

MOVIE REVIEW

Nuclear Power: Use It and Have Fun!

by Richard Burden

Nuclear Now

A documentary co-written, directed, and narrated by Oliver Stone

Co-written by Joshua S. Goldstein

Release Date: September 9, 2022 (Venice Film Festival)

Production Companies: New Element Media and Ixtlan Productions

Based on the book, *A Bright Future: How Some Countries Have Solved Climate Change and the Rest Can Follow* (2020), by Joshua S. Goldstein & Staffan A. Qvist

July 16—When a Hollywood producer presents a movie that is pro-industrial growth, pro-scientific progress, pro-Renaissance and pro-human, we need to take notice and give credit to the producer for walking through a wall of fire on behalf of humanity. Oliver Stone's movie, *Nuclear Now*, doesn't qualify for such unqualified praise, but it's a start. Like Stone's other movies, it is rich in graphics and archival footage, but in polemical sharpness this one is rather disappointing.

The movie begins with an attack on the conditioning of the population to fear nuclear power and to confuse it with nuclear weapons and nuclear war, a segment which lasts slightly less than seven minutes. Then we have a minute of glaciers melting, hurricanes, and footage from the horror movies, *The Day After Tomorrow* (2004), and *Deep Impact* (1998), showing cities being inundated.

This is followed by the highlighted sentences from the written record of Congressional testimony in 1998

of Dr. James Hansen, billed as “a leading climate scientist,” followed by footage of him speaking in 2009, saying we have already reached a tipping point. Then Greta Thunberg and the Intergovernmental Panel on Climate Change (IPCC) give their psychotic warnings, and the footage turns to aerial and satellite views of night-time illumination of urban areas and daytime views of high-rise apartments with window air-conditioners, as narrator Stone laments,

Fossil fuel use is increasing because we still depend on it for one of our most basic needs: electricity. This is a bigger problem than we thought.

Here, Stone misses the point, which he senses else-



where in the movie: that nuclear power is tremendous fun, and people who are not brainwashed will prefer nuclear power for just that reason. Why mine, haul, store, and burn three million tons of coal when just one ton of fissile material will supply the same power, without consuming oxygen and without producing any exhaust gas, making it so much better for use under

water, in space, on the Moon, or in any challenging environment, and for air quality on Earth? The nuclear fission process also allows economical production of many isotopes that have many unique uses, including radioluminescent paint that is cheaper than radium and performs better, pacemaker batteries that are very safe and last a human lifetime, improved treatments for cancer, and various tracers for use in medicine and industry.

Sixteen minutes into the movie, Stone finally catches a glimmer, as he tells the story of U.S. Admiral Hyman Rickover and the Nuclear Navy. In just three years, from 1952 through 1954, Rickover designed and built the reactor for the U.S.S. *Nautilus* submarine, which, Stone says, was inspired in part by Jules Verne's classic novel, *Twenty Thousand Leagues Under the Sea*. The reactor can operate for 25 years without refueling. The submarine can stay submerged for as long as supplies of food and other supplies last.

Stone interviews Rod Adams, Commander, U.S. Navy (ret.), and publisher of the *Atomic Insights* blog, who says that a uranium fuel pellet the size of the tip of his smallest finger will provide as much power as a ton of coal, and costs but 1 to 2 dollars, compared to about \$100 for a ton of coal. The reactor operates so cleanly that it can run in a sealed submarine for months with 150 people—imagine trying to run a diesel power plant in there!¹ He says that the easiest job in the Navy is reactor operator, because all he has to do is watch it run.

Right on Radiation Nonsense

During the interview of Adams, John D. Rockefeller, Standard Oil and the Seven Sisters² are identi-



U.S. Navy

Admiral Hyman Rickover aboard the submarine USS Nautilus, the world's first nuclear-powered vessel, c. 1954.

fied as the destroyers of the dream of clean, cheap and abundant nuclear power. The movie very usefully shows how the Linear No-Threshold (LNT) Dose-Response Model was established by 1960 as the standard of radiation protection by the Rockefeller control of the National Academy of Sciences and the Biological Effects of Atomic Radiation (BEAR) Committee. It shows how this insane model causes people to dread that the slightest exposure to radiation would cause permanent and cumulative damage to genetic material, an increase in the rate of cancer among people so exposed, and an increase in birth defects in their progeny.

