat/>

¹⁴⁹ Yangyang Cheng The atomic age bears America’s original sin, *The Bulletin of Atomic Scientists*, 6 FEBRUARY 2018. “I see similar flawed thinking at play today, as America struggles to find the proper response to North Korea’s advances in nuclear and missile technology. There are no good or easy ways out of the crisis, but what is particularly alarming is how war is being constantly raised as a plausible, or even preferred, option among America’s policy elites. When seen through racially tinted glasses, a whole region is dehumanized—with the dictator demonized, his people infantilized, and their neighbors objectified as collateral. When the president of the United States tweets about the bigger size and greater power of his nuclear button compared with Kim Jong-un’s, toxic masculinity turns nuclear war into a pissing contest.”

must – by definition given the limited time between notification and strike – put retaliation on an automatic “GO ORDER.”

The issue of nuclear weapons on “high-alert” is outlined in amicus curiae briefs of Hans Kristensen, Robert Alvarez, Dr. James Doyle and Nuclear Watch of New Mexico in support of Plaintiff/Appellant the Republic of the Marshall Islands states:

“Recent history reveals a long list of weapons systems failures that have resulted in nuclear detonation ‘close calls.’ Far from being unusual, such failures are frequent, even routine. The grave threat caused by these failures is increased by the high alert status of U.S. nuclear weapons. Around 900 warheads of the United States’ strategic nuclear arsenal are continuously maintained on high alert. As a result of this status, national leaders have just a few minutes for detecting and assessing an attack, briefing the top leaders, picking a response option, and implementing the option. To engage in this process in a limited amount of time, the decision-making process has been reduced to ‘a checklist-driven rote enactment of a prepared script that could too easily collapse in confusion or lead to a mistaken or unauthorized launch.’ The increased threat caused by the high alert status of U.S. nuclear weapons is exacerbated by the threat of cyber-attack. All computers systems, whether connected to the Internet or operating on a closed network, can be compromised by various hacking methods. This is also true of the United States’ nuclear command and control structures. The Secretary of Defense’s Director of Operational Test and Evaluation issued a 2014 report stating almost every U.S. weapons program tested showed ‘significant vulnerabilities to cyber-attacks.’ By maintaining a significant portion of its nuclear arsenal on ‘hair trigger alert,’ the United States has increased the already notable risk of an accidental or unauthorized nuclear launch. The Marshall Islands Complaint alleging an increased risk of harm is thus more than sufficient to show that it has standing based on a concrete, particularized, and imminent injury.”¹⁵⁰

A reminder from Hawaii: **“From 1977 through 1984, there were 2,598 warnings of incoming missile attacks every year received by system operators. What happened in Hawaii reminds us to be careful when old warning systems are cranked up again.”**¹⁵¹ Why? This is insanity!¹⁵² Since we Americans started all this (with the detonation and only use of the first nuclear bomb) and as of this minute, we allowed our leadership over the last six+ decades to perpetuate this collective insanity; we must take a good long look in the mirror for the remedy. A representative of Enviro-medics said: “Nuclear war is a terminal epidemic for which there is no cure.” *Fifty Years of Failure – The Nuclear Non-Proliferation Treaty* discusses this issue:

“The U.S. Executive has set on a course of indefinitely preserving nuclear weapons and increasing their military capabilities through the ‘modernization’ of its stockpile, supporting research, and production infrastructure. The Executive is also aggressively planning to build completely new intercontinental ballistic missiles, heavy bombers and strategic submarines to deliver nuclear weapons. This course of action is commonly referred to as ‘vertical nuclear proliferation.’ The United States’ vertical nuclear

¹⁵⁰ Hans M. Kristensen, Robert Alvarez et al., The Republic of the Marshall Islands, Plaintiff-Appellant, v. The United States of America, et al., Defendants-Appellees. Case: 15-15636, 08/07/2015, ID: 9639225, DktEntry: 39, Page 1 of 94. Amicus Curiae Brief of Hans M. Kristensen, Robert Alvarez, Dr. James E. Doyle and, Nuclear Watch of New Mexico in Support of Plaintiff/Appellant and a Reversal of the Judgement on Appeal from the United States District Court For the Northern District of California, U.S.D.C. 1 C 14-01885 JSW, Honorable Jeffrey S. White, United States District Judge.
<https://law.justia.com/cases/federal/district-courts/california/candce/4:2014cv01885/276810/54/>

¹⁵¹ Lauren Borja, M. V. Ramana, and also see What America can learn from Hawaii’s mistake, Karthika Sasikumar 1/6/18, *Bulletin of Atomic Scientists*, <https://thebulletin.org/what-america-can-learn-hawaii%E2%80%99s-mistake11434>

¹⁵² Maj. Danny Sjursen, “National Security Insanity, **TD ORIGINALS**, JAN 17, 2018 Maj. Danny Sjursen is a U.S. Army officer and former history instructor at West Point. He served tours with reconnaissance units in Iraq and Afghanistan...

proliferation is antithetical to its legal obligations to enter into good faith negotiations related to nuclear disarmament as required by Article VI of the Non-Proliferation Treaty (NPT).

