The Nuclear Energy Dilemma: Climate Savior Or Existential Threat?

Leslie Alan Horvitz – Photo: http://lesliehorvitz.com

01-05-2024 *Nuclear power has promise and peril, posing many challenging questions for environmentalists.*

With the planet teetering on the brink of climate disaster and the goal of achieving net-zero carbon emissions by 2050 rapidly slipping away, the need for alternatives to pollutive fossil fuels has never been more evident. Should nuclear power be one of those alternatives?

There are many thorny questions. Is nuclear power too dangerous? Is it too expensive? Does it present too much of a security risk? Is the problem of finding a safe way of storing nuclear waste too insurmountable? Is it unfair to kick a clear and present danger down the field to future generations? Is it scalable soon enough to make a meaningful difference in the battle against climate change? Is it a distraction from investing in safer sources of renewable energy?

These are questions that scientists, lawmakers, and pundits have been tackling for years. The argument remains frustratingly unresolved.

The persistent lack of clarity has divided environmentalists. Some say nuclear power is vital to the climate solution because it is a low-carbon energy source. Like wind and solar, it does not directly produce carbon dioxide, the primary greenhouse gas fueling global warming.

Others argue that the dangers of nuclear energy—including meltdowns (a credible threat at Zaporizhzhia, a nuclear power plant in Ukraine—Europe's largest—following its capture by Russian forces in 2022) and the lack of safe disposal of nuclear waste—are simply too grave. Still, others say there is no longer any time left to bring nuclear energy to scale to combat the climate threat effectively.

"The debate over whether we need nuclear power is very polarized," says M.V. Ramana from the University of British Columbia, Vancouver, who specializes in nuclear energy risk.

The World Nuclear Association is one of the foremost proponents of nuclear energy, supporting the global nuclear industry. Based in London, the group argues that nuclear energy is an efficient, effective, and safe solution to the climate crisis. "Nuclear power plants produce no greenhouse gas emissions during operation, and over the course of its life-cycle, nuclear produces about the same amount of carbon dioxide-equivalent emissions per unit of electricity as wind, and one-third of the emissions per unit of electricity when compared with solar," the organization states on its website.

Still, while the statistics sound promising, nuclear may be too late to make a difference, argues Mehdi Leman of Greenpeace International. "Nuclear power is not the way to a green and peaceful zero carbon future," he writes. "According to scenarios from the World Nuclear Association and the OECD Nuclear Energy Agency (both nuclear lobby organizations), doubling the capacity of nuclear power worldwide in 2050 would only decrease greenhouse gas emissions by around 4 percent. But in order to do that, the world would need to bring 37 new large nuclear reactors to the grid every year from now [March 2022], year on year, until 2050."

Leman also notes that nuclear reactors "are easy targets for malevolent acts," from terrorism to acts of war, as Russia's military aggression in Ukraine has illustrated.

Rise of Nuclear Power

As of November 2023, there are 440 nuclear reactors in 32 countries plus Taiwan. The United States has the most reactors, with 93 in operation as of August 2023, accounting for more than 30 percent of the world's nuclear power generation. China is next in production with 13.5 percent, but its 55 reactors are less than France's 56. The latter accounts for 13.3 percent of the total global power generation.

Nuclear power supplies more than eight times as much energy as it did in the 1970s. "The first grid-connected nuclear power plant began operations in the Soviet Union in 1954, and nuclear power reached one exajoule of global supply 19 years later. … (One exajoule is equivalent to 277 terawatt-hours—close to the electricity Mexico consumed in 2019)," according to Electricityinfo.org.

As of November 2023, nuclear power provides the world with approximately 10 percent of its energy needs. Nuclear power plants have a lifespan of up to 80 years.

Nuclear Power: Low-Carbon Energy Source

According to the U.S. Energy Information Administration (EIA), total global energy consumption is expected to rise by nearly 50 percent by 2050; this will make reducing carbon emissions much harder, if not impossible, without nuclear power.

Advocates further say that replacing fossil fuel-based energy with 100 percent renewables would need several scarce elements—from lithium to land space—making it next to impossible to supply the world with its future energy needs—while curtailing climate change's worst effects. In addition, nuclear power is more reliable and consistent since it can provide a steady power supply for days—without wind, sun, or batteries.

"Shutting down nuclear power plants could be a big setback for climate goals," writes Casey Crownhart, a climate reporter at MIT Technology Review.

According to the Nuclear Energy Institute, a nuclear industry policy group, nuclear energy in the United States prevented more than 476 million metric tons of carbon emissions in 2021. The U.S. Department of Energy says that is the equivalent of taking more than 100 million automobiles off the road—and greater than all other clean energy sources combined.

“While Germany has made major progress on installing renewable energy like wind and solar, emissions from its electricity sector have been shockingly slow to fall,” Crownhart notes in an April 2023 article. “The country has pledged to reach net-zero emissions by 2045, but it missed its climate targets for both 2021 and 2022. To reach its 2030 targets, it may need to triple the pace of its emissions cuts.”

Public Opinion

Persuading the public to accept nuclear power is not easy—particularly with nuclear disasters like Three Mile Island in 1979, Chernobyl in 1986, and Fukushima in 2011 still resonating in the public consciousness. Nuclear power rates second only to coal in its unpopularity in the U.S.—with just 16 percent of Americans in favor of keeping existing nuclear plants and building new ones, according to Morning Consult PRO data from 2020.

The association of this energy source with nuclear weapons has led to people harboring a bias against nuclear power, argues Charles Oppenheimer, grandson of Robert Oppenheimer, who oversaw the military effort at Los Alamos, New Mexico, where the atom bomb was developed during World War II. “We must get over our cognitive and political bias: Nuclear energy is necessary and safe, and not the same as nuclear weapons,” he wrote in Time magazine.

However, a 2023 Gallup poll found that 55 percent of American adults say they “strongly” or “somewhat” favor using nuclear energy. This polling data—showing a rise of four percentage points in support of nuclear from 2022—may be tied to Russia’s invasion and occupation of parts of Ukraine, which started in February 2022 and sparked a global disruption in oil and gas supplies.

It makes sense that public opinion toward nuclear energy is tied to the price of gas at the pump. “Throughout the course of Gallup’s trend, Americans have generally been more amenable to the use of nuclear energy as one of the ways to provide electricity for the U.S. when oil prices have been high and less open to it when oil prices are low,” points out Megan Brenan, a research consultant at Gallup.

European nations are more open to nuclear power than the U.S.—but up to a point. In 2022, the European Parliament designated nuclear power as a source of green energy. In the European Union, nuclear power plants operating in 13

countries provide almost a quarter of global electricity, although electricity generation from EU nuclear plants fell by 20 percent between 2006 and 2011. (Germany decided to phase out nuclear energy in 2011.)

And while Germany shut down its three remaining nuclear reactors in April 2023, ending the nation's nuclear era, which lasted more than 60 years, it isn't the first European country to bring an end to nuclear energy: Denmark banned it in 1985, Italy closed all plants in 1990, and in 1999, the Austrian parliament unanimously passed a constitutional law on a "nuclear-free Austria."

Even climate activist Greta Thunberg (who opposes nuclear power and spoke against the European Parliament's "green energy" classification of nuclear) supports keeping nuclear power plants in Germany functional—if the alternative is coal.

But nuclear power still has a lot of ground to make up if it's to become a factor in serving the energy needs of a post-fossil fuel era. In 2021, 95 nuclear plants went online in the previous 20 years, but another 98 have shut down, according to Deutsche Welle (DW). Take China out of the equation, and there are 50 fewer reactors operational in the last two decades, states the 2021 DW article.

"[D]oubling the capacity of nuclear power worldwide in 2050 would only decrease greenhouse gas emissions by around 4 percent," writes Mehdi Leman. "But in order to do that, the world would need to bring 37 new large nuclear reactors to the grid every year from now, year on year, until 2050."

As of November 2023, there are only about 60 new reactors under construction, according to the World Nuclear Association. Doubling nuclear capacity (which would only lead to a minor decrease in carbon emissions) is unrealistic. In contrast, clean, renewable energy sources like solar and wind have grown rapidly.

Proponents of nuclear power are pushing back. In a notable attempt to influence public opinion in its favor, Oliver Stone released a documentary in 2022 called "Nuclear Now," in which the director asserts that opposition to nuclear power has become "glamorous, virtuous, and lucrative all at once."

Well-publicized accidents at nuclear power plants such as Chernobyl and Three Mile Island have only reinforced the idea that nuclear power is too risky to be considered a reliable source of energy.

As Robert P. Crease, a chair of the department of philosophy at Stony Brook University, wrote in a June 2023 edition of Physics World, "No Oliver Stone movie would be complete without a conspiracy theory," which in the case of "Nuclear Now," sees the oil and coal companies as the villains because of their disputable claim that even low levels of radioactive emissions are dangerous.

