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The Nuclear Armed Madhouse

Nuclear Revivalism as Cult and Culture...and its Cure

By James Heddle
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Theme: Militarization and WMD
In-depth Report: Nuclear War

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[This morning on January 24, 2023, the science and security board of the Bulletin of the Atomic Scientists moved their famous Doomsday Clock to read 90 seconds to midnight, 10 seconds closer than it's ever been before. This essay examines some of the forces making this clock tick.]

Situational Awareness at Our Future's Edge

"Madness is the exception in individuals, but the rule in groups."– Friedrich Nietzsche

"You have to understand, the nuclear industry and the people that run it – and I say this advisedly – they have a religious belief in nuclear power. So facts don't interfere. You know, religion is belief. They believe in nuclear power...." – ***S. David Freeman*** *– 2011 – Former Director of the Tennessee Valley Authority*

"A striking characteristic of leading figures throughout America's Atomic Brotherhood is an almost religious devotion to atomic energy and all for which it stands. These men share a deep faith in the essential goodness and above all the historical inevitability of atomic energy." – ***Mark Hertzgaard****,* ***Nuclear Inc.,*** *1983*

"In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our liberties or democratic processes. We should take nothing

for granted. Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together.... We must also be alert to the...danger that public policy could itself become the captive of a scientific-technological elite." – ***Dwight D. Eisenhower****, Farewell address. 1961*

"Knowledge will forever govern ignorance and a people who mean to be their own governors must arm themselves with the power which knowledge gives." – ***James Madison***

The Age of Cognitive Dissonance

Worldwide data indicate that the commercial nuclear power industry has been in decline since at least the turn of the century. Construction schedule and budget overruns, combined with cheaper and faster deployment of wind and solar energy sources make the nuclear energy future look increasingly dim.

According to the World Nuclear Association, there are 425 active reactors worldwide, providing approximately 10% of the world's electricity supply, about the same as three decades ago.

Once upon a time, amid breathless predictions of a "nuclear renaissance," 34 new reactor projects were announced. Of those, only two in Georgia are expected to eventually come on-line, years behind schedule and at costs more than double the initial estimate.

Back in 2016, the **Nuclear Energy Insider** warned,

> "Nuclear plant operators should start decommissioning activities of shutdown reactors as early as possible as the deferral of decontamination and dismantling (D&D) exposes operators to delay-related costs, investment risks and loss of crucial expertise as workers leave the industry, Geoffrey Rothwell, Principal Economist at the OECD's Nuclear Energy Agency, told Nuclear Energy Insider."

The highest number of nuclear reactor closures happened in 2021, and, according to Reuters, a 'Green Surge' of renewable power sources is going on, far out-competing nuclear developent on spead and costs.

In a 2019 Forbes article American physicist Amory Lovins wrote,

> "Most U.S. nuclear power plants cost more to run than they earn. Globally, the *World Nuclear Industry Status Report 2019* documents the nuclear enterprise's slow-motion commercial collapse—dying of an incurable attack of market forces. Yet in America, strong views are held across the political spectrum on whether nuclear power is essential, or merely helpful, in protecting the Earth's climate—and both those views are wrong.
>
> In fact, building new reactors, or operating most existing ones, makes climate change worse *compared with spending the same money on more-climate-effective ways to deliver the same energy services.* Those who state as fact that rejecting (more precisely, declining to bail out) nuclear energy would make carbon reduction much harder are in good company, but are mistaken."
>
> "Today's hot question," Lovins presciently noted, "is not about *new* US reactors, which

> investors shun, but about the 96 *existing* reactors, already averaging about a decade beyond their nominal original design life. Most now cost more to run—including major repairs that trend upward with age—than their output can earn.
>
> "They also cost more just to run than providing the same services by building and operating new renewables, or by using electricity more efficiently."

Nevertheless, a recent, breathless Newsweek opinion piece optimistically effused, ***"The Nuclear Energy Renaissance Has Arrived!"***

Quill Robinson, the article's 'conservationist' author cited reports that California's legislators – faced with the 'threat of looming blackouts in the face of climate change' – voted to extend the operation of Diablo Canyon's reactors. He also reported that twice nuclear-devastated Japan's Prime Minister Fumio Kishida recently announced that – because of the 'threat of looming blackouts in the face of climate change' – nuclear energy is "essential to proceed with a green transformation."

The euphoric Newsweek opiner went on to confidently assert – in denial of all accumulating evidence to the contrary – that "high-profile accidents are the exception to the rule; nuclear is incredibly safe and getting safer."

The uniformity of 'talking points' he cited – a currently standard script – is a clue that there is a concerted psychological operation, or psyop, going on here. Why tout a moribund industry suffering from what energy expert Amory Lovins long ago diagnosed as "an incurable attack of market forces?**"**

What powerful institution with global reach has the most highly developed and sophisticated state-of-the-art psyop strategies and information warfare technologies at its disposal?

Known as the **Fifth Gradient of War, or 5GW**, "Moral and cultural warfare is fought through manipulating perceptions and altering the context by which the world is perceived…. The ability to shape the perception—and therefore the opinions—of a target audience is far more important than the ability to deliver kinetic energy, and will determine the ultimate victor in tomorrow's wars."

Why would these well-honed, state-of-the-art, 'cognitive warfare' tools be unleashed on the U.S. population in support of a faltering civilian nuclear energy industry?

WTF is going on here?

Welcome to the Nuclear Armed Madhouse

The United States is the most militarized – and nuclearized – nation, society and culture in the history of the world.

Just pause, take a few deep breaths, and let that fact – plus the sobering, omni-directional implications of it – sink in for a moment.

According to ExecutiveGov, the country's projected Department of Defense budget – not counting the so-called 'Dark Budget' (see below) – reached $778 billion in 2022, up 14% from 2017. This compares to the second ranking military budget of China, which has a military budget of $229 billion.

The Congressional Budget office reported:

- "If carried out, the plans for nuclear forces delineated in the Department of Defense's (DoD's) and the Department of Energy's (DOE's) fiscal year 2021 budget requests, submitted in February 2020, would cost a total of $634 billion over the 2021–2030 period, for an average of just over $60 billion a year, CBO estimates.
- "Almost two-thirds of those costs would be incurred by DoD; its largest costs would be for ballistic missile submarines and intercontinental ballistic missiles. DOE's costs would be primarily for nuclear weapons laboratories and supporting activities."

You don't have to be a Ph.D.-certified, think tank situational analyst to get the picture.

For a country that, as of Oct. 8, 2022, had a total national debt of $31.1 trillion, U.S. expenditures on means of mass destruction are clearly illogical, immoral, unethical and suicidal.

Here's a brief, enlightening snapshot.

According to the Bulletin of Atomic Scientists' **Nuclear Notebook: United States nuclear weapons, 2023** by **Hans M. Kristensen and Matt Korda,** as of this year the US Department of Defense maintains an estimated 'stockpile' of approximately 3,708 nuclear warheads for delivery by land- and submarine-launched ballistic missiles and aircraft. The authors state that US nuclear weapons are stored at an estimated 24 geographical locations in 11 US states and five European countries, and that the US has deployed 659 strategic launchers with 1,420 warheads in various locations.

The American arsenal of nuclear weapons and delivery systems are in a perpetual process of renewal and modernization which is set to continue to 2039 and beyond, with a budget of $1.2 trillion over the next three decades. A so-called 'Family of Strike Plans' is maintained and constantly revised, with their main current targets being China, Russia, North Korea and Iran.

The US Navy runs a fleet of 14 Ohio-class nuclear powered submarines which constantly prowl the world's oceans, each capable of carrying up to 20 Trident sea-launched ballistic missiles (SLBMs). Each SLBM can carry up to eight individually targetable nuclear warheads. A new generation of even larger US Columbia-class nuclear submarines is under development with a project budget of $112 billion.

Meanwhile – not to be outdone – **the US Air Force operates a network of 400 silo-based Minuteman III ICBMs with a total force of 800 always available –** with a constant upgrade program going on – as well as a fleet of over 40 nuclear capable strategic bombers carrying nuclear bombs and air-launched cruise missiles in constant motion from bases around the world. The bomber fleet's command and control system interfaces with the constellation of MILSTAR satellites operated by the US Space Force.

This globe-spanning mobile 'Doomsday Machine' – as Pentagon Papers whistleblower Dan Ellesberg calls it – interfaces with NATO partner militaries in a system which is also constantly in a process of 'modernization' and 'harmonization' of 'interoperable' nuclear and conventional weapons systems of mass destruction, dominated by the United States and its

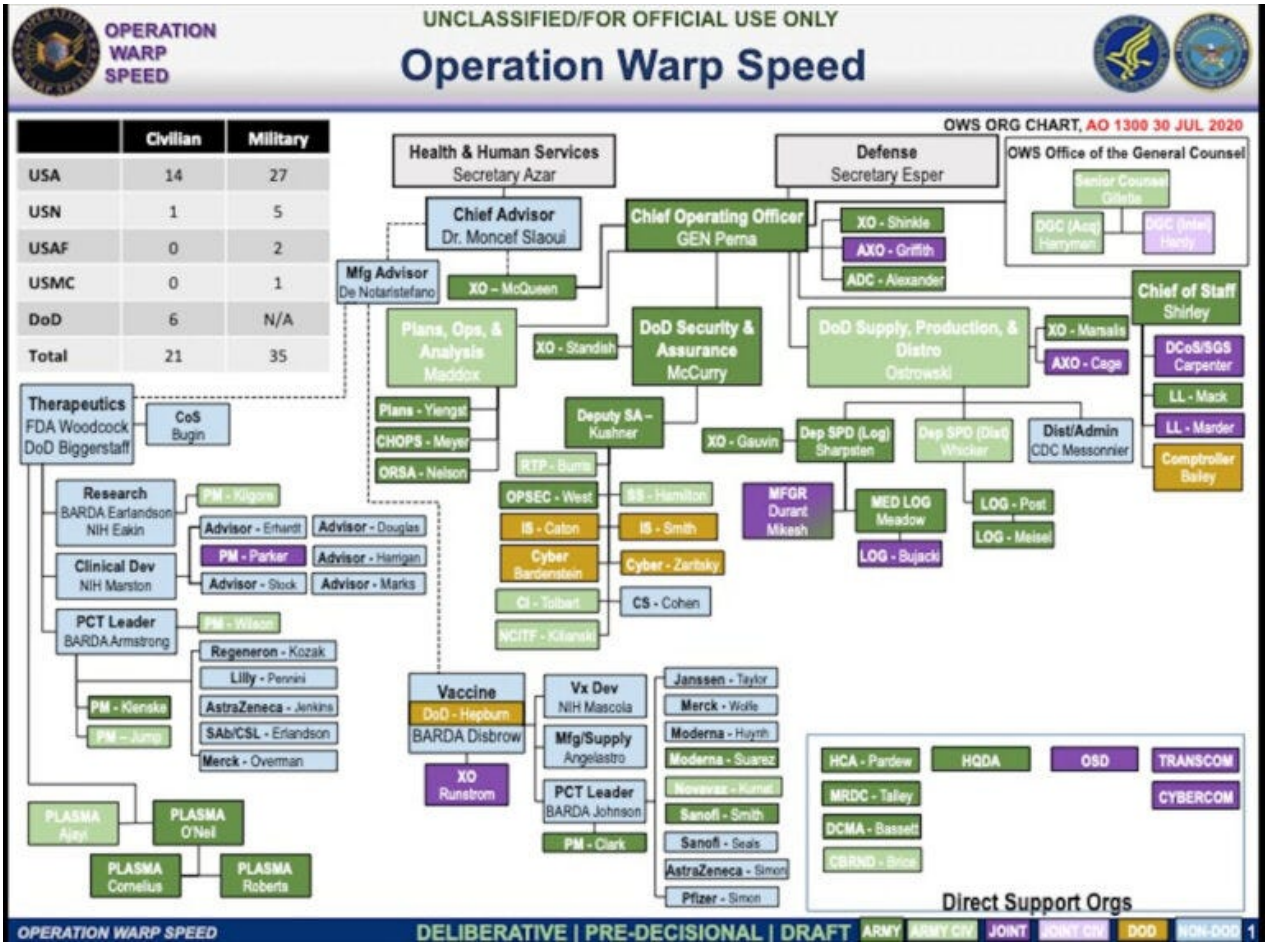
complex of ‘defense’ industries, including Lockheed Martin, Boeing, Raytheon and Northrop Grumman.

As we will see in what follows, this system is seamlessly integrated and co-dependent with America’s civilian commercial nuclear power industry and its infrastructure, trained labor pool, and radioactive waste (mis-) management industry.

Hegemonic Military Nuclearism

Like fish, oblivious of their surrounding liquid environment, we Americans are enveloped in a ubiquitous militarist/nuclearist complex that is all-pervasive, yet virtually invisible to the average citizen, outside the collective domain of public awareness, and therefore immune to informed democratic oversight and control.