“The Executive's actions evidencing its vertical nuclear proliferation are found throughout governmental documents. One key document, the National Nuclear Security Administration's annual *Stockpile Stewardship and Management Plan*, is particularly informative. The National Nuclear Security Administration (NNSA) is a semiautonomous agency within the U.S. Department of Energy and is responsible for, *inter alia*, maintaining and enhancing the performance of the U.S. nuclear weapons stockpile. The NNSA's congressionally required *Stockpile Stewardship and Management Plan* is thus the government's document of record on the Executive's plans to maintain, revitalize, and modernize the nuclear stockpile.

“In its *Fiscal Year 2016 Stockpile Stewardship and Management Plan*, the NNSA requested an 11.2 percent funding increase over that of fiscal year 2015. This significant increase in funding will support aggressive Life Extension Programs designed to indefinitely preserve existing nuclear weapons and give them new military capabilities. The increase will also fund the construction of new production plants to support the modernized stockpile and the upgrade of existing facilities for expanded production of the plutonium pit cores of nuclear weapons.

“The increased funding will support conceptual studies to create additional Life Extension Programs for other types of nuclear weapons as well. The NNSA has quickly begun implementing these modernization plans and openly displays the B61-12's new guidance tail fin kit that endows the weapon with new military capabilities. Similarly, various branches of the U.S. armed forces have reported their implementation of the modernization programs and the resulting increases in the longevity of the nuclear weapons and/or delivery systems involved. The U.S. Air Force and Navy are aggressively planning to build new nuclear-armed forces, including intercontinental ballistic missiles, long-range heavy bombers, and strategic submarines, expected to be operational until up to 2080. In all, the modernization and ongoing preservation of nuclear forces is expected to cost a trillion dollars or more over the next 30 years.

“The plans to increase the capabilities of the nation's nuclear weapons are essentially at the direction of the U.S. Executive, as evidenced by the *Report on Nuclear Employment Strategy of the United States Specified in Section 491 of 10 U.S.C.30*. In this authoritative document, the Executive directs that the U.S. nuclear weapons stockpile should be maintained so that it can be used in nuclear warfighting against military and leadership targets, as opposed to maintaining those weapons merely for deterrence. Because of this directive, the size of the U.S. nuclear arsenal and delivery systems must be far larger and more capable than if a less aggressive strategy were chosen.

“As discussed in the *Report on Nuclear Employment Strategy*, the Executive directs that, despite the modification of certain nuclear weapons through Life Extension Programs, the Department of Defense should maintain the older weapons for an indefinite period of time until confidence is achieved in the newly modified weapons. Thus, for some undisclosed period of time, the older weapons will be kept alongside the modernized weapons, contrary to official claims that modernization will result in stockpile reductions. Similarly, the U.S. Executive will not dismantle any nuclear weapons slated for retirement under the bilateral *New Strategic Arms Reduction Treaty* until production facilities for new nuclear weapons are built, expected in the late 2020's.

“Objective documentation shows that the U.S. Executive intends to and in fact has begun to modernize all aspects of its nuclear enterprise, and that many of these modernization programs will introduce new or improved military capabilities to the weapon systems. With this documentation, the district court can readily employ the good faith standard, making it an eminently manageable standard.”

“Partly this was addressed by emphasizing the role of **civil nuclear power** and the technical assistance on offer to signatories under NPT Article IV of the treaty. But many countries that supported the principle of non-proliferation had serious reservations about signing unless comprehensive nuclear disarmament was a specific goal. Rather than see the treaty fail, the United States and the USSR agreed, at the later stages of the negotiations, to the inclusion of Article VI calling for a ‘cessation of the nuclear arms race at

an early date and to nuclear disarmament.’ But there was no timescale as to how this would be achieved.”¹⁵³ [emphasis added]

The Trump administration is pushing for changes in the way electricity is priced to better reward coal and nuclear power, which face growing competition from natural gas and renewables.¹⁵⁴ William D. Hartung writes in *Tom Dispatch* that 2018 will be another good year for weapons makers.