Stone maintains that because climate change is an existential threat caused by fossil fuels, and given the world's insatiable energy demands, nuclear power should be considered a safer and more essential alternative than its detractors assert.

"Stone's movie forces us to think," Crease argues, because humans can no longer sit back and "ponder and judge nuclear power from a smug and superior distance." With his documentary, Crease adds that Stone has put "nuclear technology back on the table as a possible energy source."

Land Use

How much land an energy-producing installation takes up is often overlooked, but its importance can't be underestimated. Approximately 100,000 square miles of solar panels (an area greater than New England) or more than 800,000 square miles of onshore windmills (the size of Alaska plus California) would be required to meet the energy needs of the eastern United States, according to Armond Cohen of the Clean Air Task Force, writes Jonathan Rauch, a senior fellow at the Brookings Institution, in a February 2023 article in the Atlantic.

By contrast, Cohen says, addressing the same energy needs with nuclear power would take a little more than 500 square miles (roughly equivalent to the size of Phoenix, Arizona).

"Nuclear power is the most land-efficient source, needing 27 times less land per unit of energy than coal and 34 times less than solar [photovoltaic]," writes Hannah Ritchie, a researcher at Our World in Data. But she also points out that "land use of renewable energy sources like wind farms can be co-used with other activities like farming."

The Grid

One advantage of nuclear power, often overlooked by detractors, involves the grid—that is, connecting the power source to the electricity grid systems. Power plants, set up to provide electricity to consumers, can be converted to integrate

nuclear power easily.

This isn't the case with renewable energy sources like solar and wind, which would require the rewiring and transformation of the grid to supply electricity to consumers. This would entail an enormous investment and require zoning boards and regulators' approval.

Despite these advantages, nuclear plants have recorded no more than 10 new grid connections a year in the last decade, states Leman in his 2022 article; in some years, it's many fewer. Scaling that up to meet the demand for capacity in the U.S. is simply not possible, according to skeptics of nuclear power.

Jobs

According to the U.S. Office of Nuclear Energy, the nuclear industry employs nearly half a million workers. Skeptics say this figure is exaggerated and that once the number of 'secondary' jobs (like temporary construction jobs, which may constitute up to 7,000 per plant) is subtracted, the actual number is closer to 45,000. (Each plant employs approximately 500-800 workers.)

However, advocates argue that nuclear energy is a net job creator even though the number of unionized jobs in electricity, gas, water, steam, and nuclear energy only comes to 50,000. Approximately 20,000 unionized workers, or about one-third of the industry's 57,000 workers, are employed by the nuclear power industry.

"The nuclear energy industry employs more workers per megawatt of electricity than any other energy source," said Steven P. Nesbit, then-president of the American Nuclear Society, and Lonnie R. Stephenson, then-international president of the International Brotherhood of Electrical Workers, in an article they wrote for Nuclear Newswire in 2021. "Among all energy sources, nuclear power plants also have the highest labor union membership rates," they added.

By comparison, only "4 percent of solar industry workers and 6 percent of wind workers are unionized, according to the 2020 U.S. Energy and Employment Report," states the Vox. The fastest-growing sector in renewable energy, however, is the solar industry, which provided about 4.3 million jobs in 2021, according to the International Labor Organization. That figure represents more than a third of the worldwide renewable energy workforce.

Deaths

Estimates of deaths attributed to fossil fuels are impossible to pinpoint. However, some researchers believe that about one in five deaths globally were attributed to fossil fuels through air pollution alone in 2018—about 8.7 million fatalities per year, according to a 2021 study conducted by Harvard University in collaboration with the University of Birmingham, the University of Leicester, and University College London.

That estimate doesn't take into account other fossil fuel-related deaths, such as mining accidents, congenital disabilities, early onset dementia, illness, and displacement.

A study published by the Harvard T.H. Chan School of Public Health in 2022 found that people living near an oil or gas operation have a higher chance of dying prematurely. By contrast—despite some major disasters at nuclear plants like Chernobyl—substituting nuclear plants for fossil fuel plants might save millions of lives that would otherwise be lost.

Carbon Emissions

Nuclear power is indeed a low-carbon source of energy. Even so, nuclear power plants emit carbon-14, a radioactive isotope. Moreover, the processes used in all stages of the nuclear power cycle release carbon emissions: "uranium mining and milling, conversion of ore to uranium hexafluoride, enrichment, fuel fabrication, reactor construction and decommissioning, fuel reprocessing, waste management, rehabilitation of mining sites, and transport," all of which require the use of fossil fuels, states an article in the OpenMind.

According to the Intergovernmental Panel on Climate Change (IPCC), the emissions from these processes are close to the emissions produced in constructing facilities for renewables like solar and wind power—an average figure of 65 grams of CO_2 per kilowatt-hour. (Gas and coal, by comparison, produce 450 and 900 grams, respectively, to generate the same amount of energy.)

However, few studies have been conducted on the carbon emissions produced in the entire lifecycle of a nuclear power plant, from uranium extraction to nuclear waste storage. According to one measurement carried out by the state-run German Environment Agency (UBA), as well as figures provided by the

Netherlands-based World Information Service on Energy, nuclear power releases 3.5 times more CO2 per kilowatt-hour than photovoltaic solar panel systems, 13 times more than onshore wind power, and 29 times more than electricity produced by hydropower installations.

It's estimated that each nuclear-generating station discharges about two-thirds of the energy it burns in its reactor core into the environment while only a third is used for energy (and 10 percent of that is lost in transmission)."To produce the 25 [metric tons] or so of uranium fuel needed to keep your average reactor going for a year entails the extraction of half a million [metric tons] of waste rock and over 100,000 [metric tons] of mill tailings," wrote David Thorpe in the Guardian in 2008, then-news editor for the Energy, Resource, Sustainable, and Environmental Management magazine of the UK's Department for Environment Food and Rural Affairs. "These are toxic for hundreds of thousands of years."

Water Usage

The profligate use of water (used as a coolant in nuclear plants) is another concern for skeptics of nuclear power. For example, large reactors like the two at Diablo Canyon, California, individually dump about 1.25 billion gallons of water into the ocean daily. (These are the last reactors still operating in California.)

A statement by the Union of Concerned Scientists warned: "The temperature increase in the bodies of water can have serious adverse effects on aquatic life. Warm water holds less oxygen than cold water, thus, discharge from once-through cooling systems can create a 'temperature squeeze' that elevates the metabolic rate for fish."

Alternatively, many nuclear reactors rely on cooling towers to recycle water, although these, too, can cause an adverse environmental impact by emitting vast quantities of steam and water vapor, warming the atmosphere.

Nuclear Waste

Nuclear waste storage poses even more of a problem than water disposal. According to the EIA, radioactive wastes such as uranium mill tailings, spent (i.e., used) reactor fuel, and other radioactive wastes can remain radioactive and dangerous for millennia.

The environmental group Greenpeace contends that several nuclear storage facilities are on "the verge of saturation," presenting the threat that spent fuel is

at risk of overheating even in plants with no emergency generators available for cooling. The group opposes burying nuclear waste deep underground, too.

As of 2019, "no country has a final disposal site for high-level nuclear waste in operation yet," notes the World Nuclear Waste Report 2019. "Most countries have yet to develop and implement a functioning waste management strategy for all kinds of nuclear waste."

The report goes on to point out that even defining what nuclear waste is can be a problem since countries don't use identical classification systems (with France and the Czech Republic measuring the level of radioactivity, for instance, and the U.S. basing its classification on the origin of the waste and not its radiation).

On the other hand, in a 2022 report, the International Atomic Energy Agency (IAEA) claims that "there is significant progress in the safe and effective management of radioactive waste… including the development of deep geological repositories."

The report states that "95 percent of all existing waste is of low or very low radioactivity, that only 1 percent is high level, and that 80 percent of all solid waste is in safe and sustainable final storage, reports the OpenMind article.

Nuclear fuel comprises metal tubes containing small tubes of uranium oxide, which are then gathered into bundles. These bundles cool off for five to ten years before being placed in concrete or steel storage containers designed to last 100 years and withstand hurricanes, floods, and even missile attacks.

As of April 2023, no deaths or injuries have been reported due to nuclear waste products. After 40 years, the heat and radioactivity of the stored waste will have fallen by more than 99 percent.

In short, say nuclear power advocates, nuclear waste poses less risk than other hazardous industrial materials like ammonia, which have caused injuries and fatalities.