The core of its dominion is its development, monopoly control and deployment of advanced biological, directed energy and thermonuclear weapons. Worth noting is that it also exercised chief administrative control of the ‘warp speed’ roll-out of the Covid-19 genetic therapy inoculations – purportedly, of course, all in the interest of efficiency, public health and national defense.



The July 30 Operation Warp Speed organizational chart obtained by STAT details about 90 of the officials involved in the initiative. Roughly 60 work for the Department of Defense.

Virtually all elements of social and economic activity as well as of the environment – from education to philanthropy to health care to weather modification – can be weaponized under the rubric of ‘defense,’ and therefore, increasingly have been.

The World as Battlespace

The 1974 book, **The Permanent War Economy** by **Seymour Melman** had as its sub-title: **American Capitalism in Decline**. In it Melman demonstrated how the so-called 'defense industry' had became the core of what amounted to a state capitalism dominating the entire economic system by means of government control over both capital and technological research and development.

He explained, "The fact that the war economy of World War II was useful for ending the Great Depression became the basis for a theory that there was no other way to get a full-employment economy."

Melman went on to show that, "By 1971 the government-based managers of the U.S. military system had superseded the private firms of the American economy in control over capital." He argued that the squandering of funds and resources on weapons development – which in fact decreased national security – was leading to a hollowing out of the country's once vibrant and productive economy.

Embedded inextricably within that Military Matrix – and equally penetrative in its power and influence – is the Nuclear-Energy-Weapons-Radioactive-Waste Complex. The components of this nuclear triad are as intricately entangled as the strands of the proverbial Gordian Knot.

In the 1979 book **The new tyranny: How nuclear power enslaves us,** Austrian writer Robert Jungk identified that triad as quintessentially totalitarian because its is based from its inception on secrecy, deceit and technocratic control. He warned that by following the path of nuclear energy nations would be forced to surrender their liberties one step at a time and become regimented societies.

Jungk's warning, like Melman's and Eisenhower's was prescient, but went unheeded.

In fact, Eisenhower himself had unwittingly laid the foundation for what he came to fear the most in his 1959 Fireside Chat announcing the **Atoms for Peace** program. This cover-story/psyop at the beginning of the Atomic Age succeeded in putting a happy face on "Our Friend the Atom" and "Reddy Kilowatt." It also – as Alfred Meyer explains in his recent Progressive article It's All About the Bomb – "placed nuclear materials and reactors in more than forty countries, including Iran. This generated ongoing business for many American nuclear enterprise companies while supporting and expanding the U.S. military's nuclear infrastructure and capacity in the United States."

Atoms for Peace became the origin myth for the First Church of Nukes Forever; a cult, a culture, and an industry based – as we will discuss below – on a Big Lie.

Like the proverbial blind men and the elephant, Ike, Melman and Jungk each had a grasp on one appendage of a larger beast the total extent of which remained beyond their ken.

An Updated Situational Awareness

As investigative reporter Whitney Webb has shown in her two volume revelatory opus **One Nation Under Blackmail**, by Ike's era, starting early in the 20th century, there had developed a seamless integration of the military-industrial-intelligence complex with the international network of organized crime and the transnational banking cartel that enabled it.

It was, and is, a command and control matrix far superseding the reach of democratic institutions of government. Those who buck this system pay a price.

James Douglass's 2008 book, **JFK and the Unspeakable – Why he died and why it matters**, finally unpacked the complicated story of how John Kennedy's immersion in and opposition to that dominating matrix led inexorably to his 1963 assassination in Dallas. It was a coup from which the country has yet to recover – or, indeed even recognize.

Throughout the last century, the 'military-industrial complex' that Eisenhower famously glimpsed, named and warned about in his 1961 presidential farewell broadcast has metastasized throughout all the organs and neural pathways of the American body politic and penetrated all its institutions… and beyond.

It might now more accurately be termed the "Military-Industrial-Intelligence-Big Tech-Economic-Academic-Media-Communications-Medical-Pharmaceutical-Organized-Crime-Surveillance-Population-Control Complex."

The subsets of this meta-matrix, the permanent war economy and the plutonium-based nuclear energy, weapons and waste economy symbiotically merged. Together they have become the medium in which we now swim.

Dark Budgets Mask Dark Doings

In their recent study of pandemic criminality in government, co-authors David A. Hughes, Valerie Kyrie and Daniel Broudy point out that,

> "Lawlessness has been germinating in the United States ever since the birth of the national security state in 1947, with its founding myth of "national security" enabling the intelligence agencies to operate outside of any meaningful democratic oversight. …The history of US foreign policy since the birth of the CIA has been a tale of near continuous violations of international law and war crimes (Hughes 2022a), operating under cover of propaganda and psychological warfare in the name of "national security" and a range of exceptionalist myths (Blum 2006; Chomsky 2007; Hughes 2015).
>
> "Eye watering amounts of money have been funneled from US federal budgets into black budgets that the public is not allowed to know about. For example, an estimated US$21 trillion cannot be accounted for in the financial records of the Department of Defense and the Department of Housing and Urban Development between 1998 and 2016 (Skidmore & Fitts, 2019). The Federal Accounting Standards Advisory Board (FASAB), which sets the generally accepted accounting principles (GAAP) for the US federal government, introduced Standard 56 on 4 October 2018, allowing national security concerns to override the need for public financial transparency. FASAB-56, according to Fitts and Betts (2021), "permits the federal government by administrative action—without formal legislative, regulatory, judicial, or executive approval—to keep secret books as determined by a secret group of people pursuant to a secret process." In other words, it provides for the clandestine pillaging of public wealth. The US government, in Fitts and Betts' (2021) opinion, is "operating sufficiently outside the Constitution and financial management and other laws to be called a 'criminal enterprise.'"

In his report for Solari.org, **The Going Direct Reset**, analyst John Titus notes that it

became clear by 5 years after the 2007/8 financial crisis that, “it was a matter of record that crimes on Wall Street weren’t even being investigated, much less prosecuted.” What Titus sees as the“criminal immunity enjoyed by banks,” leads him to question if the U.S. can any longer be considered a constitutional republic under the rule of law.

Sociologist William Robinson, in his recent book **Global Civil War – Capitalism Post-Pandemic**, postulates that the world’s people now live under a dictatorship of transnational ‘gangster capitalists.’

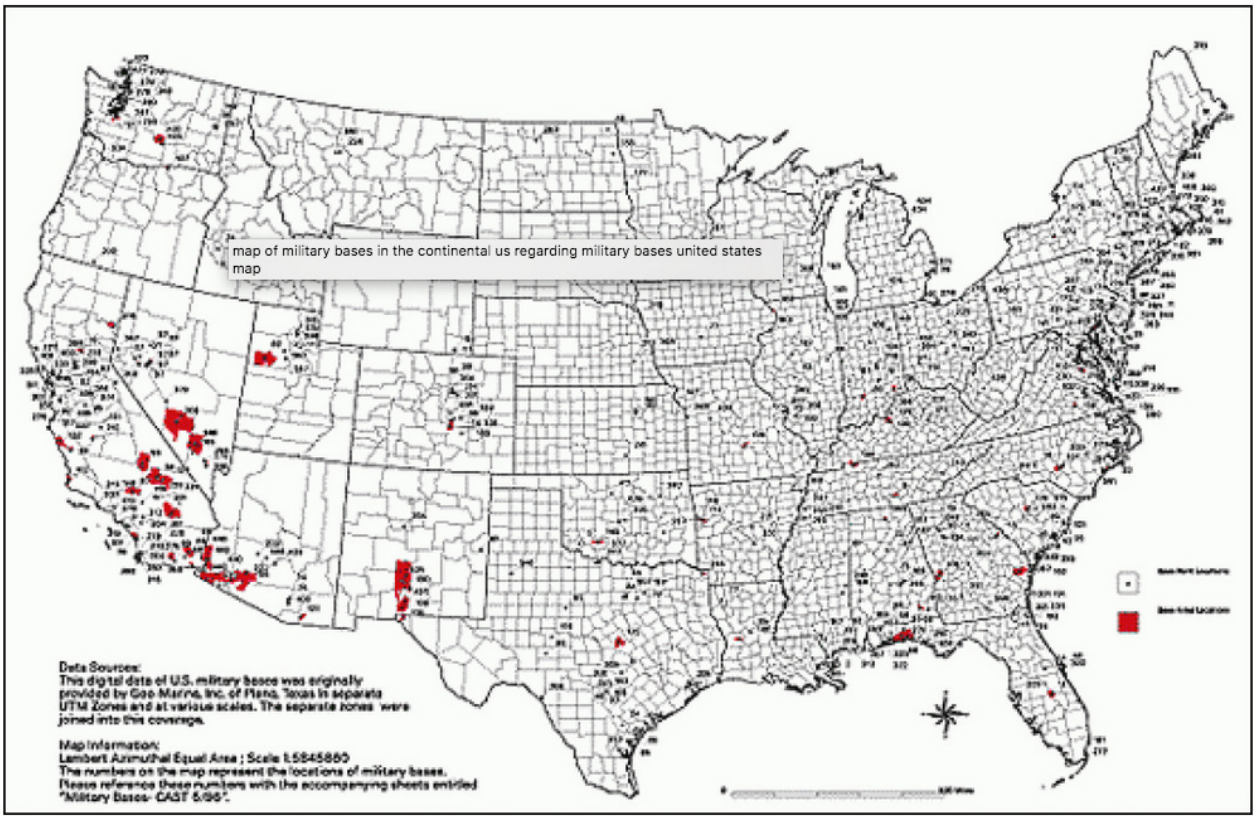
This article will explore the hypotheses that gangster capitalists have actually amalgamated with gangster spooks and militarists, and gangster nuclearists in an attempted grab for global governance.

We begin with the observation that the business of America is war, and that the U.S. has all the earmarks of a company town.

Mapping the Metastasis

The scope of this syndrome is made visible by the sheer physical extent of U.S. military and nuclear facilities and the huge economic impacts of the generous budgets they command.

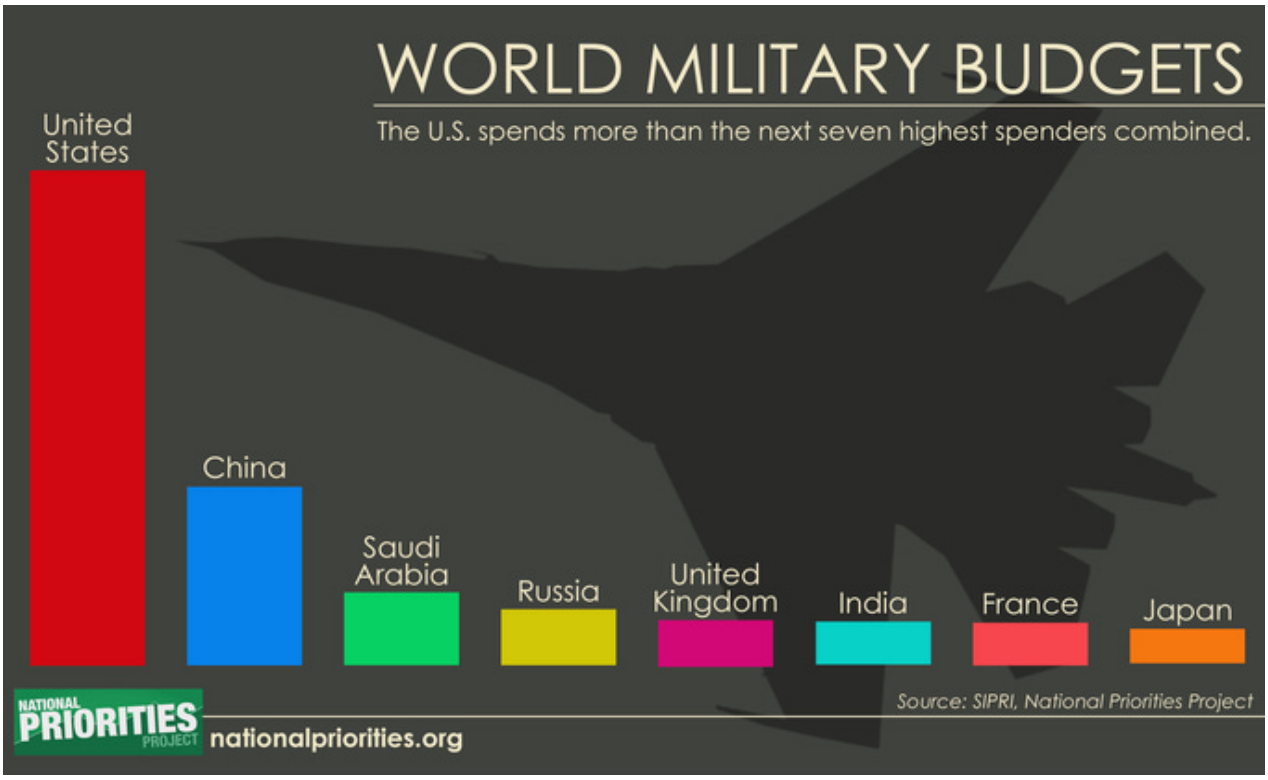
The Department of Defense (DOD) reports that, taken as a whole, **the combined branches of the U.S. military maintain 4,775 bases worldwide, with 4,150 in the U.S. alone – 5 of them the largest military installations in the world.** The DOD’s global reach is extended into other countries also through the NATO alliance, which it dominates.