“As Donald Trump might put it, major weapons contractors like Boeing, Raytheon, and Lockheed Martin cashed in “bigly” in his first year in office. They raked in tens of billions of dollars in Pentagon contracts, while posting sharp stock price increases and healthy profits driven by the continuation and expansion of Washington’s post-9/11 wars. But last year’s bonanza is likely to be no more than a down payment on even better days to come for the military-industrial complex.

”Trump’s much-touted \$1 trillion infrastructure plan may never materialize, but the Pentagon is already on course to spend **\$6 trillion to \$7 trillion** of your taxes over the next decade. As it happens though, a surprising percentage of those dollars won’t even go into the military equivalent of infrastructure. Based on what we know of Pentagon expenditures in 2016, up to half of such funds are likely to go directly into the coffers of defense contractors rather than to the troops or to basic military tasks like training and maintenance.”¹⁵⁵

Mike Stone writes: “Tomahawk missile maker Raytheon sales rises, boosts profit forecast” about Raytheon:

“[T]he Waltham, Massachusetts-based weapons maker raised its 2017 sales forecast by about \$200 million to between \$25.1 billion and \$25.6 billion, and its expectation for earnings from continuing operations by 10 cents to a range of \$7.35 to \$7.50 per share, O’Brien said.

“Raytheon, which also makes the Patriot missile system, said sales in its missile systems unit, its biggest by revenue, surged 11.4 percent to \$1.90 billion in the second quarter ended July 2. The gain was helped by higher sales of the Standard Missile-2 (SM-2), Standard Missile-3 (SM-3), and Paveway family of laser and GPS precision-guided bombs. Raytheon management told analysts on Thursday’s post-earnings conference call that third quarter sales would be in the range of \$6.18 billion to \$6.33 billion with full-year bookings going as high as \$26 to \$27 billion for the year.”¹⁵⁶

Lockheed Martin a former INL contractor “is one of the largest companies in the aerospace, defense, security, and technologies industry. It is the world’s largest defense contractor based on revenue for fiscal year 2014. In 2013, 78% of Lockheed Martin’s revenues came from military sales; it topped the list of US federal government contractors and received nearly 10% of the funds paid out by the Pentagon. In 2009 US government contracts accounted for **\$38.4 billion** (85%), foreign government contracts \$5.8 billion (13%), and commercial and other contracts for \$900 million (2%).”¹⁵⁷ Being

¹⁵³ Steve Schofield, Fifty Years of Failure – The Nuclear Non-Proliferation Treaty 1968-2018, Posted on 11th June 2015 in Analysis, news, <https://yorkshirecnd.org.uk/fifty-years-of-failure-the-nuclear-non-proliferation-treaty-1968-2018/>
Also see; Facing the Failures of the Nuclear Non-Proliferation Treaty Regime, Published by [Mike Ryan](#) at April 23, 2003, Nuclear Age Peace Foundation. <https://www.wagingpeace.org/facing-the-failures-of-the-nuclear-non-proliferation-treaty-regime/>

¹⁵⁴ Federal Energy Regulatory Commission is an independent agency, “FERC is an independent agency that regulates wholesale power markets, and it is not required to follow Perry’s recommendation. However, two of the three current commissioners were nominated by President Donald Trump, which environmentalists fear could make the agency inclined to accept Perry’s recommendation.” DALLAS (AP)

¹⁵⁵ William D. Hartung, 2018 Will Be Another Good Year for Weapons Makers, *TomDispatch*, January 16, 2018, reported in Truthdig. <https://www.truthdig.com/articles/2018-will-another-good-year-weapons-makers/>

¹⁵⁶ Mike Stone, *Tomahawk missile maker Raytheon sales rises, boosts profit forecast*, by Mike Stone, 7/27/17, (*Reuters*) Reporting by Mike Stone in Washington and Ankit Ajmera in Bengaluru; Editing by Bernadette Baum and Jonathan Oatis. [HTTPS://WWW.TRUTHDIG.COM/ARTICLES/TIME-CLOSE-U-S-FOREIGN-MILITARY-BASES/](https://www.truthdig.com/articles/time-close-u-s-foreign-military-bases/)

¹⁵⁷ https://en.wikipedia.org/wiki/Lockheed_Martin

smart politicians, DOD spread military contracts around to nearly all the states so as to ensure passage of procurement bills in Congress.

Trump Would Okay New Nuclear Test for ‘Political Reasons’

“Although the US has not tested a nuclear weapon since 1992, the administration of US President Donald Trump has quietly ordered that the Pentagon’s Nevada National Security test site put itself in a state of readiness to detonate a nuclear bomb within a time frame of as little as six months, according to reports.