Constructing storage facilities for nuclear waste is well-advanced in Canada, France, Sweden, and Switzerland. Finland has taken the lead in burying nuclear waste deep underground in Onkalo, in a stainless steel room surrounded by concrete walls that are more than a meter thick. The site was chosen in 2000, but

the facility isn't expected to receive a government license to operate until 2024.

All of the spent fuel the U.S. nuclear industry has ever created could be buried under a single football field to a depth of fewer than 10 yards, states the Atlantic, citing a study by the Department of Energy. Unlike coal waste, which is spewed into the air, radioactive waste is stored in carefully monitored casks.

However, getting these storage facilities established has run into significant obstacles. In 1987, Congress authorized a national nuclear waste repository at Yucca Mountain in Nevada, designating it as the only location in the U.S. that could be used for permanent nuclear waste storage. But the repository has never opened because of political reasons, and the radioactive waste intended for it remains at reactor sites scattered around the country.

The problem of finding a secure place to store waste products from nuclear facilities is worldwide. Greenpeace estimates that almost a quarter of a million tons of highly radioactive spent fuel, mostly uranium-238 (the material that forms part of the chain reaction is uranium-235), has accumulated in 14 countries. In addition, there are also discarded materials (tailings) from uranium mining and production, totaling almost 2.4 billion tons.

As of 2019, about 263,000 tons of spent fuel was stored in interim storage facilities worldwide, according to the IAEA. That is a significant amount of radioactive waste waiting for governments to decide where it should be stored permanently.

In 2023, Japan had been scheduled to release up to 1.37 million tons of radioactive waste from the Fukushima Daiichi plant into the sea. In November 2023, the third batch of 7,800 tons of water was safely discharged. The process is expected to last decades.

"Officials say the impact of the water on humans, the environment, and marine life will be minimal and will be monitored before, during, and after the releases, which will continue through the 30-40 year decommissioning process. Simulations show no increase in radioactivity beyond three kilometers (1.8 miles) from the coast," reported Mari Yamaguchi of the Associated Press, whose reporters, in February 2023, visited the failed plant to get an update on the planned release.

When Japan announced the plan in 2011, it was criticized by environmentalists.

“Dumping this nuclear waste directly into the Pacific is dangerous and unacceptable,” said Damon Moglen, then-director of the Climate and Energy Project at Friends of the Earth. “It’s incredible that while an international treaty forbids the dumping of even a barrel of this nuclear waste from a ship, Japan intends to send thousands of tons of that waste into the ocean. This dumping poses a direct threat to humans and the environment, and fisheries and industries depending on a clean Pacific could be devastated.”

Despite approval for the discharge from the UN, noting that all radioactive elements had been removed from the wastewater except for tritium, which is not considered dangerous to health, China announced that it would cease the purchase of any seafood from Japan. However, in August 2023, Japan went ahead with its plan, maintaining that the Fukushima plant no longer can store radioactive wastewater.

Nuclear Disasters

Chernobyl and Fukushima loom large in the minds of people who oppose nuclear plants as a potential solution to climate change. To date, the partial meltdown of Three Mile Island in Pennsylvania in 1979 remains the worst nuclear accident in the U.S., even though it resulted in no injuries or deaths.

Despite the implementation of new training and protocols in Three Mile Island and the unblemished record of the plant’s second, intact reactor, which operated “uneventfully” until 2019, the accident turned the public and environmentalists against nuclear energy.

The meltdown and fire at Chernobyl in Ukraine in 1986 did cause mass fatalities from radioactivity. While 31 people (although some observers put the number at 50) died as a result of the accident, the official casualty rate doesn’t include any of the hundreds of thousands of so-called ‘liquidators’ dispatched to extinguish the fire in the plant without adequate protection, many of whom suffered from radioactive poisoning.

Most experts, though, believe that the Soviet-era plant was in questionable condition and poorly managed to begin with. Proponents of nuclear energy point out that once Chernobyl is excluded, no deaths have been caused due to a failure of a nuclear power plant, attributing the estimated 2,000 deaths in Fukushima in 2011, after that plant was destroyed in a tsunami, to the disarray of the

evacuation of the population from the area, disruptions in medical services, and stress-related factors such as alcoholism and depression.

Several other incidents of deaths at nuclear power plants have occurred, but most are linked to scalding, asphyxiation, and accidental falls, not to radioactive release.

Nonetheless, the disaster at Fukushima propelled Japan into taking almost all of its nuclear plants offline. In August 2022, however, Prime Minister Fumio Kishida announced that "Japan will restart more idled nuclear plants and look at developing next-generation reactors." It also prompted Germany to phase out nuclear power entirely within 10 years (a plan delayed until April 2023 because of the need to compensate for lost fossil fuel imports from Russia after the Ukrainian invasion).

Globally, a capacity of 48 gigawatts was lost after Fukushima because nuclear plants were either shut down or their operational lifetimes weren't extended.

Hazards and Risks
Meltdowns may be rare, but the very existence of nuclear plants poses serious risks.

Because many nuclear plants are built near coasts, climate change makes them vulnerable to rising seas. A rise of about 6 feet (a possibility by the end of the century) could threaten to submerge more than half the interim waste storage sites in the U.S.

In some cases, earthquakes could jeopardize the integrity of the plants. The Diablo reactors in California are located only 3 miles from a fault line, which wasn't detected when they were built.

As storage containers age, toxic leaks pose another risk to the nearby populations' safety. By the end of 2022, the Hanford nuclear site—one of the most polluted places in the U.S.—held some 56 million gallons of nuclear waste as well as leaking storage tanks and contaminated soil.

"About one-third of the nearly 180 storage tanks, many of which long ago outlived their design lives, are known to be leaking, contaminating the subsurface and threatening the nearby Columbia River," according to a 2020 Chemical and

Engineering News report.

The growth of nuclear energy has also increased the likelihood of the proliferation of nuclear weapons. Countries that claim they're constructing nuclear plants exclusively for peaceful energy needs may still use imported uranium to create weapons-grade uranium and harvest plutonium from uranium fuel rods to manufacture nuclear weapons.

Iran, for instance, continues to maintain that its nuclear program is peaceful. Still, the U.S. and Israel strongly suspect that Teheran is secretly engaged in developing the capacity to produce nuclear missiles.

There is also the fear that a nuclear plant might present a tempting target for terrorist threats, cyberattacks, or acts of war. War is no longer a theoretical possibility, either. The nuclear facility at Zaporizhzhia has come under fire from both Ukrainian and Russian forces.

The plant, still managed by Ukrainians but under Russian control (as of March 2022), while no longer producing energy (it's kept operational to prevent a meltdown), remains at heightened risk for a severe accident and meltdown because of shelling and bombing. As the Chernobyl disaster showed, the spread of radioactivity from a meltdown can reach countries well beyond the borders where a meltdown occurs.

Following major incidents and the rise of possible accidents, the hazards and risks of nuclear energy may become a more significant issue among the public, even in nations that have traditionally been very welcoming, like France.

"Even in France, there is strong public pressure following the Fukushima accidents to reduce the share of nuclear electricity, and this pressure was a contributor to the success of the Socialist Party, which promised reduced reliance on nuclear power, in the 2012 elections," writes M.V. Ramana in his 2012 book, *The Power of Promise: Examining Nuclear Energy in India*. "[C]hanging one part [of a reactor] could result in unforeseen impacts on another, especially during unusual operating conditions or accidents… [E]ven familiar systems might fail unless both design and operations are carried out with adequate diligence."

Time and Expense

One of the principal objections to nuclear power as a solution to climate change is

the time it typically takes to build a nuclear plant and the expense involved. Building and bringing each plant online generally takes 15 to 20 years at an estimated cost of $30 billion.

The energy each plant is expected to produce will cost between $112 and $189 per megawatt-hour (MWh), in contrast to $29 to $56 per MWh for wind and $36 to $44 per MWh for solar.

"Most U.S. nuclear power plants cost more to run than they earn," points out physicist Amory B. Lovins. For example, two commercial reactors that began construction in 2009 in Georgia in the U.S. were projected to cost $14 billion each.

As of March 2023, the cost for each had ballooned to more than twice the initial estimates. Unit 3 of Plant Vogtle began commercial operation in the summer of 2023 and can power 500,000 houses and businesses. Unit 4 is scheduled to begin commercial operation by March 2024.

"The reactors that have been built in Europe and North America since 2000, none has taken less than 10 years [to build]," says Stephen Thomas, energy policy expert and emeritus professor at the University of Greenwich. He notes that the cost per kilowatt is currently about $10,000 per kilowatt of capacity, according to an August 2023 article in the Daily Upside.

On the other side of the Atlantic, France started a new reactor in 2007 to be constructed in Flamanville with plans to bring it online in five years, but by 2022, it still wasn't operating, and it was five times over budget in 2020.