Military bases in the continental U.S. – https://motivasi.my.id/

Many bases are the size of small cities, and like cities, serve as hubs for the businesses, industries and civic organizations and institutions in their surrounding regions, giving them

huge impact and influence on the resident populations. In addition military training and bombing ranges occupy vast areas of domestic territory.



World military spending totaled more than $1.6 trillion in 2015. The U.S. accounted for **37 percent** of that total. – Graphic: nationalpriorities.org

According to political scientist Joan Roelofs, this reach and funding level accounts for there being so little anti-war protest in the United States. It is the silence of the well-fed lambs…or is it sheeple? Professor Roelofs's book **The Trillion Dollar Silencer** charts the extent to which military funding and propaganda infest and influence virtually every state and public sector.

Roelofs's revelatory little book itemizes all the many vectors along which this pervasive influence is exercised.

A key channel through which the military penetrates into virtually every aspect of civilian life is the system of DoD contracts with private corporations, and, through them, their subsidiaries, sub-contractors, employee organizations, 'philanthropies' and foundations, into local, regional, state, national and international institutions and organizations. Roelofs lists the top 10 DOD contractors in 2020 as:

- Lockheed Martin
- Raytheon Technologies
- General Dynamics
- Boeing
- Northrup Grumman
- Huntington Ingalis
- Humana (a private health insurance company)
- BAE Systems
- L3Harris Technologies
- General Electric

Roelofs reports, “The DoD itself and related government departments engage in philanthropy. Certain schools and the following national organizations are eligible to receive donations of DoD surplus property:

- American National Red Cross
- Armed Services YMCA of the USA
- Big Brothers/Big Sisters of America
- Boys and Girls Clubs of America
- Boy Scouts of America
- Camp Fire, Inc.
- Center for Excellence in Education
- Girl Scouts of the USA
- Little League Baseball, Inc.
- Marine Cadets of America
- National Association for Equal Opportunity in Higher Education
- National Civilian Community Corps
- National Sky Patrol System, Inc.
- Navel Sea Cadet Corps
- United Service Organizations, Inc.
- U.S. Olympic Committee
- Young Marines of the Marine Corps, and
- League/Marine Corps League….”

Roelofs writes that both the Girl Scouts and the Boy Scouts engage in ‘partnerships’ with Lockheed Martin and other corporations.

International Largess as ‘Unconventional Warfare’

She notes, “Despite its connotations, humanitarian aid is part of ‘unconventional warfare’ according to the U.S. Special Operation Command, reminiscent of the ‘winning the hearts and mind doctrine.’” She observes that, “The Joint Chiefs of Staff publishes a guide to foreign humanitarian assistance and organizations with which to coordinate military operations….”

According to Roelofs, other channels of military influence include the revolving doors between military leadership positions and non-profit organizations such as civil liberties, human rights and minority advocacy organization like the American Indian Science and Engineering Society, Asians Against Domestic Abuse, the Vietnamese American Community, the NAACP and the Urban League.

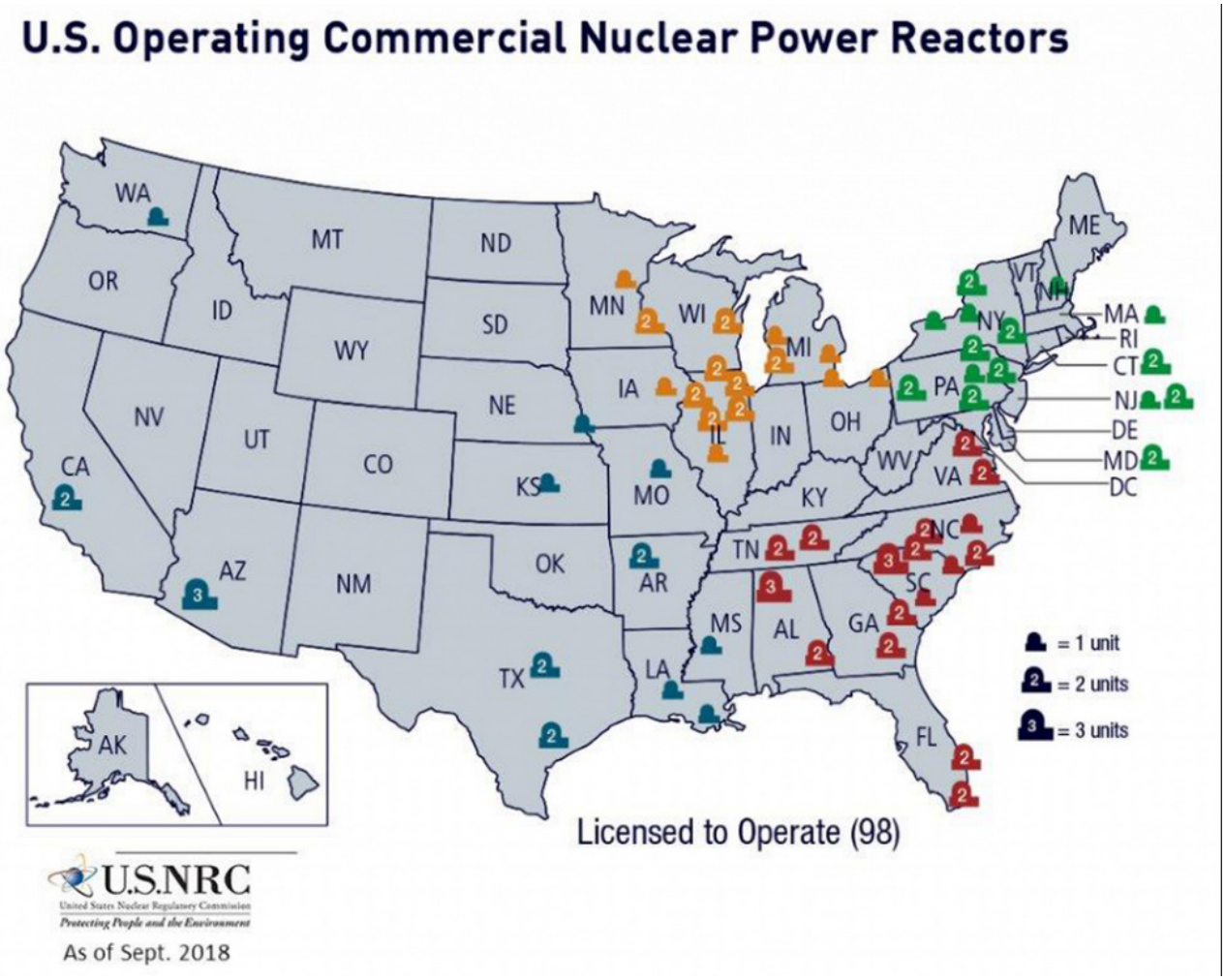
Then there are the think tanks, universities, foundations and professional associations peopled by former military personnel and funded by grants from both military agencies and defense contractors.

The extent and reach of the military networks and connections Roelofs documents are revelatory and mind-boggling in their complexity.

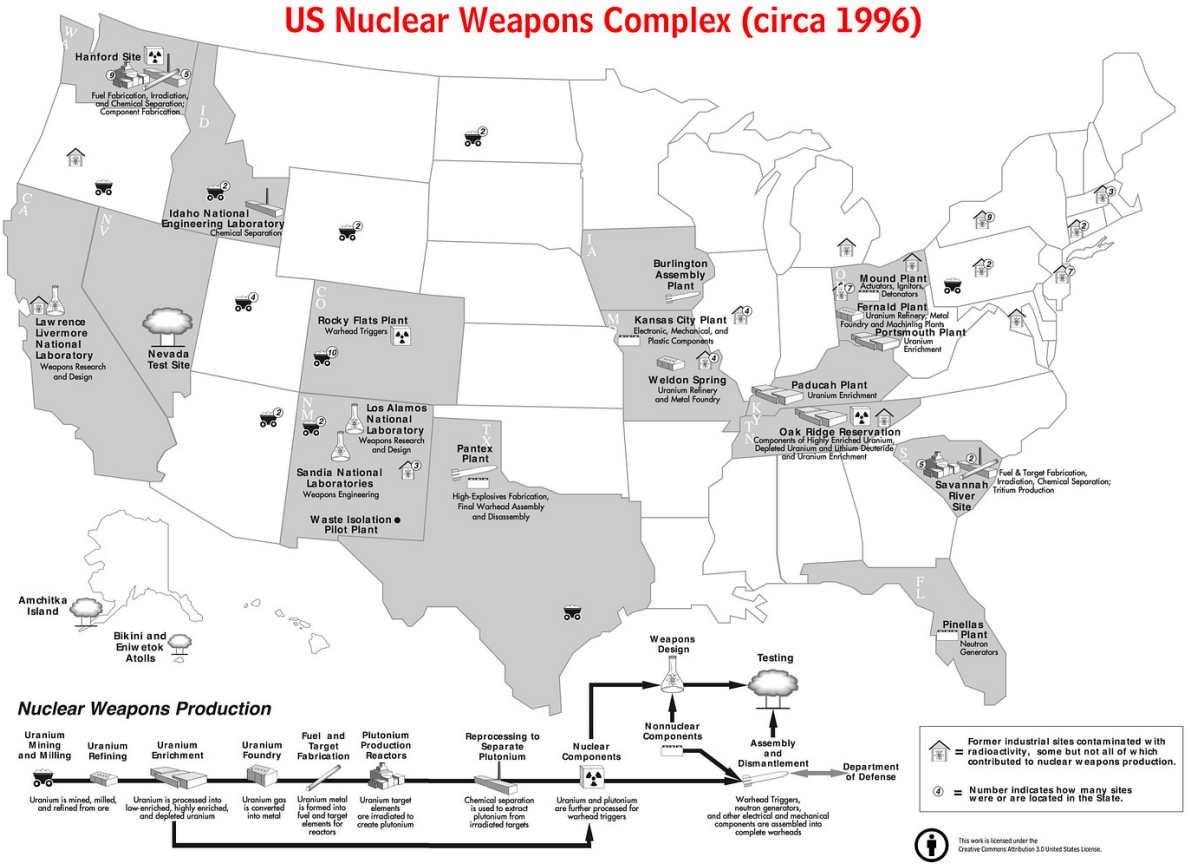
Interpenetrating this matrix and further complicating the picture is the system of the nuclear energy, weapons and radioactive waste management industries and their related research facilities.