Oliver Stone attacks this pre-arranged finding of the BEAR Committee by stating that the human species has evolved in a world with a background radiation whole-body dose rate *averaging* around 3 millisieverts (mSv) per year, but with much higher dose rates occurring in some locations, such as a black sand beach in Brazil (rich in thorium), where people bury themselves in the sand to get a healthy dose. According to Stone, in radiation therapy for thyroid cancer, 200 mSv is delivered to the whole body and 100 sieverts to the thyroid. This is the very type of cancer that nuclear accidents are supposed to *cause*; radioactive iodine-131 ingested and accumulating in the thyroid was supposed to be the main cause of excess cancer deaths resulting from the 1986 Chernobyl accident.

Stone shows how the “oil and gas industry” hijacked the Sierra Club, which had supported nuclear power as a way of conserving wild lands by reducing the need for coal mining, oil and gas drilling, and hydroelectric dam construction. Rod Adams says that David Brower left the Sierra Club and joined the anti-nuclear Friends of the Earth, after receiving \$200,000 from Robert O. An-

formed in 1951 at the suggestion of the U.S. State Department in response to Iran's nationalization of its oil industry.

1. Diesel-powered submarines use battery power while fully submerged, which limits their power, range and time underwater.

2. See [Oilfield Wiki](#). The Seven Sisters were members of a consortium

derson, who was CEO of Atlantic Richfield (ARCO), from 1966 to 1985.

Wrong on the Nuclear Rationale

Had Oliver Stone read what *EIR*'s Claudio Celani wrote about the assassination of Italy's Enrico Mattei,³ he could have realized that Rockefeller and the Seven Sisters and R.O. Anderson⁴ are more about controlling oil and gas as a means of subjugating humanity, than producing and selling oil and gas; they see nuclear power not as threatening to make their business obsolete, but as a threat to their control over people. The cause of nuclear power is much better served by telling the whole, horri-

China burns coal for California, to make the goods that California—which does not burn coal—imports. He praises Russia for being the largest exporter of nuclear power plants, with 60% of the world market share, and praises its *Akademik Lomonosov* floating nuclear power plant, one of the first fully functional small modular reactors, now powering the Arctic town of Pevek. Stone hopes, but doubts, that Russia and China will build nuclear reactors fast enough to avoid a climate Armageddon.

Stone's boldest claim is that there is no basis for the public perception that offspring of Hiroshima and Chernobyl victims have had an increase of birth defects:

"Massive and careful long term studies do not support these conceptions." Unfortunately, Stone did not make it clear whether he meant offspring of those who suffered severe acute radiation syndrome or those who were exposed to much smaller doses. It is well-known that sub-lethal doses of ionizing radiation can increase mutation rates, but these doses are still several orders of magnitude above the world average background level, as Dr. Edward Calabrese has [proven](#). See also [The History of the Linear No-Threshold \(LNT\) Model](#) on the Health Physics Society website.

What about Stone's hope,

that American ingenuity can overcome the political and psychological obstacles to nuclear power with new reactor designs? The ugly truth—that no commercially viable new reactor technology is possible under the present regulatory regime, at least in the United States, is borne out in his own interview of two co-founders of Oklo, an "advanced reactor" startup based in California. The reactor design they are proposing is an ultra-small, fast neutron breeder reactor using essentially the same technology as the Experimental Breeder Reactor II (EBR-II) of the Idaho National Laboratory, which used liquid sodium metal as the primary coolant, and solid metallic fuel immersed in sodium inside zirconium metal fuel rods.

But, whereas the EBR-II, built and operated by Argonne National Laboratory in Idaho, used pumps to force



CC/Elena Dider

Russia's first floating nuclear power station, Akademik Lomonosov, being transported from Murmansk, Aug. 23, 2019. It is now docked at the Arctic town of Pevek, providing heat and electricity to the regional power grid.

ble truth about the social formations that oppose it, than by promoting fear of fossil fuels. That is substituting a fake threat of Armageddon for the real one: the drive to destroy Russia and China⁵, sure to end in global thermo-nuclear war if We the People do not stop it.

Stone praises China as the fastest builder of new nuclear reactors, connecting a new one to China's electrical grid every 2–3 months. He also notes that China has become the world's workshop, and is the world's largest, and still growing, consumer of coal. He says

3. See The LaRouche Organization's [report](#), "Stop NATO's International Assassination Bureau," February 2023, pp. 14–17.

4. See William Engdahl's [article](#), "Robert O. Anderson's Strategy Will Blight the American West," *EIR*, Vol. 9, No. 6, Feb. 16, 1982, pp. 20–25.

5. See The LaRouche Organization's [report](#), "Stop Global Britain's Green War Drive," February 2022.

the sodium to flow into and out of the core, Oklo's micro-reactor, called the *Aurora*, uses only heat pipes such as are used in laptop computers, which have no pumps. Heat pipes do not transfer heat as efficiently as pumped sodium, but they do operate passively. Whereas the EBR-II generated [19 MW](#) of electricity, the *Aurora* will generate only 1.5 MW. EBR-II was shut down in 1994.