Over the past decade, the World Nuclear Industry Status Report 2019 estimates that compared to solar (costs of which have dropped by 88 percent) and wind (costs of which have dropped by 69 percent), the total lifetime cost of building and running a nuclear plant for the entirety of its functional life has *increased* by 23 percent.

Even advocates of nuclear power acknowledge the problem. "Nuclear, as it exists today, is clean, it's reliable, it's safe. But it's not affordable," saysMike Laufer, the co-founder and the CEO of Kairos Power, an energy engineering company. "[A]nd this is what's holding nuclear back from a much bigger role in fighting climate change."

But it may have a more minor role to play than some might argue because we are too far down the emissions path for it to make a difference at this point. "The contribution of nuclear energy is viewed too optimistically," said Ben Wealer, co-author of a 2021 paper on nuclear energy and the climate presented at the COP26 climate summit in Glasgow the same year. "In reality, [power plant] construction times are too long and the costs too high to have a noticeable effect on climate change. It takes too long for nuclear energy to become available."

"If you wanted to power the entire world on nuclear, you'd need about 17,000 large nuclear power plants, each 850 megawatts. And we only have 400 today," said Mark Z. Jacobson, author of a 2017 study published in the journal Cell that outlines a roadmap for 139 countries to power all sectors on 100 percent renewable energy.

"It's cleaner to go wind and solar," said Jacobson, who runs the atmosphere and energy program at Stanford University, to NPR in 2013. "You can put it up faster. There's a larger abundance of it. There's the potential to power the world many times over. And the costs are coming down—whereas nuclear costs are going up."

Looking Ahead

Although nuclear power has run into significant roadblocks, and some countries have announced plans to do without it altogether, there are indications that the energy source is making a comeback.

"As of November 2022, around 140 countries had announced, or were considering, net-zero targets, representing close to 90 percent of global emissions, and many of these countries, including China and India, have announced energy strategies that include a substantial role for nuclear," writes Esin Serin from the London School of Economics and Political Science.

Some advocates believe that innovative designs for reactors will make nuclear energy more popular and less expensive. In 2018, Congress passed several bills intended to innovate the development and implementation of 'advanced' nuclear reactors to overhaul the nuclear business and shift the nuclear paradigm. This goal can be achieved, they believe, by the introduction of the modular reactor. These small modular reactors (SMRs) can be assembled relatively quickly in a factory and transported to the site of operation.

But making these reactors so small and mobile carries a price. They are designed

only to have an output of up to 300 megawatts, a third of the output of current reactors. In theory, it should take only 1.5 to 2.5 years to build an SMR. The reality is quite different.

Many of these companies are also modifying how reactors are cooled. One type relies on convection and gravity, not pumps, so the reactor will stay cool if electricity fails. Others use a fluoride salt-cooled high-temperature reactor because salt-cooled water is considered safer than pure water alone. (Other options are a gas-cooled fast reactor, a supercritical water-cooled reactor, and a lead-cooled fast reactor.)

Admittedly, the companies promoting new designs have "a tendency to overpromise and underdeliver," as John Hopkins, president of a nuclear energy company called NuScale, acknowledged. (NuScale was the first to receive federal approval for its modular design.) "I want to get one module in the ground and prove we're commercially viable and we're going to do it on schedule."

The new models have plenty of skeptics, including Stephen Thomas, who believes their promotion is nothing less than gross arrogance given the failure of larger plants to achieve significant savings, much less lead to a revolution in nuclear energy.

"The claims being made for SMRs will be familiar to long-time observers of the nuclear industry: costs will be dramatically reduced; construction times will be shortened; safety will be improved; there are no significant technical issues to solve; nuclear is an essential element to our energy mix. In the past such claims have proved hopelessly over-optimistic and there is no reason to believe things would turn out differently this time. Indeed, the nuclear industry may well see itself in the 'last-chance saloon.' The risk is not so much that large numbers of SMRs will be built, they won't be. The risk is that, as in all the previous failed nuclear revivals, the fruitless pursuit of SMRs will divert resources away from options that are cheaper, at least as effective, much less risky, and better able to contribute to energy security and environmental goals," Thomas says.

In July 2023, the first new nuclear reactor in more than 40 years in the U.S. was ready to go into full operation at Plant Vogtle in Georgia. A second reactor is scheduled to go online at the same location by March 2024. Each reactor can generate enough electricity to power half a million homes with an estimated cut

of 5 to 10 percent of the state's total carbon emissions once both units are fully functional. But even though they are both small modular reactors, which were promoted for their cost-savings, the price tag has risen to $30 billion for the first reactor, more than double its original estimate.

Efforts to deploy SMRs are by no means confined to the U.S. In the global market, Russia is the leading supplier of nuclear reactors. In 2022, Hungary announced the granting of a construction license for two new, Russian-built nuclear reactors. (European Union sanctions on Russia do not include nuclear energy.) In 2023, Turkey inaugurated its first nuclear plant, also built by Russia. China also plans to get into the game by operating its own salt-cooled commercial reactor around 2030.

Not surprisingly, critics of nuclear power aren't impressed, insisting that even these 'next generation' reactors have suffered delays and cost overruns in France, the UK, Finland, and China. In 2022, Greenpeace said that new nuclear power technologies have been promised as "the next big thing for the last 40 years, but in spite of massive public subsidies, that prospect has never panned out."

Greenpeace's prediction seems to have been borne out. A plan to build a novel nuclear power plant comprising six small modular reactors collapsed in November 2023 when prospective customers for its electricity backed out. The reactors were to be built by NuScale Power, but the estimated cost had risen to more than $9.3 billion—twice what it was initially projected. Utah Associated Municipal Power Systems (UAMPS), a coalition of community-owned power systems in seven Western states, withdrew from the deal, asserting that there weren't enough power systems ready to buy into it.

The plan for the first small-scale U.S. nuclear reactor was initially seen as a way to revive the moribund nuclear power industry when it was announced in 2015. The deal's demise was also a blow to nuclear power advocates who championed the smaller, modular designs. NuScale, a leading manufacturer of SMRs, conceded that the first plant it had proposed as part of the coalition plan known as the Carbon Free Power Project, based in Idaho Falls, hadn't attracted the customers it needed to buy its power. Construction on the plant was supposed to begin in 2026.

"We still see a future for new nuclear," said Mason Baker, CEO and general

manager of UAMPS, which planned to build the plant in Idaho. “But in the near term, we’re going to focus on… expanding our wind capacity, doing more utility-scale solar, [and] batteries.” On a quarterly call with investors, NuScale CEO John Hopkins claimed the project was a “tremendous success” despite the plan’s failure. NuScale is still planning to build reactors in Romania and power data centers in Pennsylvania and Ohio, which a cryptocurrency mining company runs. The company says these plants will be operational “by the mid-2030s.”

In his 2018 book *Fallout: Disasters, Lies, and the Legacy of the Nuclear Age*, longtime environmental reporter Fred Pearce argues that the public’s fear of nuclear threat is real:
“[S]ocieties have a perfect right to turn their back on nuclear technologies if the experts fail to win their trust… if after more than half a century, nuclear protagonists have failed to still that fear, then probably they never will. Maybe we have to concede that this is a dying industry. The atomic age looks like it is over. The future for nuclear energy may be simply for us to see out the lives of existing plants and deal with their environmental legacies as best we can. Oh, and to get rid of nuclear weapons.”

When it comes to nuclear energy, there is both substantial promise and significant peril. As world governments consider the makeup of their current and future energy portfolios—in the face of the climate crisis, jobs and the economy, and the various security risks—one thing is abundantly clear: The decisions on the nuclear energy question made now will impact the planet for generations to come.

By Leslie Alan Horvitz

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Source: Independent Media Institute

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Independent Media Institute.

How To Make Recyclable Plastics Out Of CO2 To Slow Climate Change

Ann Leslie Davis – Photo: LinkedIn.com

12-23-2023 *Chemists are manipulating carbon dioxide to make clothing, mattresses, shoes, and more.*

It's morning, and you wake up on a comfortable foam mattress made partly from greenhouse gas. You pull on a T-shirt and sneakers manufactured using carbon dioxide pulled from factory emissions. After a good run, you stop for a cup of joe and guiltlessly toss the plastic cup in the trash, confident it will fully biodegrade into harmless organic materials. At home, you squeeze shampoo from a bottle that has lived many lifetimes, then slip into a dress fashioned from smokestack emissions. You head to work with a smile, knowing your morning routine has made Earth's atmosphere a teeny bit cleaner.

Sound like a dream? Hardly. These products are already on the market around the world. And others are in the process of being developed. They're part of a growing effort by academia and industry to reduce the damage caused by centuries of human activity that has sent CO2 and other heat-trapping gases into the atmosphere.