Nuclearized Nation

Three maps paint the picture – we live both geographically, economically and culturally in a nuclear surround:



Source: Nuclear Regulatory Commission



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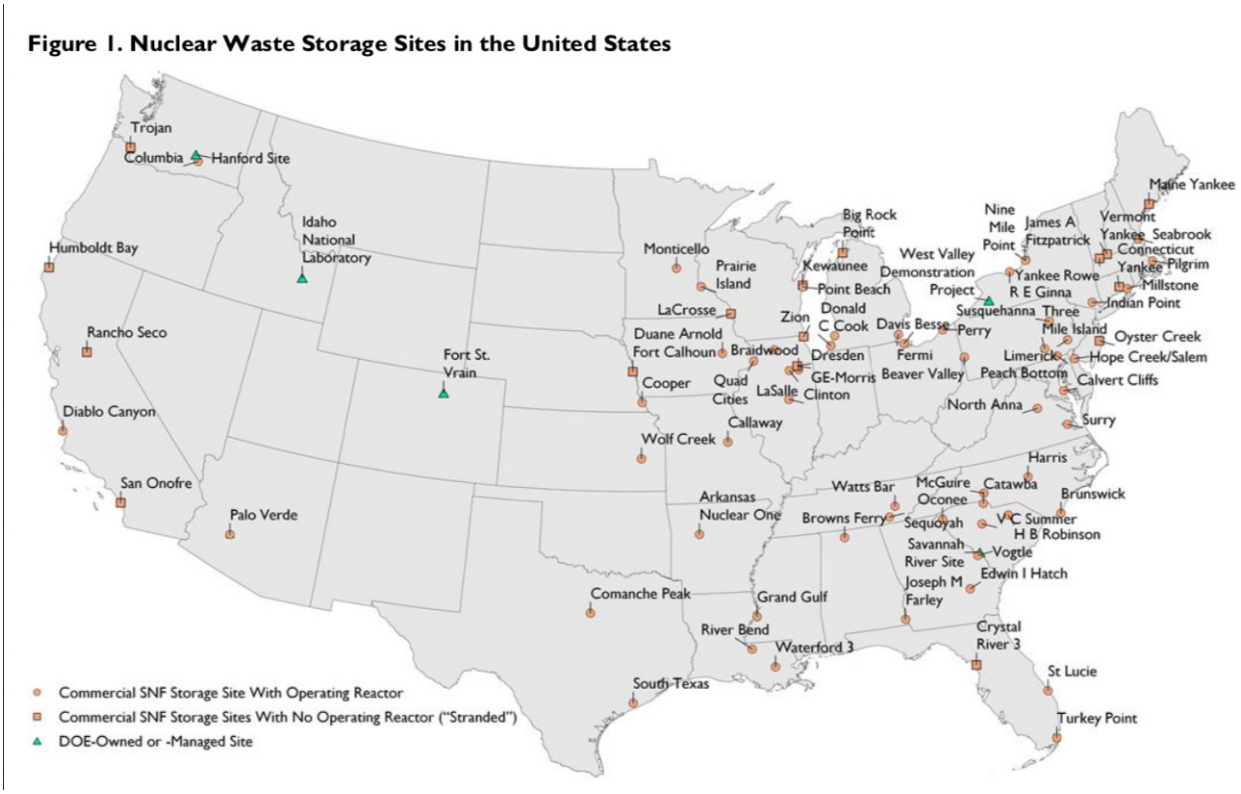


Source: strangesounds.net

Throughout the 'Atomic Age,' basically spanning my 82-year (so far) lifetime, many books have been published making clear nuclear technology's history and impact. Yet, for most of the population (except for the dwindling number of white hairs like me) and especially for

the current cohort of millennials – that easily available body of existentially vital information remains outside their situational awareness.

A few deserve special mention in the current context.

The 1981 **The Nuclear Barons – The Inside Story of How They Created Our Nuclear Nightmare**, b y Peter Pringle and James Spigelman, led the way. A publishers' blurb sums it up well:

> The nuclear barons: an international elite of scientists, technocrats, and businessmen who have, for more than four decades, controlled the world's destiny. Their decisions–usually kept secret, often shortsighted, sometimes veiled by lies and obfuscations–have led inexorably to the present nuclear mess. Radiation hazards, prohibitively costly energy, waste-disposal problems, plant safety, weapons proliferation: the nuclear nightmares we live with are the direct result of choices that were never thought through to their logical conclusions, never opened to public debate.

Seasoned reporter Mark Hertzgaard has been labeled by at least one critic as a 'nuclear crank' for authoring his 1983 book, **Nuclear Inc: The Men and Money Behind Nuclear Energy**, but it stands as an impeccably-sourced investigative classic.

Hertzgaard spent three years in the halls of the industry itself. He gained access to private corporate libraries and once-secret documents. He interviewed many Washington insiders and corporate executives who had never before spoken on the record. The result is a look at what he termed 'America's Atomic Brotherhood' from the inside.

Undeterred by commercial unviability and dependence on government subsidies, repeated accidents and recurring evidence of chronic mismanagement, or the clear inevitability of nuclear weapons proliferation stemming from possession of nuclear energy technology, this Brothehood persists to this day in its quest for control of both global market share and dominance of local and national politics.

Hertzgaard laid bare the playbook of strategies employed by utility executives to dominate local institutions like banks, news papers and civic organizations and influence educational curricula at every level.

He concluded that, "The twenty-four giant transnational corporations that dominate the nuclear power industry constitute what may be the single largest and most powerful business enterprise in history. They sold a staggering $400 billion worth of products in 1981, and all but five of them rank among the one hundred fifty biggest companies in America. Their enormous influence over the U.S. economy is amplified still further by close association with eight of the nation's nine biggest banks, and many of its top investment and law firms. Along with their allies in the electric utility industry, they have invested countless billions in the nuclear business. Understandably, they are committed to recovering profit on their investment. But it is a cynical and condescending analysis that ascribes the industry's calls for a nuclear revival to simple corporate greed. In fact, most nuclear executives deeply believe that theirs is a moral and just cause. They regard nuclear power as the very embodiment of progress and feel privileged to help bring it into being. In their minds, what is at stake in the struggle over nuclear power is not just their own corporations' profitability, but the future of American capitalism, technological society, and indeed Western civilization."

Democracy or Doom

Elaine Scarry is the Walter M. Cabot Professor of Aesthetics and the General Theory of Value at Harvard University. Her 2014 book, **Thermonuclear Monarchy: Choosing Between Democracy and Doom** picks up on Robert Jungk's point, mentioned above, that nuclear technology is quintessentially totalitarian. The appropriately named professor Scarry makes clear the absolutely dictatorial power that control of nuclear weaponry confers on the gormless politicians, true believer executives and ethically clueless technicians with their hands on the controls – a power far exceeding that of any autocratic potentate in the past.

She quotes Richard Nixon's boast, "I can go into my office and pick up the telephone and in twenty-five minutes seventy million people will be dead," noting that Nixon was accurately describing not only his own power but also the power of every American president in the nuclear age.

Professor Scarry records that Presidents Eisenhower, Kennedy, Johnson, and Nixon each contemplated using nuclear weapons—Eisenhower twice, Kennedy three times, Johnson once, Nixon four times. It remains classified whether or not subsequent presidents, from Ford to Obama, considered using them.

Her point is that no individual, group or institution should possess the unilateral power to obliterate all life on earth. Yet that is our current, actual existential situation.

President 'Slow Joe' Biden has the access codes.

The Varieties of Nuclear Culture – Societal and Institutional

The ubiquitous penetration of militarism and nuclearism into local, state, regional, national and transnational institutional systems, briefly mapped above, was starkly portrayed in microcosm in Paul Loeb's 1982 study of life in Washington state's aptly named Hanford Nuclear Reservation, where the Hiroshima and Nagasaki bombs were developed.

Half the size of Rhode Island, on the banks of the now radioactively polluted Columbia River, Hanford is the largest atomic energy complex in the world. In his recent book **Atomic Days** Counterpunch editor Joshua Frank describes it as "a sprawling wasteland of radioactive and chemical sewage, a landmass three times larger than Lake Tahoe. It's also the costliest environmental remediation project the world has ever seen and, argueably, the most contaminated place on the entire planet."

Frank goes on,

> "Not only is the site laced with huge amounts of radioactive gunk, but all that waste is also a ticking timebomb that could erupt at any given moment, creating a nuclear Chernobyl-like explosion, resulting in a singular trajedy unlike anything the United States has ever experienced. It's a real and frightning possibility…."

Out of sight and out of mind for most Americans, the Hanford complex is emblematic of the virtually eternally toxic legacy of the Atomic Age.

With its ongoing stream of government contracts, Hanford is also a key hub of economic activity in the region. It is served by a cluster of what are effectively 'company cities' in the region, the bulk of whose residents are multi-generational employees of The Reservation, or

of the plethora of local businesses, civic organizations and instructions supporting it.

Local culture and ubiquitous mushroom cloud iconography, with the town tavern the Atomic Ale Brewpub serving Plutonium Porter, and its local high school sports teams called “The Bombers,” makes Hanford also an emblematic microcosm of the degree to which nuclear culture can be internalized and normalized by an enveloped population.

Loeb’s book, **Nuclear Culture – Living and Working in the World’s Largest Atomic Complex,** records his extensive interviews with workers, scientists, managers and housewives making up the region’s essentially captive population.

Tellingly, the names have been changed to protect the interviewees.

Quoth the Raven, Livermore

National Ignition Facility, Lawrence Livermore National Laboratory (LLNL), Livermore, CA. – present5.com

The University of California-run Lawrence Livermore National Laboratory in Livermore, California is a key node in the U.S. nuclear weapons complex.

Together with Los Alamos National Laboratory in New Mexico, its scientists and technicians are credited with having designed every nuclear weapon in the United States arsenal, as well as making significant contributions to the development of supercomputers, AI, and other leading edge technologies.

The Lab’s website once humbly billed it as “The Smartest Place on Earth.” In 2019 it was

honored with a Glassdoor Employees' Choice Award, recognizing the Lab as one of the Best Places to Work, as rated by its own happy employees.

As the home of the National Ignition Facility (NIF), Livermore Lab is a locus of the USA's Nuclear Weapons Stockpile Stewardship Program, whose mission is to maintain the 'readiness' of America's nuclear weapons arsenal, albeit without atmospheric or underground testing. The NIF approach is to do small-scale, 'bench-top' simulation tests using high-powered lasers.

Fusion Confusion

Recently mainstream and social media alike have been breathlessly reporting on a reported 'breakthrough' in the development of nuclear fusion technology at Livermore, touting it as a potential commercial nuclear energy innovation that will be our last minute rescue from climate change.

Less enthusiastic commentators observe [Here, Here & Here] that the touted 'milestone' development has more relevance to detonating a new generation of thermonuclear bombs than to saving the world from climate change. Despite the fact that there is no likelihood that fusion energy production to be scaled up in time to be deployed in the face of looming climate change, the media euphoria persists.

Like its counterpart in biological weapons research, NIF's nuclear fusion research is characterized by the term 'dual use,' meaning its discoveries can be applied both defensively and offensively. It also means that 'breakthroughs' in one area of application is also a 'breakthrough' in the other. Hence the convenient 'energy breakthrough' cover-story, a psyop designed to make research on thermonuclear weapons of mass destruction look like a quest to save the world.

The High Church of Nukes Forever

Livermore Lab has long been widely regarded as a primary citadel of America's Atomic Priesthood, adding to its quasi-religious mystique. In 1996, professed former anti-nuclear activist-turned anthropologist Hugh Gusterson published a book titled **Nuclear Rites: A Weapons Laboratory at the End of the Cold War.** His ethnographic immersion in the Lab's culture had given him a transformative 'Come-to-Jesus' conversion experience. His findings might be most succinctly expressed by the phrase, "self-described 'nukies' are really nice people, too." See this.

Gustafson analyzed the ethics and politics of laboratory personnel, reverently describing their in-house customs and regimented behaviors and protocols as "rituals of initiation and transcendence." His personal descriptions portrayed Livermore scientists coming to identify in an almost erotic or religious way with the power of the mass destruction devices they design and create – and which, he reported in a respectful tone, they do not fear.

Can you say the word "denial"?

According to Gustafson, many Lab employees are devout Christians motivated by high ideals who are personally disturbed by some fellow church members' condemnation and opposition to their work. Apparently they daily ask themselves, 'What kind of thermonuclear weapons of mass destruction would Jesus build?'

With the 'value-free,' cultural relativist attitude of the well-indoctrinated anthropologist, Gustafson found there to be many commonalities of idealistic motivation shared by the Lab's ardent nukies and the protestors persistently demonstrating outside the facilities well-guarded gates.

In his research anthropologist Hugh Gusterson asked a senior Livermore Lab official about the purpose of the NIF's laser program, the official responded, 'It depends who I'm talking to… One moment it's an energy program, the next it's a weapons program. It just depends on the audience'.

That's the ominous meaning of the term 'dual use.'

Persistent Resistance at Livermore to a 'New Nuclear Arms Race'

Livermore's importance as a key hub in the U.S. thermonuclear weapons production complex has made it ground zero for yearly protests and teach-in rallies for decades, organized by Tri-Valley Cares, the Western States Legal Foundation, and others.

EON has documented many such events at Livermore on our YouTube Channel. A 2019 address by Danial Ellsberg, 'Designing Armageddon,' remains relevant today.

Triplets Joined at the Hip – The Commercial/Military/Radwaste Connection

As reported in previous articles (here & here), ever since the heady days of Atoms for Peace and the dream of 'energy too cheap to meter,' nuclear proponents have been at pains to pooh-pooh any necessary connection between commercial nuclear power and nuclear weapons production. However, nuclear power advocates like former U.S. Energy Secretary Ernest Moniz have now reversed course and are currently arguing that a commercial nuclear power infrastructure and trained labor force are vital to the maintenance of America's nuclear navy and its proudly published military doctrine of Full Spectrum Dominance (FSD).

Moniz is the President and CEO of the Energy Futures Initiative. The EFI issued a 2017 report titled, *The U.S. Nuclear Energy Enterprise: A Key National Security Enabler,* making clear the joined-at-the-hip symbiosis of the nuclear power and weapons industries.

Moniz and the EFI are currently celebrating the nuclear-industry-friendly Inflation Reduction Act (IRA), signed into law last month by President Biden.

All this is in the context of the looming threat of nuclear war resulting from the escalating NATO-Russia confrontation in Ukraine.