In the interview, Oliver Stone and two co-founders of Oklo, Jacob DeWitte and Caroline Cochran, walk together to a bare spot on the grounds of the Idaho National Laboratory (INL):

Jacob DeWitte: This is where we're going to build our first reactor.... This is the first advanced reactor that's going to become a commercial reactor in the U.S. and it's a microreactor, 1.5 MW.

Caroline Cochran: If we start with something so small, then we can really meet the regulations and do it efficiently and quickly. A big problem with nuclear is maybe it takes a decade and billions of dollars. We hope to take two years and less money and still meet the regulations.

Stone: How much have you spent?

Jacob: Less than \$10 million.... We start with 1.5 MW, then we go to 15 MW. Then to 100 MW or more.

Stone: And you would run the plant?

Jacob: We'll run it. We'll sell the power and heat and not the reactors, and that makes it easier to buy.

Stone: So you cut the utilities out of it? How does that work?

Jacob: We see the utilities wanting to focus on power distribution; we're an independent power producer.

Cochran: We're excited about how that could allow communities to opt-in instead of feeling like a huge plant is being stuck in their backyard.

Stone: Do you sometimes feel frustrated, like you know all this? Are you getting older?

Jacob: Yes! Time scales are too slow in nuclear, and we're doing everything we can to change that.

Cochran: One of the last public speeches JFK gave, said we need to use fission for conservation and clean power. For various reasons, it was overshadowed by the weapons, and I think, we're looking at it anew because of climate change.

Stone: Younger people seem more open to it.

Cochran: I think so. I think for the younger genera-



Public domain

The Beloyarsk Nuclear Power Station—home of the only breeder reactors in the world presently supplying power to the public—in the Russian town of Zarechny, Sverdlovsk Oblast.

tions, climate change is more of an imperative than worrying about nuclear war.

In the event that the *Aurora* is ever approved, how will they go to 15 MW? By replacing the heat pipes with the same cooling system that the EBR-II had! In fact, the [15MW version](#) will be the same size, with the same amount and type of fuel! The *Aurora* is shown to be nothing but a gambit to work around the stupid “not in my backyard” public sentiment, instead of challenging it.

Why not build an EBR-II? Because the regulators won't allow it; and so far, they won't allow the *Aurora*, either! Oklo's [application](#) for permission to build the *Aurora* demonstration/prototype reactor on INL grounds, originally submitted on March 11, 2020, was [rejected](#) without prejudice in January 2022; a new application was submitted in September 2022.

A Bright Future?

Stone visits the world's only nuclear fuel breeder reactors that are presently supplying power to the grid, the Beloyarsk Nuclear Power Plant in Zarechny, Russia, supplying 1,485 MW from two of the same type of reactor as the EBR-II. Stone interviews Ilya Filin, First Deputy Chief Engineer for Operation at Beloyarsk NPP, who says:

It uses spent fuel from other plants. We don't extract resources from the Earth. It improves the fuel grade as it runs, allowing it to be recycled multiple times.

Here it would have been useful to inform the audience that "improving the fuel grade" means increasing the fissile content by allowing *fertile* fuel material, such as uranium-238, to become *fissile* (capable of fission) by capturing neutrons, at a sufficient rate to more than replace the fissile fuel consumed to produce those neutrons. Thus, the breeder reactor does not "recycle" fuel by somehow reversing the process of nuclear fission, but converts all the non-fissile isotopes of thorium, uranium, and transuranic elements to fissile isotopes. This yields a 200-fold increase in available fission fuel from uranium and transuranic elements alone, and about three times that much again from thorium, while eliminating the need to "enrich" fuel by separating fissile from non-fissile isotopes.

Stone narrates:

With breeder reactors, no one knows if this will be cheap enough to standardize, and be the breakthrough technology; or perhaps it will be the



China National Nuclear Corp.

The first reactor to use China's third-generation Hualong One design was this 1,161 MW reactor, which entered commercial operation Jan. 20, 2021 at the Fuqing Nuclear Power Plant in China's Fujian Province.

model for the next stage, and so on. Like any science, nuclear keeps adapting, and renewing itself.

The movie omits a great deal of fast breeder reactor progress.⁶

Stone's mere 90 seconds on nuclear fusion research shows the International Thermonuclear Experimental Reactor (ITER) facility, and then the logos and some facilities of various private fusion research startups, about which it says:

Several startups think they can reach commercial fusion faster, and smaller, within a decade. They've raised billions of dollars in investment in 2021.