The need for action is urgent. In its 2022 report, the United Nations Intergovernmental Panel on Climate Change, or IPCC, stated that rising temperatures have already caused irreversible damage to the planet and increased human death and disease.

Meanwhile, the amount of CO2 emitted continues to grow. In 2023, the U.S. Energy Information Administration predicted that if current policy and growth trends continue, annual global CO2 emissions could increase from more than 35 billion metric tons in 2022 to 41 billion metric tons by 2050.

Capturing—and Using—Carbon

Carbon capture and storage, or CCS, is a climate mitigation strategy with "considerable" potential, according to the IPCC, which released its first report on the technology in 2005. CCS traps CO2 from smokestacks or ambient air and pumps it underground for permanent sequestration; controversially, the fossil fuel industry has also used this technology to pump more oil out of reservoirs.

As of 2023, almost 40 CCS facilities operate worldwide, with about 225 more in development, according to Statista. The Global CCS Institute reports that, in 2022, the total annual capacity of all current and planned projects was estimated at 244 million metric tons. The 2021 Infrastructure Investment and Jobs Act includes $3.5 billion in funding for four U.S. direct air capture facilities.

But rather than just storing it, the captured carbon could be used to make things. In 2022, for the first time, the IPCC added carbon capture and utilization, or CCU, to its list of options for drawing down atmospheric carbon. CCU captures CO2 and incorporates it into carbon-containing products like cement, jet fuel, and the raw materials used for making plastics.

CCU could reduce annual greenhouse gas emissions by 20 billion metric tons in 2050—more than half of the world's global emissions today, the IPCC estimates.

Such recognition was a significant victory for a movement that has struggled to

emerge from the shadow of its more established cousin, CCS, says chemist and global CCU expert Peter Styring of the University of Sheffield in England, during a 2022 interview. He adds that many CCU-related companies are springing up, collaborating with each other and with more established companies, and working across borders. London-based consumer goods giant Unilever, for example, partnered with companies from the United States and India to create the first laundry detergent made from industrial emissions.

The potential of CCU is "enormous," both in terms of its volume and monetary prospects, said mechanical engineer Volker Sick at an April 2022 conference in Brussels following the IPCC report that first included CCU as a climate change strategy. Sick, of the University of Michigan in Ann Arbor, directs the Global CO2 Initiative, which promotes CCU as a mainstream climate solution. "We're not talking about something that's nice to do but doesn't move the needle," he added. "It moves the needle in many, many aspects."

The Plastics Paradox

The use of carbon dioxide in products is not new. CO2 makes soda fizzy, keeps foods frozen (as dry ice), and converts ammonia to urea for fertilizer. What's new is the focus on creating products with CO2 as a strategy to slow climate change. According to Lux Research, a Boston-based research and advisory firm, the CCU market, estimated at nearly $2 billion in 2020, could mushroom to $550 billion by 2040.

Much of this market is driven by adding CO2 to cement (which can improve its strength and elasticity) and to jet fuel—two moves that can lower both industries' large carbon footprints. CO2-to-plastics is a niche market today, but the field aims to battle two crises: climate change and plastic pollution.

Plastics are made from fossil fuels, a mix of hydrocarbons formed by the remains of ancient organisms. Most plastics are produced by refining crude oil, which is then broken down into smaller molecules through a process called cracking. These smaller molecules, known as monomers, are the building blocks of polymers. Monomers such as ethylene, propylene, styrene, and others are linked together to form plastics such as polyethylene (detergent bottles, toys, rigid pipes), polypropylene (water bottles, luggage, car parts), and polystyrene (plastic cutlery, CD cases, Styrofoam).

But making plastics from fossil fuels is a carbon catastrophe. Each step in the life cycle of plastics—extraction, transport, manufacture, and disposal—emits massive amounts of greenhouse gases, mainly CO2, according to the Center for International Environmental Law, a nonprofit law firm with offices in Geneva and Washington, D.C. These emissions alone—more than 850 million metric tons of greenhouse gases in 2019—are enough to threaten global climate targets.

And the numbers are about to get much worse. A 2018 report by the Paris-based intergovernmental International Energy Agency projected that global demand for plastics will increase from about 400 million metric tons in 2020 to nearly 600 million by 2050. Future demand is expected to be concentrated in developing countries and vastly outstrip global recycling efforts.

Plastics are a severe environmental crisis, from fossil fuel use to their buildup in landfills and oceans. But we're a society addicted to plastic and all it gives us—cell phones, computers, comfy Crocs. Is there a way to have our (plastic-wrapped) cake and eat it too?

Yes, Sick. First, cap the oil wells. Next, make plastics from aboveground carbon. Today, there are products made of between 20 and 40 percent CO2. Finally, he says, build a circular economy that reduces resource use, reuses products, and then recycles them into other new products.

"Not only can we eliminate the fossil carbon as a source so that we don't add to the aboveground carbon budget, but in the process, we can also rethink *how* we make plastics," Sick says. He suggests that plastics be specifically designed "to live very, very long so that they don't have to be replaced… or that they decompose in a benign manner."

However, creating plastics from thin air is not easy. CO2 needs to be extracted from the atmosphere or smokestacks, for example, using specialized equipment. It must often be compressed into liquid form and transported, generally through pipelines. Finally, to meet the overall goal of reducing the amount of carbon in the air, the chemical reaction that turns CO2 into the building blocks of plastics must be run with as little extra energy as possible. Keeping energy use low is a unique challenge when dealing with the carbon dioxide molecule.

A Bond That's Hard to Break

There's a reason that carbon dioxide is such a potent greenhouse gas. It is

incredibly stable and can linger in the atmosphere for 300 to 1,000 years. That stability makes CO2 hard to break apart and add to other chemicals. Lots of energy is typically needed to ensure that chemical reaction.

“This is the fundamental energy problem of CO2,” says chemist Ian Tonks of the University of Minnesota in Minneapolis in a July 2022 interview. “Energy is necessary to fix CO2 to plastics. We’re trying to find that energy in creative ways.”

Catalysts offer a possible answer. These substances can increase the rate of a chemical reaction and thus reduce the need for energy. Scientists in the CO2-to-plastics field have spent more than a decade searching for catalysts that can work at close to room temperature and pressure and coax CO2 to form a new chemical identity. These efforts fall into two broad categories: chemical and biological conversion.

First Attempts

Early experiments focused on adding CO2 to highly reactive monomers like epoxides to facilitate the necessary chemical reaction. Epoxides are three-membered rings composed of one oxygen atom and two carbon atoms. Like a spring under tension, they can easily pop open.

In the early 2000s, industrial chemist Christoph Gürtler and chemist Walter Leitner of RWTH Aachen University in Germany found a zinc catalyst that allowed them to break open the epoxide ring of polypropylene oxide and combine it with CO2. Following the reaction, the CO2 was joined permanently to the polypropylene molecule and was no longer in gas form—something that is true of all CO2-to-plastic reactions.

Their work resulted in one of the first commercial CO2 products—a polyurethane foam containing 20 percent captured CO2. As of 2022, the German company Covestro, where Gürtler now works, sells 5,000 metric tons of CO2-based polyol annually in the form of mattresses, car interiors, building insulation, and sports flooring.

Other research has focused on other monomers to expand the variety of CO2-based plastics. Butadiene is a hydrocarbon monomer that can be used to make polyester for clothing, carpets, adhesives, and other products.

In 2020, chemist James Eagan at the University of Akron in Ohio mixed butadiene and CO2 with a series of catalysts developed at Stanford University. Eagan hoped to create a carbon-negative polyester, meaning it has a net effect of removing CO2 from the atmosphere rather than adding it. When he analyzed the contents of one vial, he discovered he had created something even better: a polyester made with 29 percent CO2 that degrades in high-pH water into organic materials.

“Chemistry is like cooking,” Eagan says during an interview. “We took chocolate chips, flour, eggs, butter, mixed them up, and instead of getting cookies, we opened the oven and found a chicken potpie.”

Eagan’s invention has immediate applications in the recycling industry, where machines can often get gummed up from the nondegradable adhesives used in packaging, soda bottle labels, and other products. An adhesive that easily breaks down may improve the efficiency of recycling facilities.

Tonks, described by Eagan as a friendly competitor, took Eagan’s patented process a step further. By putting Eagan’s product through one more reaction, Tonks made the polymer fully degradable back to reusable CO2—a circular carbon economy goal. Tonks created a startup in 2022 called LoopCO2 to produce a variety of biodegradable plastics.