As the Nuclear Information and Resource Service (NIRS) reports, "The IRA has an estimated $100 billion or more in provisions that fund and incentivize nuclear power. These provisions steal resources from real climate and environmental justice solutions and perpetuate the polluting, corrupt status quo. The entire nuclear fuel chain still relies on fossil fuels, contaminates communities across the country and around the world, and generates forever-deadly waste." The NIRS analysis of the IRA is here.

A Self-Driving Nukes Race Has Begun

> "Autonomous nuclear weapons introduce new risks of error and opportunities for bad actors to manipulate systems. Current AI is not only brittle; it's easy to fool. A single pixel change is enough to convince an AI a stealth bomber is a dog." – Zachary Kallenborn – Bulletin of Atomic Scientists

Chatbots, Warbucks and Warbots

ChatGPT is being hyped as a cutting-edge new 'helper bot' by the Elon Musk-backed tech firm OpenAI. Sott.net reports that "Microsoft on Monday announced a new multiyear, multibillion-dollar investment with ChatGPT-maker OpenAI."

According to the New York Post, "This superhuman tech can do a variety of complicated tasks on the fly, from composing complex dissertations on Thomas Locketo drafting interior design schemes and even allowing people to converse with their younger selves."

Wow! Do you suppose this wondrous technology could maybe get weaponized with malicious intent?

You bet it can…And it is.

In 2021 Henry A. Kissinger, Eric Schmidt, Daniel Huttenlocher co-authored a book titled **The Age of AI And Our Human Future.** As you might expect, these guys are arch AI boosters. **Critics pointed out** that,

> "Its title alone—*The Age of AI: And Our Human Future*—declares an epoch and aspires to speak on behalf of everyone. It presents AI as an entity, as superhuman, and as inevitable—while erasing a history of scholarship and critique of AI technologies that demonstrates their limits and inherent risks, the irreducible labor required to sustain them, and the financial incentives of tech companies that produce and profit from them."

The reviewers objected that adoption of AI by the military is presented by the three authors as an inevitability, instead of as an active policy choice that involves ethical complexities and moral trade-offs.

Now, just months later, the war in Ukraine has brought those complexities and trade-offs to the front and center.

The Expose' **reports** that, "On 30 June 2022, **NATO announced** it is creating a $1 billion innovation fund that will invest in early-stage start-ups and venture capital funds developing "priority" technologies such as artificial intelligence, big-data processing, and automation."

The story by Rhoda Wilson also notes that "The US Department of Defense requested $874 million for artificial intelligence for 2022." Of course European countries, China – and no doubt Russia – are rushing to keep up. Nuclear-armed countries in a warbot race puts the nuclear arms race on steroids. Multiple contending NukeBot forces – that can mistake a dog for a stealth bomber – making nano-second decisions based on a pixel. Armageddon Man has sprouted another head.

This new autonomous nukes race is a potential windfall for Big Tech giants like Peter Thiel's

Palantir, but also for aspiring newcomers to Silicon Valley.

Last July Melissa Heikkilä penned an article in the MIT Technology Review titled **Why Business is Booming for Military AI Startups**.

She points out that, "Ultimately, the new era of military AI raises a slew of difficult ethical questions that we don't have answers to yet."

She interviews Kenneth Payne, who leads defense studies research at King's College London and is the author of the book **I, Warbot: The Dawn of Artificially Intelligent Conflict**. He says that a key concept in designing AI weapons systems is that humans must always retain control. But Payne believes that will be impossible as the technology evolves.

> "The whole point of an autonomous [system] is to allow it to make a decision faster and more accurately than a human could do and at a scale that a human can't do," he says. "You're effectively hamstringing yourself if you say 'No, we're going to lawyer each and every decision.'"

If It's AI, It's Hackable – Self-Driving Nukes?

Award-winning reporter Eric Schlosser's 2014 book **Command and Control** and the eponymous Oscar-shortlisted **documentary based on it**, directed by Robert Kenner, showed how the history of the U.S. nuclear arsenal is studded with examples of how both serious human error and courageous interventions by individual human intelligence have repeatedly risked and saved the world from thermonuclear destruction. That was then and this is now, when displacing humans with AI algorithms is under serious (and insane) consideration.

Mikko Hypponen is a Finnish global cyber security expert whose thirty-year career has coincided with the growth of the criminalization of the internet. In his recent book, **If It's Smart, It's Vulnerable**, he gives a flyover of the developmental stages of cybercrime from viruses, to worms, to malware, to ransomware, to Stuxnet and beyond.

> "Question: How many of the Fortune 500 are hacked right now?
>
> "Answer: 500"

That's the way Hypponen sets up his basic contention from a lifetime of cyber security sleuthing: "If a company network is large enough, it will always have vulnerabilities, and there will always be something odd going on…" making it possible for the system's security measures to be "…breached by attackers."

With that as background, the prospect of giving AI warbots the codes to the world's nuclear weapons arsenals is clearly just one more suicidal societal concession to Armageddon Man.

Up, Up and Away – Nukes in Space

Another key aspect of the U.S. military's Full Spectrum Dominance doctrine is the growing belief in some circles that "space nuclear is going to be the future."

That statement comes from Alex Gilbert, Director of Space & Planetary Regulation at the Washington, D.C.- based Zeno Power. Karl Grossman reports that, in an August 4th webinar

of the American Nuclear Society, Gilbert announced, “we are at a unique moment. I call it a space opportunity.” He went on, ““we could actually see exponential growth. Right now the space economy is around $400 billion globally. By the middle of the century it could be $4 trillion.”

His view was echoed by Kate Kelly, director for Space and Emerging programs at the Lynchburg, Virginia-based company BWXT Advanced Technologies. Kelly said that the use of nuclear power in space has arrived at an “inflection point.” She explained, ““Over the last several years there’s been this re-emerging interest and investment by the government in fission systems for in-space power and propulsion.”

In a prescient 2014 article titled **The Pentagon’s Strategy for World Domination: Full Spectrum Dominance, from Asia to Africa,** Bruce Gagnon, the Coordinator of the Global Network Against Weapons & Nuclear Power in Space, described the likely outcome of the NATO strategy of encircling Russia and infiltrating Ukraine.

He wrote, “The entire US military empire is tied together using space technology. With military satellites in space the US can see virtually everything on the Earth, can intercept all communications on the planet, and can target virtually any place at any time. Russia and China understand that the US military goal is to achieve “full spectrum dominance” on behalf of corporate capital.

“Using new space technologies to coordinate and direct modern warfare also enables the military industrial complex to reap massive profits as it constructs the architecture for what the aerospace industry claims will be the “largest industrial project” in Earth history.”

A recent Space.com story says that NASA will join DARPA’s Demonstration Rocket for Agile Cislunar Operations, or DRACO, pictured in the artist’s conception image above. NASA Deputy Administrator Pam Melroy said,

> “NASA has a long history of collaborating with DARPA on projects that enable our respective missions, such as in-space servicing. Expanding our partnership to nuclear propulsion will help drive forward NASA’s goal to send humans to Mars…. DRACO will be a critical part of evaluating the technologies that will take us deeper into the solar system…. Our intent is to lead and develop a blueprint for human exploration and sustained presence throughout the solar system. That is a very important goal. And we think that these advanced technologies will be a critical part of it.”

So, it becomes clear that the over-arching context for the current nuclear revivalism craze is that commercial and military nuclearism are mutually co-dependent and, in fact, joined at the hip with radioactive waste production.

Nukes Forever Dreams that Will Not Die – the Hydra Heads of Armageddon Man

In addition to the persistently recurring, consistently unfulfilled fever dream – mentioned above – of sustainable and commercially scalable nuclear fusion, three other hopes spring forever in the hearts and minds of dedicated revivalists:

Useless Breeders

According to a 2019 Stanford University report on **The Rise and Fall of Plutonium**

Breeder Reactors, the notion of a so-called "breeder reactor"- a plutonium-fueled nuclear reactor that could produce more fuel than it consumed – is at least as old as the Manhattan Project.

Frank von Hippel, one of the report's eight distinguished co-authors, explains that it "looks at the experience and status of breeder reactor programs inFrance, India, Japan, the Soviet Union/Russia, the United Kingdom and the United States." He notes that. "The problems described in the country case studies in the following chapters make it hard to dispute Admiral Hyman Rickover's summation in 1956, based on his experience with a sodium-cooled reactor developed to power an early U.S. nuclear submarine, that such reactors are "expensive to build, complex to operate, susceptible to prolonged shutdown as a result of even minor malfunctions, and difficult and time-consuming to repair."

The 2019 Stanford Report concludes:

> "The breeder reactor dream is not dead but it has receded far into the future. In the 1970s, breeder advocates were predicting that the world would have thousands of breeder reactors operating by now. Today, they are predicting commercialization by approximately 2050. In the meantime, the world has to deal with the legacy of the dream; approximately 250 tons of separated weapon-usable plutonium and ongoing — although, in some cases struggling — reprocessing programs in France, India, Japan, Russia and the United Kingdom.…
>
> "Although there are safety issues generic to liquid metal fast reactors, it does not appear that they were the predominant reasons for the demise of the breeder program in the United States. More important were proliferation concerns and a growing conviction that breeder reactors would not be needed or economically competitive with light-water reactors for decades, if ever. Under GNEP [Global Nuclear Energy Partnership], the DOE expressed renewed interest in fast reactors, initially as burner reactors to fission the actinides in the spent fuel of the light-water reactors. So far, the new designs are mostly paper studies, and the prospect of a strong effort to develop the burner reactors is at best uncertain. The Obama Administration has terminated the GNEP Programmatic Environmental Impact Statement and efforts by DOE to move to near-term commercialization of fast reactors and the closed fuel cycle for transmutation of waste. As this report went to press, it was debating whether to even continue R&D on fast-neutron reactors. The economic and nonproliferation arguments against such reactors remain strong."

Reprocessing

Another enduring **Dumb Idea** with contra-indications supplied by years of bitter experience is that of 'reprocessing,' an option the Union of Concerned Scientists dismisses as "**Dangerous, Dirty and Expensive.**"

They explain,

> "Reprocessing is a series of chemical operations that separates plutonium and uranium from other nuclear waste contained in the used (or "spent") fuel from nuclear power reactors. The separated plutonium can be used to fuel reactors, but also to make nuclear weapons. In the late 1970's, the United States decided on nuclear non-proliferation grounds not to reprocess spent fuel from U.S. power reactors, but instead

> to directly dispose of it in a deep underground geologic repository where it would remain isolated from the environment for at least tens of thousands of years.
>
> "While some supporters of a U.S. reprocessing program believe it would help solve the nuclear waste problem, reprocessing would not reduce the need for storage and disposal of radioactive waste. Worse, reprocessing would make it easier for terrorists to acquire nuclear weapons materials, and for nations to develop nuclear weapons programs."

The Institute for Policy Studies' Robert Alvarez agrees. In a post titled, "**Reprocessing Spent Nuclear Fuel Too Risky**," he notes:

> Proponents say that reprocessing used reactor fuel is vital to the growth of nuclear power because it would reduce waste that needs to be stored deep underground.
>
> Sen. John McCain, a prominent supporter of nuclear reprocessing, pointed to France, where he said that reprocessing has been going on "for many, many years without any accidents or difficulties or problems."
>
> Yet behind the rhetoric are stark facts:
>
> • A reprocessing facility would become a dump for the largest, most lethal source of high-heat radioactivity in the United States and possibly the world.
>
> • Reprocessing does not significantly reduce the amount of radioactive waste that has to be buried.
>
> • The cost of nuclear recycling rivals the recent bailout of Wall Street investment banks.
>
> The first major problem with reprocessing is that it doesn't come close to solving the challenge of nuclear waste. In fact, as a reprocessing facility chops and dissolves used fuel rods, it releases thousands of times more radioactivity into the environment than nuclear reactors and generates several dangerous waste streams. Denmark, Norway, and Ireland have sought the closure of reprocessing plants in France and Great Britain because of radioactive waste washing up on their shores. Just a few grams of waste would deliver lethal radiation doses in a matter of seconds in a crowded area.

Nevertheless, the journalistic shills for Armageddon Man's dual-use industry continue to post articles with titles like, "**U.S. Spent Nuclear Fuel Reprocessing May Be Making a Comeback**," or the plaintive, "**Why Won't the U.S. Reprocess Spent Nuclear Fuel?**"

'Advanced Nuclear Reactors'

Finally comes the current '**Hot** (*in more ways than one*) **Thing**,' advanced nuclear reactors – mostly in the form of Small Modular Reactors.

Polaris Market Research reports,

> The global small modular reactor market was valued at USD 9.54 billion in 2021 and is expected to grow at a CAGR of 3.6% during the forecast period. The low cost of Small Modular Reactors (SMRs) on account of the modularization and factory construction, along with the growing interest in small and mid-sized reactors due to their ability to

meet the need for power generation, is positively influencing the market.