There is no mention of how the budget for public fusion research has [collapsed](#), or what the advantages of fusion are relative to fission, other than that the fuel source, hydrogen and lithium, is abundant. We've all heard that nuclear fusion does not produce radioactive "waste." But the real virtue of fusion is that part or all of its reaction products, depending on which fusion fuel is used, can be used directly to propel a rocket, without an explosion, and with far less wasted energy, than with fission. The same fusion reaction products can be used

6. See Richard Burden's [article](#), "The 'Fast Neutron' Breeder Can Be a Truly Cost-Cutting Nuclear Power Plant," *EIR*, Vol. 48, No. 22, May 28, 2021.

to generate electricity directly, without a turbine, using a magneto-hydrodynamic (MHD) generator, again with far less wasted energy, contamination, and maintenance issues than fission, because there is much less variety in the reaction products.⁷

7. The products of the nuclear fusion reactions that are likely to be used to generate power are helium-4, hydrogen-1, helium-3, gamma rays, and two products which are radioactive: tritium (hydrogen-3), which is also fusion fuel, and neutrons. Tritium is among the least hazardous of radioactive substances. It decays in a single step, emitting a very-low-energy beta particle, to stable helium-3, another fusion fuel. Tritium has a half-life of 12.5 years and a much shorter half-life (clearance time) in the bodies of living organisms, being ingested mostly as part of water molecules. Neutrons produced in fusion can be managed by absorbing them in a blanket of lithium enriched in lithium-6, which produces tritium and helium-4. Because the fusion fuel and its products are a fully ionized plasma, all products other than neutrons can be directed or contained by electrical or magnetic fields. Nuclear fission produces neutrons, gamma rays, neutrinos, and a smorgasbord of isotopes of elements ranging from 32 to 66 in atomic number (protons per atom).

Nuclear Now is based on the 2020 book, *Bright Future: How Some Countries Have Solved Climate Change and the Rest Can Follow*, co-written by Joshua S. Goldstein and Staffan A. Qvist. The “bright future” presented at the conclusion of the movie is painfully Earth-bound: We’ll keep the air and water pure, and the mountains and canyons pretty, and everyone will have comfortable homes and powered machinery to relieve them of hard manual labor, if we build these nuclear reactors in time to avoid climate Armageddon.

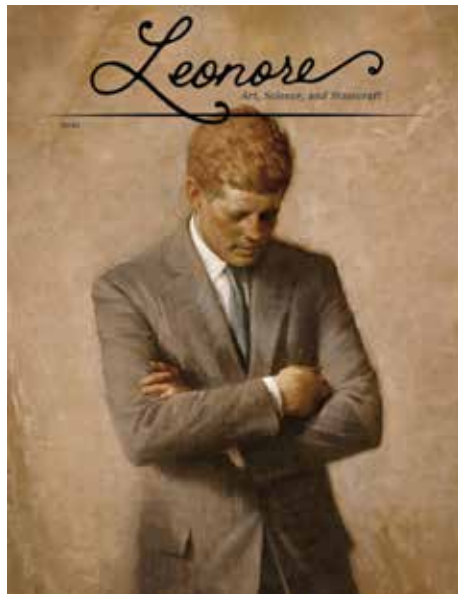
“Unless we dull it with fear, the mind is the most powerful tool we know. It is more imaginative than any computer will ever be,” says Oliver Stone in the conclusion. Good. So let us use our imagination—to overcome the brainwashing that is leading the West into a needless nuclear war—so that we may conquer the stars with nuclear power!

The Schiller Institute

has just released Volume 2, No. 1, of its new journal *Leonore*, which opens with the following from Lyndon H. LaRouche, Jr.’s October 20, 2002, article, “The Historical Individual.”

“The principal cause for the doom of any culture, is that mental disorder typical of popular opinion, which is to assume the validity of any assumptions currently adopted by a learned profession, or religious teaching, or more crudely adopted as ‘generally accepted popular opinion.’”

The 88-page issue, contains eleven articles, including the first English translation of one of the last letters by the 15th century scientific and political genius, Cardinal Nicholas of Cusa, which has been called his “religious last will,” and an original translation of Friedrich Schiller’s “On the Sublime,” described as “perhaps his most refined discussion of the process of the development of the soul.”



Preview the issue [here](#) and see the full table of contents.

The preview includes the ground-breaking article by Jason Ross, “Vernadskian Time: Time for Humanity,” which addresses “the paradoxes posed by Vernadsky’s scientific work,” which open the way to an entirely new set of definitions of space, time and matter, taken from the standpoint of the human mind.

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