Microbial Help

Researchers have also harnessed microbes to help turn carbon dioxide into useful materials, including dress fabric. Some of the planet’s oldest living microbes emerged at a time when Earth’s atmosphere was rich in carbon dioxide. Known as acetogens and methanogens, the microbes developed simple metabolic pathways that use enzyme catalysts to convert CO2 and carbon monoxide into organic molecules. In the last decade, researchers have studied the microbes’ potential to remove CO2 and CO from the atmosphere or industrial emissions and turn them into valuable products.

LanzaTech, based in Skokie, Illinois, partners with steel plants in China, India, and Belgium to turn industrial emissions into ethanol using the acetogenic bacterium *Clostridium autoethanogenum*. The first company to achieve the conversion of waste gases to ethanol on an industrial scale, LanzaTech designed bacteria-filled bioreactors to fit onto existing plant facilities. Ethanol, a valuable plastic precursor, goes through two more steps to become polyester. In 2021, the

clothing company Zara announced a new line of dresses made from LanzaTech's CO2-based fabrics.

In 2020, steel production emitted almost 2 metric tons of CO2 for every 1 metric ton of steel produced. By contrast, a life cycle assessment study found that LanzaTech's ethanol production process lowered greenhouse gas emissions by more than 80 percent compared with ethanol made from fossil fuels.

In February 2022, researchers from LanzaTech, Northwestern University in Evanston, Illinois, and other institutions reported in Nature Biotechnology that they had genetically modified the *Clostridium* bacterium to produce acetone and isopropanol, two other fossil fuel-based industrial chemicals. The spent bacteria is used as animal feed or biochar, a carbon dioxide removal method that stores carbon in the soil for centuries.

Other researchers are skipping living microbes and just using their catalysts. More than a decade ago, chemist Charles Dismukes of Rutgers University began looking at acetogens and methanogens to capture and use atmospheric carbon. He was intrigued by their ability to release energy when making carbon building blocks from CO2, a reaction that usually requires energy. He and his team focused on the bacteria's nickel phosphide catalysts, which are responsible for the energy-releasing carbon reaction.

Dismukes and colleagues developed six electrocatalysts to make monomers at room temperature and pressure using only CO2, water, and electricity. The energy-releasing pathway of the nickel phosphide catalysts "lowers the required voltage to run the reaction, which lowers the energy consumption of the process and improves the carbon footprint," says Karin Calvinho, a former student of Dismukes. Calvinho is now the chief technical officer at RenewCO2, a startup that began to commercialize Dismukes' innovations in 2018. RenewCO2 plans to obtain CO2 from biomass, industrial emissions, or direct air capture, then sell its monomers to companies wanting to reduce their carbon footprint, Calvinho says during an interview.

Barriers to Change

Yet researchers and companies face challenges in scaling up carbon capture and reuse. Some barriers lurk in the language of regulations written before CCU existed. An example is the U.S. Environmental Protection Agency's program to

provide tax credits and other incentives to biofuel companies. The program is geared toward plant-based fuels like corn and sugarcane. LanzaTech's approach for producing jet fuel doesn't qualify for credits because bacteria are not plants.

Other barriers are more fundamental. Styring points to the long-standing practice of fossil fuel subsidies, which in 2021 topped $440 billion worldwide. According to the International Energy Agency, global government subsidies to the oil and gas industry keep fossil fuel prices artificially low, making it hard for renewables to compete. Styring advocates shifting those subsidies toward renewables.

"We try to work on the principle that we recycle carbon and create a circular economy," he says. "But current legislation is set up to perpetuate a linear economy."

The happy morning routine that makes the world carbon-cleaner is theoretically possible. It's just not the way the world works yet. Getting to that circular economy, where the amount of carbon aboveground is finite and controlled in a never-ending loop of use and reuse, will require change on multiple fronts. Government policy and investment, corporate practices, technological development, and human behavior would need to align effectively and quickly in the interests of the planet.

In the meantime, researchers continue their work on the carbon dioxide molecule.

"I try to plan for the worst-case scenario," Eagan said during an interview. "If legislation is never in place to curb emissions, how do we operate within our capitalist system to generate value in a renewable and responsible way? At the end of the day, we will need new chemistry."

By Ann Leslie Davis

Author Bio:
Ann Leslie Davis is an award-winning freelance journalist whose work has appeared in Grist, Mother Jones, Science News, Modern Farmer, and many other publications. She covers biotech and climate issues, focusing on plastics and emerging carbon dioxide removal methods.

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PVV Blog: Introduction ~ The Dutch Party For Freedom. An Analysis Of Geert Wilders' Thinking On Islam

2023/24 The reason for the series *'The Dutch Party for Freedom. An analysis of Geert Wilders' Thinking on Islam'* is the election victory of the party in the House of Representatives elections of November 22, 2022, and the shift of the party to the center of power, most probably heading to governing the country.

Throughout his career as party leader of the Party for Freedom, Geert Wilders has spoken out very critically, if not dismissively, if not discriminatingly about Muslims. The Netherlands would be better off without Muslims; Wilders dreams of a Netherlands without Islam. The party's election manifesto exudes undemocratic and anti-constitutional proposals, especially where Islam and Muslims are concerned: 'The Netherlands is not an Islamic country: no Islamic schools, Qurans and mosques,' the program states.

Jan Jaap de Ruiter has written two books about the ideas of the PVV; one, *De ideologie van de PVV. Het kwade goed en het goede kwaad* (in Dutch; translation title: *The ideology of the PVV. The evil good and the good evil)* (2012) is a refutation and criticism of the book *De schijn-élite van de valse munters. Drees, extreem rechts, de sixties, nuttige idioten, Groep Wilders en ik* (in Dutch as well: Dutch title: *The apparent elite of the counterfeiters. Drees, the extreme right, the sixties, useful idiots, Group Wilders and I*) written by Martin Bosma, party member from the very beginning and now elected Speaker of the House.

The second book, *The Dutch Party for Freedom. An Analysis of Geert Wilders' Thinking on Islam* (previously published as *The Speck in Your Brothers' Eye – The Alleged War of Islam Against the West* -2012) is an analysis of the book *Marked for Death. Islam's War Against the West and Me.*

Both books by de Ruiter can be freely downloaded here (scroll down).

In this blog, Jan Jaap de Ruiter follows the vicissitudes of the Party for Freedom in the cabinet formation and he compares the actions and statements, especially those related to Muslims, of party leader Wilders and party ideologue Martin Bosma with their own ideology. For years the party was able to work on its ideas and did everything it could to spread it. Now that the party is in the center of power, it can actually realize its ideas. How will the party act? Does the party attack democracy or does democracy resist the party? The future will tell.

The series appears in Dutch on this link (Nieuw Wij).

Jan Jaap de Ruiter (1959) is an Arabist affiliated with Tilburg University. He writes this series in a personal capacity. Contact de Ruiter at this mail address. Each new part of the series is announced on Facebook, X and LinkedIn.

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See also:

Jan Jaap de Ruiter – De ideologie van de PVV. Het kwade goed en het goede kwaad. (in Dutch)
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Jan Jaap de Ruiter – The Dutch Party for Freedom. An Analysis of Geert Wilders’ Thinking of Islam.
(Previously published as The *Speck In Your Brother’s Eye)*
https://rozenbergquarterly.com/the-dutch-party-for-freedom-an-analysis-of-geert-wilders-thinking-on-islam/

PVV Blog 1: Geert Wilders: ‘Islam Is Not A Religion. It Is A Totalitarian Ideology’

12-23-2023 Great was the surprise and shock when the exit poll of the parliamentary election on November 22nd indicated that Geert Wilders’ Party for Freedom would have secured 35 seats, a gain that became even greater the next day. With 37 seats in the chamber, the PVV left the other parties far behind, with GroenLinks-PvdA coming in second with 25 seats. The result was a surprise for the party leader himself and a big shock for the left-wing electorate and the VVD, which had led the government for 13 years.

Since its foundation in 2006, the Freedom Party has not failed to proclaim its vision on society and in particular on Islam and Muslims and has been beating the drum about the danger of Islam for the entire world all these years. The party’s election manifesto speaks of a Netherlands without the Koran, without mosques and in fact the party advocates a Netherlands without Islam and therefore without Muslims.

Together with the victories of two other parties, Pieter Omtzigt’s New Social Contract with 20 seats and Caroline van der Plas’s BBB with seven, and possibly tolerated by the VVD (24 seats), it now seems that the PVV can start its march to the center of power. Prime Minister Wilders, who would have thought, taking over the reins from VVD Prime Minister Mark Rutte. Mark Rutte, who, oh the irony of history, refused to collaborate with the PVV after the debacle of his first cabinet, which stumbled in 2012, supported by the PVV, and fell due to that same PVV.

The PVV already achieved its first success with the election of PVV MP and veteran, and party ideologue Martin Bosma as the chairman of the House of Representatives.