According to **Forbes**, 'smart' investors from Bill Gates to Kris Singh to the governments of Canada and Alberta are in a mass murmuration swooping toward SMRs.

Howsomever, as Arjun Makhijani of the Institute for Energy and Environmental Research (IEEF) explains, "**Small modular reactors are not going to save the day**."

A May, 2022 study published in Proceedings of the National Academy of Sciences by Lindsay Krall, Rodney Ewing and former NRC Chair Allison Macfarlane, titled **Nuclear Waste from Small Modular Reactors** agrees:

> "Small modular reactors (SMRs), proposed as the future of nuclear energy, have purported cost and safety advantages over existing gigawatt-scale light water reactors (LWRs). However, few studies have assessed the implications of SMRs for the back end of the nuclear fuel cycle. The low-, intermediate-, and high-level waste stream characterization presented here reveals that SMRs will produce more voluminous and chemically/physically reactive waste than LWRs, which will impact options for the management and disposal of this waste. Although the analysis focuses on only three of dozens of proposed SMR designs, the intrinsically higher neutron leakage associated with SMRs suggests that most designs are inferior to LWRs with respect to the generation, management, and final disposal of key radionuclides in nuclear waste."

Flockinng investors beware.

The Iron Law of Regulatory Capture

Commercial nuclear power's role as 'enabler' of the nuclear weapons complex and America's Nuclear Navy no doubt contributes to the friendly, even lax attitude toward its regulatory agencies over the years.

The take-over of state and federal regulatory agencies by the very industries they are mandated to manage is a well-documented phenomenon with its own extensive literature rife with explanatory models and theories about incentives, revolving-door officials and the seemingly endemic tendency to un-reformable corruption.

In 2006 Werner Troesken published a paper in a National Bureau of Economic Research publication 'Corruption and Reform: Lessons from America's Economic History' entitled **Regime Change and Corruption. A History of Public Utility Regulation.** In it Troesken looked at the history of public utilities commissions and wondered why, despite both public and private attempts at reform, utility regulation seems always to lapse into corruption. Here's how he describes his inquiry and its findings in what might be called Troesken's Iron Law of PUC Corruption:

> "First, corruption is endemic to public utility industries; corruption exists, in some form, across all regulatory and ownership regimes. Second, regime change in utility industries does not eliminate corruption; it only alters the type of corruption observed. Third, for any type of governance regime (e.g., state regulation or municipal ownership) corruption grows increasingly severe over time and, at some point, becomes politically untenable…." pg. 260

> "Based on the historical evidence presented above it appears that corruption, and the

> necessity to eliminate corruption when it gets too costly, accounts for the efficacy of regime change. In this context, the direction of regime change—from public to private, or private to public—is of second-order importance. What matters is some radical reshuffling of the institutional matrix to disrupt the underlying corrupt relationships. Unfortunately, this disruption is only temporary, and gradually new forms of corruption emerge and must again be broken down by institutional change." Pg. 278

The main attention of this field of scholarship is focused on so-called 'natural monopolies' like the giant investor owned utility corporations known by the ironically appropriate acronym IOUs.

The symbiotic relationship between the Nuclear Regulatory Commission (NRC) and the nuclear IOUs it putatively 'regulates' is embodies in the way the agency is funded. A federal law passed in 1990 requires about 90 percent of the NRC's budget to come from fees charged to those regulated by the agency. The NRC has a defined system of 'fees' that it charges IOUs for its 'services,' like on-site inspectors, or reviewing applications for license extensions or exemptions. The IOUs don't pay those fees out of their profits, they pass them on to their ratepayers as an operating expense. So, in effect, the 'regulatory agency,' is dependent for its funding, not on Federal tax-payers for whose interests it is supposedly protecting, but to the private corporations whose actions it is supposedly rigorously regulating.

It is this symbiotic, co-dependent, shell-game system that makes the NRC's relationships to the IOUs so murky and vulnerable to apparent compromise and corruption.

Personal examples come from years of reporting are the California Public Utilities Commission (CPUC) and the NRC.

In a nutshell, the pattern is – if a putative 'regulatee' finds it too expensive or inconvenient to comply with an existing regulation or law, then the regulator will change it or grant an exemption.

One person with a life-long career of witnessing this process is the late engineer, attorney, and author, S. David Freeman. In his long, contentious, and accomplished career Freeman headed a number of energy organizations, including the Tennessee Valley Authority, New York Power Authority, Sacramento Municipal Utility District and the Los Angeles Department of Water and Power (LADWP). He holds the record for shutting down more power reactors than any other utility administrator.

One of his last accomplishments before his death in 2020 was to help negotiate a model agreement for the orderly shutdown of PG&E's Diablo Canyon two reactor plant, an agreement now in the process of being abrogated by nuclear revivalists and a compliant NRC.

In a 2012 interview for our forthcoming documentary The San Onofre Syndrome, Mr. Freeman had this to say about the NRC: "I don't think that it's possible for the Nuclear Regulatory Commission to ever change its habits of being mainly a puppy dog rather than a watchdog. Because of the influence of the industry – as a matter of fact – you don't get confirmed nowadays to be on the Nuclear Regulatory Commission unless you "believe" in nuclear power."

Plus the nuclear industry provides 70% of the NRC's budget.

The Elements of Cultism

As we have seen, the striking similarities of the quasi-religious nuclear culture mystique to various forms of true believer cultism have been obvious from the beginnings of what Hertzgaard dubbed the American Nuclear Brotherhood. Karl Grossman interviewed a number of nuclear safety advocates on the topic in a 2012 article titled **The Nuclear Cult**.

Some commonly cited sociological characteristics of cults include:

1. Authoritarian, doctrinaire leadership

2. Unquestioning compliance and obedience on the part of in-group members

3. **Shared belief in a rigid orthodoxy or ideology**

4. Claims of superior, expert knowledge – conviction of sharing knowledge of the 'Real Scientific Facts'

5. Redoubling assertions of certainty in the face of undeniably contradictory events

6. Opposition to informed dissent and Independent thinking on the part of group members

7. Orchestrated peer and institutional pressures for enforcement of conformity

8. Expulsion, defamation and persecution of dissidents.

All of these behaviors can be observed in the nuclear revivalist community.

Revivalism's Two Camps – Legacy & Neo-Nuclearists

The senior generation of post-Cold War nuclear proponents motivated by an ideology focused on national security and global competitiveness has now been joined by a younger generation, who are innocent of the energy-weapons connection. They're motivated instead by the belief that – despite massive evidence to the contrary – nuclear energy is necessary to save the world from climate change. The same commitment to cultish orthodoxy still seems to obtain with this cohort, many of whom have grown up being constantly exposed to text books and curricular programs designed and supplied by the nuclear industry to portray nuclear energy as 'clean, green, non-polluting and carbon-free,' an egregiously false narrative that will be discussed below.

A 2021 New Yorker article titled **The Activists Who Embrace Nuclear Power** By Rebecca Tuhus-Dubrow profiled three members of this new breed of revivalists. Michael Shellenberger of the Breakthrough Institute is described as "a controversial figure, known for his pugilistic defense of nuclear power and his acerbic criticism of mainstream environmentalists," i.e., those advocating for renewables.

After seeing Shellenberger featured in the pro-nuclear film 'Pandora's Promise," and hearing him speak, two young women, Heather Hoff and Kristin Zaitz joined the fight to 'Save Diablo

Canyon' and co-founded a small non-profit called Mothers for Nuclear, "which argues that nuclear power is an indispensable tool in the quest for a decarbonized society."

The group's cheery website features images of happy moms and their little kids and proclaims its aim of having "a dialogue with others who want to protect nature for future generations."

Nuclear revivalism is no longer a cult exclusively for gray hairs.

Swept Under the Cognitive Carpet – The Unsolvable Becomes the UnSpeakable Becomes the Invisble

Left out of the new nukes and revivalist happytalk – except for standard Pollyanna reassurances – are the basically unsolvable problems of **1) Proliferation, 2) Pollution, 3) Permanent Waste Sequestration**, and 4) **Poisoning the DNA Pool** of all the planet's life forms. Call them the Four Poisonous P's of the Plutonium (Pu) Economy.

1. Proliferation

The symbiotic co-dependence between nuclear energy and weapons production – long denied since Atoms for Peace days, but now, as discussed above, being employed as a rationale for nuclear revivalism – has never really been a secret. Ipso facto a nation with nuclear energy production capability is a potential nuclear weapons state. Add to this the fact, illustrated by recent events at Ukraine's Zaporizhzhia complex, that ***every nuclear reactor and radioactive waste storage site are nuclear bombs-in-place*** waiting to be targeted by any adversary with access to conventional explosives or projectiles.

But add to this the currently notion being bandied about of 'Usable or Low Yield Nuclear Weapons'. It was a concept introduced under the Trump Admistration in 2019, and remains in the Biden Administration's 2022 Nuclear Posture Review (NPR).

The Campaign for Nuclear Disarmament (CND) and Beyond Nuclear report that,

> In October, the Biden administration published its 2022 Nuclear Posture Review (NPR), much later than expected. The delay was reportedly due to differences over significant aspects of US nuclear policy.
>
> Biden's stated position during his election campaign indicated that former President Trump's new nuclear weapons would be abandoned, that reliance on nuclear weapons within US military strategy would be reduced, and that arms control would be revived.
>
> He also indicated he would move towards a 'no-first-use' and 'sole purpose' policy for nuclear weapons; 'sole purpose' means that 'deterring' and responding to a nuclear attack would be the sole purpose of the US nuclear arsenal rather than the current nuclear posture which envisages its potential use against a range of threats, including an overwhelming cyber-attack.
>
> The document falls far short of the hoped for changes. Trump's submarine-launched cruise missile system is being cancelled, and the B83-1 gravity bomb is being retired, but Trump's 'usable' nuke, the W76-2, is being retained, in spite of it being described as 'unnecessary, wasteful and indefensible' in the Democratic Party manifesto.

No-first-use and sole purpose have not been adopted, and full-scope 'Triad' replacement and other nuclear modernisation programmes are taking place.

Despite its Non-Proliferation Treaty obligations, the US seems once again to be leading the way to the normalization of … nuclear weapons proliferation.

2. Pollution

Out-of-sight and out-of-mind are the routine radioactive and toxic chemical emissions into surrounding air and aquatic environments involved in the normal day-to-day operation of all nuclear power plants. Giving the lie to claims of 'clean, green, non-polluting and carbon-free' is the fact that the entire nuclear cycle from mining and milling to supply chain transport to waste management are heavily carbon intensive.

With the exception of Arizona's Palo Verde Generating Station – which uses treated sewer water from surrounding communities for cooling – nuclear power plants are uniformly located on rivers, lakes and oceans. Thousands of gallons of water from these sources are circulated daily through these plants for cooling and released back into the marine environments at much higher temperatures than when they went in. The harmful impact of these releases on aquatic life is extensively documented. Add to this the hundreds of radioactive contaminants – including radioactive Carbon-14 – being routinely spewed in gaseous forms into the atmosphere.

And then there's the fog of tritium that surrounds each operating nuclear power plant. Dr. Ian Fairlie, a specialist on radiation in the environment, explains, "Nuclear facilities emit very large amounts of tritium, 3H, the radioactive isotope of hydrogen. Much evidence from cell/animal studies and radiation biology theory indicates that tritium is more hazardous than gamma rays and most X-rays.... Tritium's exceptionally high molecular exchange rate with hydrogen atoms on adjacent molecules makes it extremely mobile in the environment. This plus the fact that the most common form of tritium is water, i.e., radioactive water, means that, when tritium is emitted from nuclear facilities, it rapidly contaminates all biota in adjacent areas. Tritium binds with organic matter to form organically bound tritium (OBT) with long residence times in tissues and organs making it more radiotoxic than tritiated water (HTO). Epidemiology studies indicate increases in cancers and congenital malformations near nuclear facilities. It is recommended that nuclear operators and scientists should be properly informed about tritium's hazards; that tritium's safety factors should be strengthened; and that a hazard scheme for common radionuclides be established."

Indian Point and Pilgrim as a Case-in-Point – Decom and Radwaste Management as a 'New Asset Class' and Profit Sector…for Radwaste Vulture Capitalists

As aging reactors are shutdown at the end of their design lives and operating license agreements, they become the focus of what might be called "The Radioactive Demolition Derby." All the components of the worn-out plant – both above ground and sub-surface infrastructures, most of them radioactive – must be carefully disassembled into manageable chunks of rubble in order to be carted away to 'Somewhere Else.'

This effectively doubles the contaminated area, since it is impossible to ever completely remove all radioactive particles at the original site, despite industry assurances. Plus transporting the contaminated substances inevitably involves leakage and small particle disbursal along the way. By 'diluting' the percentage of intensely radioactive materials with

less contaminated rubble, much the radioactive garbage is allowed to be dumped into regular municipal garbage dumps. This can create radioactive leachate into nearby streams and groundwater.