“After proposing a \$1.2 trillion deal to modify and redesign America's entire nuclear-weapons program, Trump, in authorizing the development and manufacture of the first new US nuclear warhead in 34 years, has also requested that the long dormant testing facility some 90 miles northwest of Las Vegas be put on a speeded-up timetable for detonation readiness: to six months from the Department of Energy's earlier forecast of two to three years.

[New US Nuclear Posture Review Spurs Outrage Among Atomic Bomb Victims in Japan](#)

“Although the Trump White House describes upcoming potential underground nuclear detonations as "a simple test, with waivers and simplified processes," sources close to the US National Nuclear Security Administration have claimed that any new atom bomb explosion in the Nevada desert would be less about the technicalities and more about political theater, according to *Time*.

“In demonstrating to Iran, China, Russia and the People's Democratic Republic of Korea (DPRK), that the US is rapidly expanding its nuclear weapons program, Washington would not be testing technical details but rather detonating weapons "for political purposes," cited by *Time.com*.

“While Trump has not currently ordered a new nuclear weapons test, the straightforward nature of what many consider to be a provocative show of force by Washington, after decades of US restraint, appears to many to be an announcement of a new global nuclear arms race.

"We must modernize and rebuild our nuclear arsenal," Trump declared during his January 30 State of the Union speech.

[Iran on US Nuclear Posture Review: Doctrine Menaces Destruction of Human Race](#)

“Although every US president since Republican Dwight Eisenhower has avoided suggesting that the US could again launch a nuclear weapon against an enemy, Trump, in contrast, has suggested the unthinkable by asserting that his administration would unleash "fire and fury like the world has never seen," against the DPRK.

“The 45th US president has also displayed a knee-jerk hostility toward existing nuclear agreements, including the landmark 2015 JCPOA agreement to stop Iran from becoming a nuclear power and the 2010 New START treaty between Washington and Moscow limiting nuclear weapon development.

“Trump reportedly demanded the development and manufacture of additional nuclear bombs during a July 20, 2017, Pentagon briefing, while criticizing military advisers for suggesting any reduction in US nuclear stockpiles, according to *Time*.

“The strikingly unpopular world leader has also publicly trashed the work of his own Secretary of State, Rex Tillerson, by ignoring ongoing negotiations and taunting Pyongyang with a "much bigger & more powerful" button that Trump would ostensibly push to launch a deadly nuclear attack against the isolated country of some 26 million.

“The global community has watched in astonishment as Trump has gone against almost every notion of humanity's denuclearization.

“The long-standing strategic policy of the United States has been to reduce the role and

number of nuclear weapons,' observed Andrew Weber, a 30-year nuclear-weapons expert for the US State and Defense departments prior to his 2015 retirement, cited by *Time.com*.

“That idea seems to have been balled up and thrown out the window,' he noted.”¹⁵⁸

Are We Running on Borrowed Time?

The Bulletin of the Atomic Scientists Doomsday Clock says “**It is two minutes to midnight**. This year marks the 70th anniversary of the Doomsday Clock, as it came to be called, has served as a globally recognized arbiter of the planet’s health and safety ever since. Each year, the setting of the Doomsday Clock galvanizes a global debate about whether the planet is safer or more dangerous today than it was last year, and at key moments in recent history.”¹⁵⁹ [emphasis added]

Attachments to this report are available separately

Attachment A: Idaho Universities Participation in DOE/INL Programs

Attachment A is a list of some Idaho universities that have DOE/INL programs in their curriculum that in a time of significant federal/state cuts in funding for higher education helps supplement their budgets. This is an entirely deliberate effort to force universities into the government information control.

Attachment B: INL Community Out-reach

Attachment B discusses examples of community out-reach into the Idaho Falls, Idaho where DOE/INL has their offices and where most workers live. This is a significant effort to generate a constituency that will support INL nuclear programs.

Attachment C: Price-Anderson Act

Attachment C discusses the Price-Anderson Nuclear Industries Indemnity Act (commonly called the Price-Anderson Act) that is a United States federal law, first passed in 1957 and since renewed several times, which governs liability-related issues for all non-military nuclear facilities constructed in the United States before 2026.

¹⁵⁸ Trump Would Okay New Nuclear Test for ‘Political Reasons’ – Reports, MILITARY & INTELLIGENCE, Sputniknews.com, 2/4/18. And Reuters/Kyodo/via Reuters/and AP Photo/ Petr David Josek.

<https://sputniknews.com/military/201802041061335652-trump-would-test-nuke-political-reasons/>

¹⁵⁹ <https://thebulletin.org/sites/default/files/Final%202017%20Clock%20Statement.pdf>