The question that naturally arises after the election victory is what the PVV (Party for Freedom) will do when it comes to implementing the anti-Islam program. Before the elections, the PVV leader had repeatedly indicated in debates that he would put his overly extreme and factually undemocratic proposals regarding Islam and Muslims "on hold," but what are these assurances worth when, for the past 20 years, he has been beating the drum of discrimination and sowing hatred?

In fact, party leader Wilders contradicted himself in his very first speech. Of course, he celebrated the significant victory, but afterward (neglecting the democratic tradition of congratulating winning parties), he told his supporters that the PVV would give the country back to the "Dutch." He didn't specify who these Dutch people are and from whom the country should be taken. Furthermore, he vowed to be a potential prime minister for all people, whether, in his words, they were "Christian, Muslim, or unbeliever."

He mentioned the word "Muslim," declaring that all people are equal to him should he become prime minister, while simultaneously expressing the intention to give the country back to "the Dutch." There is clearly a contradiction here, and we can better understand it by reading what Wilders once wrote about Islam and Muslims.

In his book *Marked for Death. Islam's War Against the West and Me*, Wilders writes: 'Islam is not a religion at all… but primarily a political ideology under the guise of a religion'.

According to Wilders, ideology is harmful, and nothing good can come from it. He associates ideology with Nazi Germany, the Soviet Union, and also with France during the French Revolution in 1789. Islam should not be "treated more leniently than other political ideologies such as communism and fascism, just because it claims to be a religion." Such an approach has significant consequences. He succinctly puts it, "That is the core of Islam: it is an ideology that strives for a global war." Surprisingly, he softens his view on Islam as a violent ideology by stating the following: "I am talking about the ideology of Islam, not about individual Muslims. There are many moderate Muslims, but that does not change the fact that the political ideology of Islam is not moderate – it is a totalitarian sect with global ambitions." However, the mitigating circumstances are minimal because, according to Wilders, moderate Muslims are people who have not yet realized how violent their religion is, and if they do, they all become potential

dangers to democracy and world order, even in the Netherlands. What Wilders states in his book, he has repeated many times, including in 2015 in a discussion with the then Minister of Social Affairs for the PvdA (Labour Party), Lodewijk Asscher, in which he said: "If anything is unconstitutional, it is Islam itself: totalitarian, violent, hateful towards apostates, homosexuals, women, and Christians."

If Wilders considers Islam as a totalitarian ideology rather than a religion, then Muslims are not believers, and, therefore, they do not have the right to freedom of religion as stated in Article 6 of the Dutch Constitution. Hence, according to him, any proposed laws by Wilders concerning Islam are not in conflict with the constitution. Islam itself is considered unconstitutional.

Wilders' statement that Muslims have nothing to fear if he becomes prime minister sharply contrasts with the above. I believe that if the PVV (Party for Freedom) truly comes to power, there is much for Muslims to be concerned about. The party may not immediately introduce anti-Islamic legislation, but if it sees any opportunity to implement such laws, it will not hesitate to do so.
Only time will tell, and I will keep you informed.

Previous post:
https://rozenbergquarterly.com/pvv-blog-introduction-the-dutch-party-for-freedom-an-analysis-of-geert-wilders-thinking-on-islam/

Next post:
https://rozenbergquarterly.com/pvv-blog-2-the-evil-french-revolution-has-made-islam-even-more-evil/

The Suffocation Of Democracy In India

Vijay Prashad

12-20-2023 On December 18 and 19, 141 members of the two houses of India's Parliament were suspended, as of December 19, by the Speaker of the lower house, Om Birla. Each of these members belongs to the parties that oppose the ruling Bharatiya Janata Party (BJP) and its leader, Prime Minister Narendra Modi. The government said that these elected members were suspended for "unruly behavior." The opposition had shaped itself into the INDIA bloc, which included almost every party not affiliated with the BJP. They responded to this action by calling it the "murder of democracy" and alleging that the BJP government has installed an "extreme level of dictatorship" in India. This act comes after a range of attempts to undermine India's elected opposition.

Meanwhile, on December 18, the popular Indian news website Newsclick announced that India's Income Tax (IT) department "has virtually frozen our accounts." Newsclick can no longer make payments to its employees, which means that this news media portal is now close to being silenced. The editors at Newsclick said that this action by the IT department is "a continuation of the administrative-legal siege" that began with the Enforcement Directorate raids in February 2021, was deepened by the IT department survey in September 2021, and the large-scale raids of October 3, 2023, that resulted in the arrest of Newsclick's founder Prabir Purkayastha and its administrative officer Amit Chakraborty. Both remain in prison.

Organs of Indian Democracy

In February 2022, the Economist noted that "the organs of India's democracy are decaying." Two years before that assessment, India's leading economist and Nobel Prize laureate Amartya Sen said that "democracy is government by discussion, and, if you make discussion fearful, you are not going to get a democracy, no matter how you count the votes. And that is massively true now. People are afraid now. I have never seen this before." India's most respected journalist, N. Ram (former editor of the Hindu), wrote in the Prospect in August

2023 about this “decaying” of Indian democracy and the fear of discussion in the context of the attack on Newsclick. This attack, he wrote, “marks a new low for press freedom in my country, which has been caught-up in a decade-long trend of uninterrupted down sliding in the ‘new India’ of Narendra Modi. We have witnessed a state-engineered McCarthyite campaign of disinformation, scaremongering, and vilification against Newsclick.” The world, he wrote, “should be watching in horror.”

In May 2022, 10 organizations—including Amnesty International, the Committee to Protect Journalists, and Reporters Without Borders—released a strong statement, saying that the Indian “authorities should stop targeting, prosecuting journalists and online critics.” This statement documented how the Indian government has used laws against counterterrorism and sedition to silence the media, when it has been critical of government policies. Use of technology—such as Pegasus—has allowed the government to spy on reporters and to use their private communications for legal action against them. Journalists have been physically attacked and intimidated (with special focus on Muslim journalists, journalists who cover Jammu and Kashmir, and journalists who covered the farmer protests of 2021-22). When the government began to target Newsclick, it was part of this broad assault on the media. That broader attack prepared the journalist associations to respond clearly when the Delhi Police arrested Purkayastha and Chakraborty. The Press Club of India noted that its reporters were “deeply concerned” about the events, while the Editor’s Guild of India said that the government must “not create a general atmosphere of intimidation under the shadow of draconian laws.”

Role of the New York Times

In April 2020, the New York Times ran a story with a strong headline about the situation of press freedom in India: “Under Modi, India’s Press Is Not So Free Anymore.” In that story, the reporters showed how Modi met with owners of the major media houses in March 2020 to tell them to publish “inspiring and positive stories.” When the Indian media began to report the government’s catastrophic response to the COVID-19 pandemic, Modi’s government went to the Supreme Court to argue that all Indian media must “publish the official version.” The Court denied the government’s request that the media must *only* publish the government’s view but instead said that the media *must* publish the government’s view alongside other interpretations. Siddharth Varadarajan, editor of the Wire,

said that the court's order was "unfortunate," and that it could be seen as "giving sanction for prior censorship of content in the media."

The Indian government's "administrative-legal siege" on Newsclick began a few months later because the website had offered independent reporting not only on the COVID-19 pandemic but also on the movement to defend India's constitution and on the movement of the farmers. Despite repeated searches and interrogations, the various agencies of the Indian government could not find any illegality in the operations of Newsclick. Vague suggestions about the impropriety of funding from overseas fell flat since Newsclick said that it followed Indian law in its receipt of funds.

When the case against Newsclick appeared to go cold, the New York Times—in August 2023—published an enormously speculative and disparaging article against the foundations that provided some of Newsclick's funds. The day after the story appeared, high officials of the Indian government went on a rampage against Newsclick, using the story as "evidence" of a crime. The New York Times had been warned previously that this kind of story would be used by the Indian government to suppress press freedom. Indeed, the story by the New York Times provided the Indian government with the credibility to try and shut down Newsclick, which is what they are now doing with the IT department's decision.

Upside Down World

The 141 members of Parliament are accused of trying to justify a breach of the parliament building that took place on December 13. Two men jumped from the press gallery into the hall and released smoke canisters to protest the failure of the elected officials to debate issues of inflation, unemployment, and ethnic violence in Manipur. The men received passes to enter parliament from Pratap Simha, a parliamentarian of the BJP. He has not been suspended. The BJP used this incident to suspend the opposition parliamentarians because they either did not condemn the incident, or they came out in defense of colleagues who were suspended.