Radwaste Vulture Capitalists

Such a large-scale, long-term enterprise needs an industry of ambitious, risk-taking entrepreneurs. Create the need, and they will come. And indeed they have. Call them Radwaste Vulture Capitalists.

The leading emblematic poster child for this new breed is Kris Singh, CEO of his family-owned globe-spanning conglomerate operating under the broad corporate umbrella of Holtec International, a privately held company exempt from public financial disclosure.

The Holtec conglomerate consists of over 20 divisions, subsidiaries and trusts under Mr. Singh's personal control, spanning across at least 8 countries from the U.S. to Europe, South America, Africa, Asia and Ukraine.

Two of Holtec's many projects around the U.S. and the world is the decommissioning of the recently shuttered Indian Point and.Pilgrim nuclear plants – one on the Hudson, one on Cape Cod Bay.

The Indian Point Safe Energy Coalition (IPSEC) has assembled revealing company profiles for Holtec and its Canadian counterpart SLC-Lavalin. Holtec's rap sheet includes convictions for bribery, tax fraud in at least two states, and a record of dubious manufacturing quality control, faulty reporting to the NRC, and multiple instances of labor abuse.

Singh's vision seems not only to command a horizontal dominance of decommissioning and radwaste storage, from the manufacture of containers to the installation and operation of Independent Spent Fuel Storage Installations (ISFSIs) at shutdown plants, to the construction and operation of Consolidated Interim Storage (CIS) facilities. It also aims to capture the market for manufacture of a proposed new generation of so-called Small Modular Reactors (SMRs).

The two key circumstances underlying Holtec's decommissioning. business model are these:

Access to Huge Decommissioning Trust Funds

Each utility's nuclear generating station has a Decommissioning Trust Fund (DTF) built up from required rate-payer contributions over the years of the plant's operation.

These range from many millions of dollars to many billions for each nuclear power site.

The original intention behind the DTF was that, once the plant is shut down, the accumulated funds would be used to cover the costs demolishing the plant, disposing of the rubble (most of it radioactive), theoretically returning the site to 'greenfield status' safe for recreation, residential development and other uses. Any DTF monies left over at the end of this process would go back to the rate-payers.

Access to Federal Reimbursement for 'Spent' Nuclear Fuel Storage Fees

The other key background context element is that, according to the Nuclear Waste Policy Act of 1982, electric utility companies that operate US nuclear reactors have contracts with

the Department of Energy (DoE) for used reactor fuel management removal. DOE was to begin moving used reactor fuel from nuclear energy facilities beginning in 1998 to deep geological storage.

The one such site that was ever developed, Yucca Mountain in Nevada, was chosen for political reasons and terminated for scientific reasons after billions had been spent.

Since no geological repository exists, utilities must maintain the 'stranded' waste on-site, and have begun successfully suing the Federal government to recover the expenses involved. This is another taxpayer funded pot of money.

Enter the Holtec business model:

- Secure the contract to to supply the components of the ISFSI – design, construction and management;
- Secure the contract to decommission the plant;
- Buy the plant;
- Seek and receive various regulation exemptions from the NRC;
- Demolish the plant quickly and cheaply with Holtec's own new HI-CUT reactor segmentation technology;
- Pocket the left-over DTF monies, instead of returning them to the rate-payers;
- If there are no DTF monies left over, have tax-payers pick up the tab;
- Sue the DoD for storing the stranded SNF;
- Establish and operate a Consolidated Interim Storage (CIS) facility;
- Secure the contract to transport the stranded SNF to the Holtec CIS, using Holtec transport casks.
- Possible intention to reprocess the 'spent' nuclear fuel

Just see how the money rolls in.

But, getting back to the **Pollution** issue, in the case of Indian Point and Pilgrim, there's another problem: what do you do with the hundreds of gallons of toxic, hugely radioactive and tritiated water now contained in the plants' fuel handling pools.

Holtec's answer is – disregarding Ian Fairlie's dire warning cited above – 'dump it in the Hudson and Cape Cod Bay,' never mind the impact to the drinking water supplies of seven near-by Hudson River communities, or to the sea life in Cape Cod's marine sanctuary.

3. Seeking Sequestration – Deep Geological Depositories, Deep Boreholes & Deep Doo-Doo

The termination of Yucca Mountain – as noted, for scientific, not political reasons – has not dampened the enthusiasm of revivalists pushing to revive Yucca Mountain or some new counterpart. But it does point to wider and deeper problems with the very concept of long-term radiological containment by means of deep burial of any kind.

In addition to deep burial caverns containing many hundreds or thousands of waste containers simultaneously, the idea of sequestering waste containers in what are termed deep boreholes has recently gained popularity in some revivalist circles. These would be dispersed both on land and under sea in rock or ocean bottom mud.

Involved with all these concepts are many of what former U.S. Defense Secretary Donald

Rumsfeld once famously termed 'Unknown Unknowns'. Here is a short list of a few of what Rumsfeld might have called the 'Known Unknowns':

- Short and long term seismic events and their outcomes are unknown
- The rate and effects of heat build-up from multiple containers of thermally hot waste over time are unknown
- The rate and effects of the build-up over time of hydrogen and other explosive gasses are unknown
- The rate and extent of container corrosion and degradation over time are unknown
- Long-lived robotic sensors for a wide range of potentially emitted elements do not exist and the possibility or rate of their development is unknown
- Any means of preventing future generation from accidentally or intentionally accessing the deadly subterranean materials are unknown

Systems analyst Donna Gilmore, who operates SanOnofreSafety.org, cites multiple government reports to support her conclusion that, "any geological repository is not feasible in the short or long term." She notes that, "The Nuclear Waste Technical Review Board December 2017 report to Congress" states spent nuclear fuel waste needs to be monitored and maintained in dry storage in a manner to prevent hydrogen gas explosions for both short-term and long-term storage. This is not currently being done and cannot be done with the thin-wall welded canisters. It can only be done with thick-wall bolted lid casks, like those used in most of the world and at some US facilities. See here.

And here.

She refers to **Rock Solid? A scientific review of geological disposal of high-level radioactive waste,** a September 2010 report for Greenpeace by Helen Wallace:

> "This overview of the status of research and scientific evidence regarding the long-term underground disposal of highly radioactive wastes, shows there is no known safe permanent solution. [emphasis added] This review identifies a number of phenomena that could compromise the containment barriers, potentially leading to significant releases of radioactivity:
>
> ■ Copper or steel canisters and overpacks containing spent nuclear fuel or high-level radioactive wastes could corrode more quickly than expected.
>
> ■ The effects of intense heat generated by radioactive decay, and of chemical and physical disturbance due to corrosion, gas generation and biomineralisation, could impair the ability of backfill material to trap some radionuclides.
>
> ■ Build-up of gas pressure in the repository, as a result of the corrosion of metals and/or the degradation of organic material, could damage the barriers and force fast routes for radionuclide escape through crystalline rock fractures or clay rock pores.
>
> ■ Poorly understood chemical effects, such as the formation of colloids, could speed up the transport of some of the more radiotoxic elements such as plutonium.
>
> ■ Unidentified fractures and faults, or poor understanding of how water and gas will flow through fractures and faults, could lead to the release of radionuclides in

groundwater much faster than expected.

■ Excavation of the repository will damage adjacent zones of rock and could there by create fast routes for radionuclide escape.

■ Future generations, seeking underground resources or storage facilities, might accidentally dig a shaft into the rock around the repository or a well into contaminated groundwater above it.

■ Future glaciations could cause faulting of the rock, rupture of containers and penetration of surface waters or permafrost to the repository depth, leading to failure of the barriers and faster dissolution of the waste.

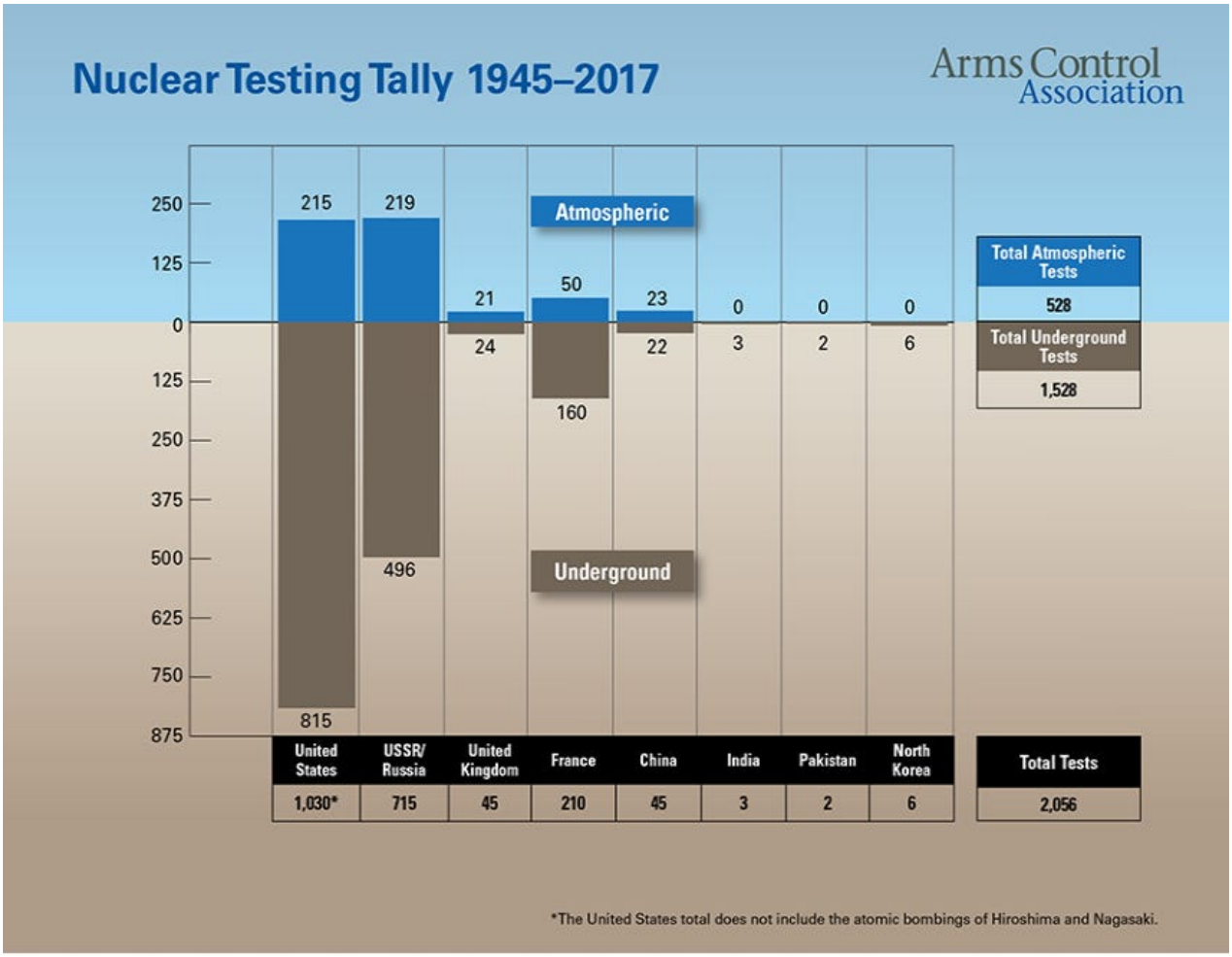
■ Earthquakes could damage containers, backfill and the rock."

It looks like the Yellow Brick Road to deep disposal / abandonment is littered with deep sinkholes – not to mention the transportation issues involved in thousands of shipments of deadly radioactive materials traveling over ill-maintained roads, rails and bridges. Barges subject to storms, running aground and capsizing are also proposed for moving these lethal loads.

Ergo: Store it where it is at reactor sites in the safest, most robust, state-of-the-art containment systems now available.

4. DNA and Environmental Damage

Massive contamination from uranium mining and nuclear energy and weapons production has already irreversibly affected the planetary environment, and the gene pools of humans and all other species. Before the Comprehensive Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, in Moscow August 5, 1963, nuclear nations had already contaminated the terrestrial and near-space environment with 528 atmospheric atomic test explosions, at least one in the Van Allen Radiation Belt surrounding the earth. 1,528 subsequent underground nuclear blasts have also vented radioactive material into the atmosphere and left radioactive contamination in the soil. According to the Arms Control Association, a total of 2,056 test of all sorts have been conducted. Most directly impacted have been indigenous populations around the world, but the entire global population continues to be affected.



Graphic: Arms Control Association

No Permanent 'Disposal' Solution Exists

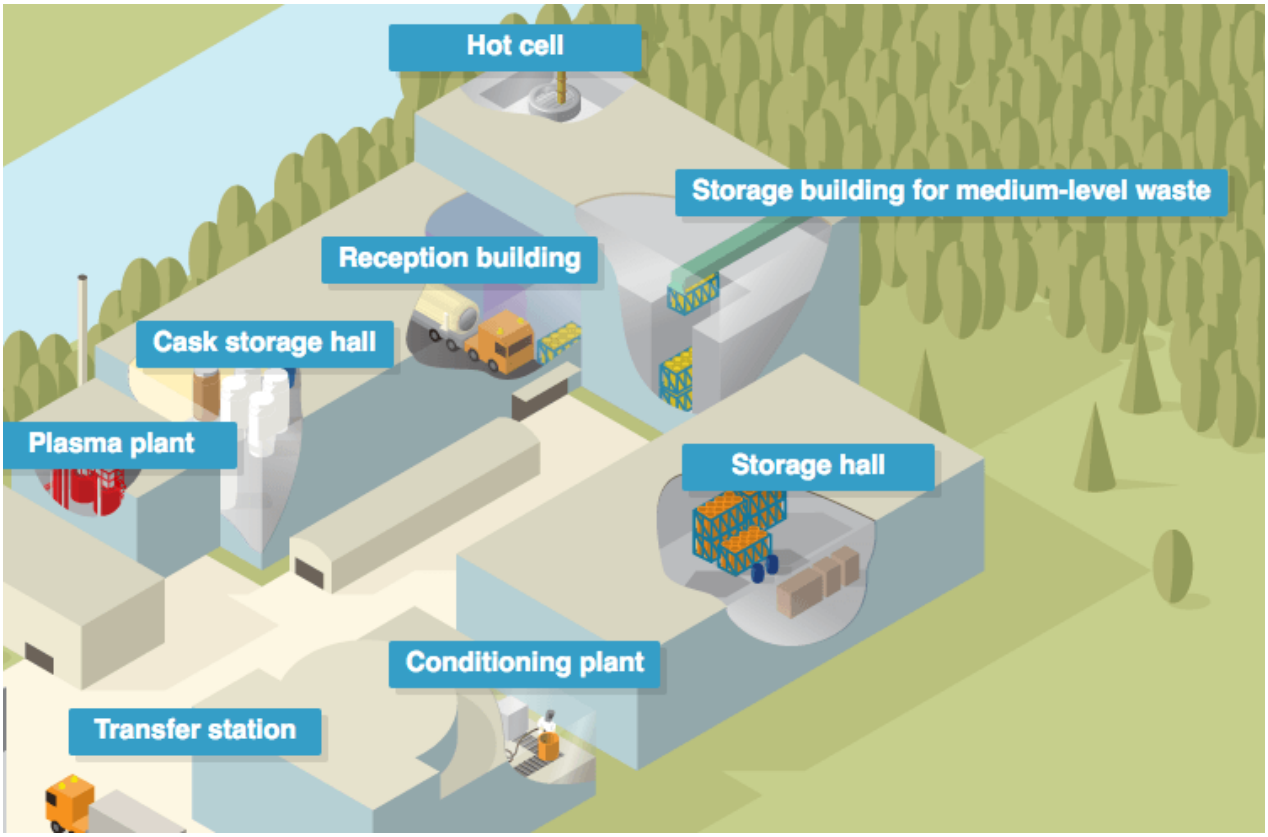
Permanent disposal of waste that remains lethal to all living things for longer than civilization has yet existed, is a challenge still unmet despite over half a century of failed attempts and empty promises. Given unpredictable earth movement, the mobility of water and the inevitable heat build-up from densely concentrated containers of highly radioactive, the thousands of tons of thermally and radioactively hot 'spent fuel' from just a few decades of reactor operation cannot be safely or permanently 'disposed' of with current technology.

The dream of deep permanent geological burial and abandonment has so far proven unworkable, and is likely to continue proving so. In the U.S., although the Department of Energy has promised to take title and possession of this waste, no central Federal storage site yet exists, nor is any on the horizon.

Thousands of tons of deadly radioactive waste from nuclear power plants are 'stranded' and unsafely stored in thin, corrosion cracking-prone steel canisters at least 85 U.S. reactor sites around the country. 92 operating U.S. reactors generate 2,000 tons more waste each year.

The Best Available Approach

The best available approach seems to be components of what the Swiss and Germans are doing. They use highly expensive construction designed to last over a hundred years: reinforced buildings with controlled-environments in which waste is stored in thick walled, robust monitorable, moveable and repairable casks.



State-of-the-Art radioactive waste containment facility – zwilag.ch

Also required at each site is a so-called dry or hot cell, a hermetically sealed facility in which damaged casks can be repaired or the waste repackaged remotely and robotically. These ‘hot cells’ are necessay because nuclear power ‘spent’ fuel assemblies are lethal to humans and exposure to oxygen must be prevented to avoid combustion and explosion.

'Dry' or 'Hot' Cell facilities make possible the remote handling of highly radioactive materials in a sealed environment, making repackaging of waste possible. – Archive photo.

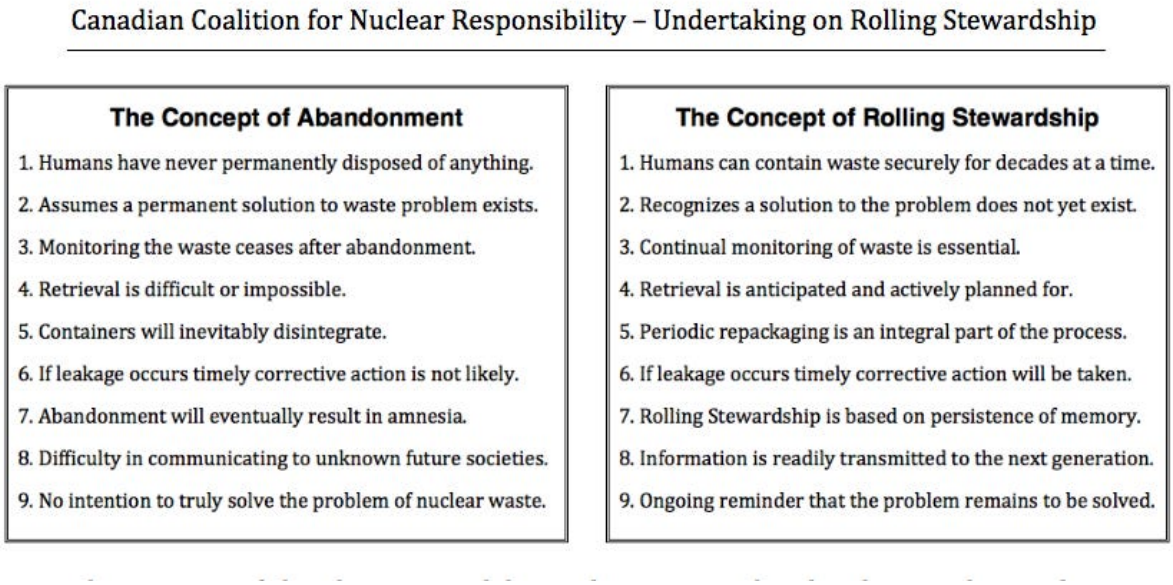
The hope for transgenerational, on-going maintenance of these types of facilities – requiring the necessary commitment, know-how and resources – is termed by advocates Rolling Stewardship. This method passes on to future generations the existentially necessary burden of dealing with the lethal legacy of just a few decades of nuclear energy production.

Long-Term Stewardship (LTS) vs. Abandonment

Dr. Gordon Edwards is the President of the Canadian Coalition for Nuclear Responsibility (CCNR) and a leading advocate for what he calls Long-Term Stewardship, or LTS. He explains,

> "Nuclear waste remains harmful for unimaginably long periods of time. Until the waste can be eliminated, it must be managed on a multigenerational basis. This implies continual monitoring and periodic retrieval and repackaging (e.g. 50 – 100 years). Rolling Stewardship implies persistence of memory : the accurate transmission of information and the transfer of responsibility from one generation to the next. For example, there could be a ceremonial "changing of the guard" every 20 years, accompanied by a thorough refamiliarization with & recharacterization of the waste.
>
> "Rolling Stewardship will ensure that leakages can be rapidly detected and corrected. It will also provide a constant incentive to improve containment and find a solution to the waste problem. But it requires meticulous planning and commitment to succeed.
>
> "The concepts of abandonment and disposal are intimately related. According to the

IAEA “disposal” means that there is no intention to retrieve the waste in the future – although such retrieval may, with difficulty, be possible; the waste is abandoned.”



Graphic source: http://www.ccnr.org/CCNR_NRC_2013.pdf

Such an ethic of long-term responsibility is absent from the mutually convolved ideologies of the two enmeshed cults and cultures we have been discussing.

Two Cults are More Powerful Than One

The same cultish behaviors itemized above in reference to nuclear revival true believers can also be observed in the behavior of members of the First Church of Permanent War for Perpetual Profit.

These two symbiotic, co-dependent, mutually intertwined cults and cultures – War Heads and Reactor Heads – are making the most of their historical moments of dominance.

Call this two-headed monster the Military-Nuclear Matrix – call them together, Armageddon Man.

The hope of this essay is that once made visible, this pernicious entity cannot go back to being unseen, and therefor unopposed, by what Eisenhower once hopefully called “an alert and knowledgeable citizenry.”

This monstrous governance model is, in fact, being challenged by at least two contesting paradigms: the transhumanist, technocratic, Great Reset corporate-centric model being promulgated by the World Economic Forum (WEF), and the decentralized, We the People-centric, deep democracy, high diversity, planetarian paradigm beginning to rise from the grass roots.

But that’s a subject for future posts.

A Parting Message from a Man Who Knew Whereof He Spoke

In the interview referenced above, the late David Freeman referred to his experiences as head of the Tennessee Valley Authority (TVA) and, later in his long career, of the

Sacramento Municipal Utility District (SMUD). It seems appropriate to close with his wise words.

"My first exposure to nuclear power as an executive was back then [at the TVA], and I found that in order to make even the NRC's safety standards, they just cost too much, and we were better off with conservation, and we had a huge energy efficiency program that was cheaper and quicker and far cleaner than nuclear power.

"Then I [later] moved on to manage the Sacramento Municipal Utility District (SMID), and the people voted to shut down the nuclear reactor there. I had the job of burying the plant. It supplied fifty percent of SMUD's power supply, and we were able to replace it without rate increases, and Sacramento was now one of the better utilities in the country -reasonable rates, and life was a whole lot better after nuclear power.

"But the thing that really changed my mind was when I visited Chernobyl five years after the accident in 1991, and I saw a monument with the name of villagers on it that were dead.

"I went out there and talked to a few people that were still hanging around, and when I talked to them about the possibility of solar power, they actually cried with joy that there was an alternative. And I met the mothers of the poor kids that were marching around on May Day, five days after the accident and were exposed because the Soviets didn't tell them about it, and I realized that this was a monster.

"And so today I feel that we got the final wake-up call at Fukushima and that we need to phase out and shut down the 104 [now 92] reactors in America.

"I will put it very bluntly: We need to kill them before they kill us."

The Denuclearization Three-Step – A Vision

1. Phase out and shutdown all nuclear reactors, including those powering all of the the world's Nuclear Navies.

2. Outlaw production and possession of thermonuclear weapons and propulsion technologies on earth, under sea, and in space.

3. Require by enforceable international treaty agreement the containment of existing radioactive waste with the best available state-of-the-art-methods, and prohibit the production of any more.

"Where there is no vision, the people perish…." – **Proverbs** 29:18-27

"The longest journey begins with a single step" – Laozi, **Dao De Jing,** Chapter 64

An action you can take to stop Armageddon Man:

The Doomsday Clock has ticked 10 seconds closer to midnight. Send an email NOW…

To: hearing.docket@nrc.gov, paul.bollwerk@nrc.gov

Subject: Proposed License Amendment Request, Nuclear Fuel Services, Docket No. 70-143

In the body of the message, include the following salutation and opening lines…

> **Honorable ASLB Panel Chair & NRC Rulemaking & Adjudications Staff:**
>
> **Thank you for your January 23, 2023 MEMORANDUM. I am submitting a limited appearance statement in order to make the Atomic Safety and Licensing Board aware of my concerns at issue in the subject proceeding.**

Then write your comments, sign off with /s/ before your name, and send ASAP.

> ***Thank you for your solidarity & for getting in the way of the bomb ~~ ECAN & APEC (Appalachian Peace Education Center's Peaceful Planet Committee)***

*

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James Heddle *Co-Directs EON – the Ecological Options Network with* ***Mary Beth Brangan****, who generously contributed ideas and research for this article. The EON feature documentary S.O.S. – The San Onofre Syndrome will be released this Spring.*

Featured image: Detail from poster for the 1981 San Francisco Mime Troup show "Factwino vs. Armageddonman"