Neither of the people who threw the smoke bombs into parliament nor those who planned that action have a political background, let alone any linkage to the opposition. Manoranjan D lost his job in an internet firm and had to return to assist his family work their farm; Sagar Sharma drove a taxi after he had to drop out of school due to financial problems at home. Azad had an MA, an MEd, and an

MPhil, but could not find a job. These are young people frustrated with Modi's India, but with no political connections. They tried to use normal democratic means to be heard but were not successful. Their act is one of desperation, a symptom of a broader social crisis; the suspension of the parliamentarians and the attack at Newsclick's finances are also symptoms of that crisis: the suffocation of democracy in India.

By Vijay Prashad

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Source: Globetrotter

Where Are Russia And The West Still Cooperating?

John P. Ruehl – Source: Independent Media Institute

12-20-2023 *The once-promising era of Western and Russian cooperation has nearly vanished. The fragile remaining remnants leave lingering questions about the future of global stability.*

In November 2023, Russia's withdrawal from the 1990 Conventional Armed Forces in Europe (CFE) treaty marked another milestone in the unraveling of agreements between Moscow and the West. The CFE, designed to limit weapons in Europe, symbolizes the steady decline of Western-Russian cooperation. Citing NATO expansion, Russia previously suspended CFE operations in 2007, and in 2011 the U.S. and other NATO allies halted information sharing with Russia on certain treaty provisions. After Russia's November decision, the U.S. and NATO allies suspended participation in the CFE.

Optimism for global cooperation initially soared during and immediately after the 1991 Soviet collapse. In the 1990s, the U.S. and Russia established the START Missile Treaty to reduce their nuclear arsenals, created the NATO Partnership for Peace (PfP) and the NATO–Russia Permanent Joint Council (NRPJC) to facilitate joint peacekeeping and stability in Europe, and Russia joined the G-8 to enhance economic coordination.

Collaboration also grew in counter-narcotics and counterterrorism initiatives, civil emergency response, space exploration, biomedical science, and maritime search and rescue operations. The Shared Beringian Heritage Program was created to

protect regional ecosystems and indigenous communities between Russia's Far East and Alaska, and the Arctic Council and Arctic Environmental Protection Strategy came to promote similar ideals between Russia and NATO-member Arctic countries.

But by the end of the 1990s, conflicting geopolitical interests in the former Yugoslavia, coupled with NATO enlargement into Central and Eastern Europe, caused significant strain on Russia-Western relations. Washington's decision to leave the Anti-Ballistic Missile Treaty in 2002 in the aftermath of 9/11 also set a precedent, and though the SORT Treaty was signed that year to reduce strategic nuclear weapons deployed abroad, it lacked important specifics, undermining enforcement mechanisms.

Additional NATO enlargement in 2004, a 2007 U.S. proposal for a missile defense shield in Europe (that Russia argued violated parts of the START I Treaty), and Russia's 2008 invasion of Georgia further discouraged cooperation. The U.S. and Russia managed to "reset" relations in 2009, resulting in suggestions for a scaled back version of the missile shield and creation of the U.S.-Russia Presidential Bilateral Commission. And, in 2010, the New START Treaty helped prolong nuclear weapons limits, while the Joint Plan of Action reached in 2013 showcased Russian and Western coordination over Iran's nuclear program.

Nonetheless, Western relations with Russia entered a downward spiral soon after. Following the 2014 Maidan Revolution in Ukraine and the beginning of Russia's intervention in the country, Russia was immediately sanctioned and removed from the G-8. NATO and the EU also suspended or stopped cooperation and consultation with Moscow.

The 2018 U.S. withdrawal from the Iran nuclear deal highlighted the ongoing breakdown in relations. Citing Russian violations, the U.S. then withdrew from the Intermediate-Range Nuclear Forces Treaty (INF) in 2019 and Treaty on Open Skies in 2020 (with Russia leaving in 2021). Since Russia's invasion of Ukraine in 2022, cooperation between Moscow and the West deteriorated further. Sanctions against Russia were expanded significantly, it suspended participation in the New START in February 2023, with the CFE becoming the most recent link to be severed.

Amid this collapse, a few crucial areas of cooperation persist. The International

Space Station (ISS) consists of one part manufactured and operated by Russia and another by the US and other Western countries. Launched in 1998 and designed to be interdependent, the ISS has faced uncertainty since the beginning of the war in Ukraine. In July 2022, Dmitry Rogozin, then-head of Roscosmos, Russia's space agency, declared an end to ISS cooperation in 2024, comments reiterated by his replacement, Yuri Borisov, just days later.

But NASA quickly declared that Russia would continue the partnership, and Russian officials stated in April 2023 that the country's adherence to the ISS would last until 2028 (the U.S. has confirmed it will continue until the ISS is decommissioned in 2030). Roscosmos and NASA also remained committed to seat-swapping missions to the ISS, with a U.S. astronaut flying aboard a Russian Soyuz rocket in September 2022 and a Russian cosmonaut flying aboard a Crew Dragon mission to the ISS weeks later.

Energy is also a domain where there is ongoing Western and Russian cooperation. European countries are continuing to buy Russian oil and natural gas, even if some of it is delivered through intermediaries like India. Rosatom, Russia's state-run nuclear energy agency, also enjoys significant relationships with several EU and NATO members. At ITER, an international nuclear energy research project headquartered in France, Russia has made several deliveries since the start of the war in Ukraine, most recently in February 2023.

And though the U.S. has successfully weaned off Russian fossil fuels, it continues to pay billions of dollars annually to Russia for nuclear fuel and other nuclear energy assistance—in 2022, Russia was the top supplier of enriched uranium to the U.S. Since the beginning of the war in Ukraine, the Senate has attempted to introduce bills to ban Russian uranium, while a recent House bill to do so passed in December 2023. It remains to be seen if it will be passed in the Senate, and it will take years to implement.

Significant non-energy-related trade between Western countries and Russia also endures in the face of sanctions. And while many Western companies left Russia after the launch of the war in Ukraine, many did not. Others, like Volkswagen and Renault, sold their assets in Russia for a nominal fee, but with buyback clauses that could allow them to return.

Despite tensions relating largely to the conflict in Ukraine, Russia has continued

to play an active role in the Organization for Security and Cooperation in Europe (OSCE). Recent events suggest the hardline diplomatic approach to Russia is faltering. Russian foreign minister Sergey Lavrov was forbidden from visiting any EU country after sanctions were imposed on him in 2022 and was denied access to Balkan states' airspace to travel to Serbia that year. But in September 2023, Lavrov's plane was permitted to cross Greek airspace and land in North Macedonia for an OSCE meeting. The recent elections of the new Dutch and Slovak governments further suggest a diminishing political appetite among some Western countries for taking an inflexible stance against Russia.

The U.S. and Russia have also attempted to maintain open lines of communication to avoid potentially catastrophic military accidents. The Moscow-Washington hotline, established in 1963 after the Cuban Missile Crisis, was in 2015 complemented by a rudimentary channel of communication opened to avoid military conflict in Syria once Russian forces entered the country that year. And in March 2022, a deconfliction hotline regarding Ukraine was created that has so far been used once in November 2022.

Informal talks between Russia and the U.S. have also come to light. In July 2023, it was revealed that former senior U.S. national security officials had held secret talks in New York with Russian officials, including Sergei Lavrov, to negotiate an end to the war in Ukraine. These informal diplomatic discussions have allegedly been taking place at least twice a month, often online. U.S. officials denied they had ever taken place.

And despite the heightened military activity in the Arctic spurred by the conflict in Ukraine, there is optimism that nations recognize the vital significance of environmental cooperation in the region. This sentiment was underscored when Russia hosted the 13th Arctic Council meeting in the town of Salekhard in May 2023.

Current levels of cooperation are a far cry from the 1990s, where in addition to greater collaboration and dialogue in various areas, 80 percent of the world's strategic nuclear weapons were dismantled in a decade. While many avenues of collaboration have since crumbled, the ISS continues to orbit, the nuclear energy industry maintains pockets of cooperation, and strained communication lines remain open.

Yet Russia's actions, most notably its invasion of Ukraine, coupled with Moscow's distrust toward the West, cast a shadow over a more optimistic outlook. Existing nuclear agreements are languishing or ignored, and if the New START treaty expires in 2026, it could lead to a new nuclear arms race and threaten other weapons treaties. Russia's growing relationships with "rogue states" like Iran and North Korea also amplify its ability to destabilize the Western-led global order, while Russia's burgeoning relationship with China has offset Western isolation.

Since the Soviet collapse, Washington and the wider Western world have struggled to balance acknowledging Russia's influence, holding it accountable, and safeguarding global security interests. Earnest and then sporadic cooperation between Moscow and the U.S.-led West has returned to increasingly adversarial policies that rival the worst days of the Cold War. However, Russia's ability to both undermine and contribute to global stability means it cannot be simply cast aside. Despite the disparity in capabilities, managing the specter of Russia on the international stage continues to be an evolving process for Western policymakers.

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