

## In Search of a New World

The year 2022 is becoming one of the more important years of history, something not fully anticipated. Simultaneously, in addition to climate change continuing its march to close in on and destroy civilization, a new world war has begun. This war is not between a Communist East and a democratic West as was the Cold War nor is it a new version of World War I or World War II. It is different. It is war between those living in freedom under rule of law and those living under absolutism, ruled by dictators with no laws and, largely speaking, no freedom. Information and technology are weaponized. Put briefly, the war pits democracy against tyranny. In one form or another it could likely last a long time. In that way it is like the Cold War. Also like the Cold War it is a deeply serious and could, if mismanaged, lead to general nuclear war.

Fiona Hill, one of America's senior experts on Europe, Russia and conflict between nations, notes in a Politico interview of February 28, 2022, that "long arcs and trends of European history are converging on Ukraine right now."<sup>1</sup> In her view, "We are already in the middle of a third World War, whether we have fully grasped it or not." Interviewer Maura Reynolds asked Hill if she thought that Putin's intent was to reestablish "the Soviet Union, the Russian Empire or something different." Hill responded, "It's reestablishing Russian dominance of what he sees as the Russian 'Imperium,' a land area larger than the Russian empire. "Putin has articulated an idea of there being a 'Rusky Mir' or a 'Russian World.' ... This idea of a Russian world means re-gathering all the Russian speakers everywhere, as well as in different places that belonged at some point to the Russian tsardom." This Russian World vision was on display in an article published by Putin last summer in which he asserted that the Ukrainian and Russian

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<sup>1</sup> Maura Reynolds, "'Yes, He Would:' Fiona Hill on Putin and Nukes," *Politico Magazine*, February 28, 2022, <https://www.politico.com/news/magazine/2022/02/28/world-war-iii-already-there-00012340>.

people are ‘one people.’” Putin’s idea that Ukrainians and Russians are the same has been entirely rejected by the Ukrainians as their hatred of the Russians knows no limits.

During the Pandemic, Putin spent considerable time in the Kremlin archives, studying hundred-year-old maps and looking up all the areas that once had Russian speakers and/or once were under the control of Moscow. This formed his idea of an “imperium.” It’s a large area, so his aspirations are likely a bit larger than NATO might imagine. This construct is similar to that of Adolph Hitler, who believed that all German speakers and Aryans (even if they didn’t speak German) should be gathered together and dominate the world. The Putin Imperium would dominate its own area as well as neighbors outside of the Imperium. Dominance might be exerted through absorption, puppet states, and so forth. While Belarus, Kazakhstan and others have come back under Russian domination, Ukraine is one country that got away. Another fate awaits it. According to Hill, “what Putin is saying now is Ukraine does not belong to Ukrainians. It belongs to him and the past. He is going to wipe Ukraine off the map, literally, because it doesn’t belong to his map of the ‘Russian world.’ He’s basically told us that. He might leave behind some rump statelets.”<sup>2</sup> The old maps had plenty of those. If Putin gets his way (though probably Putin will never get his way with Ukraine), it will take place after all cities have been bombed into ruins, instead of after the quick conquest Putin imagined. But the insurgency against him will go on even if people have to live in and fight from destroyed cities.

Destroying a country and a culture is nothing new to Putin. He did it to the Chechens in his own country and he did it in Syria. Now he is doing it to his neighboring fellow Slavs. Since his army, even with its overwhelming numbers, is no match for the determined and heroic Ukrainian army, he has now opted for the elimination of all of Ukraine’s cities and therewith

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<sup>2</sup> Reynolds, “‘Yes, He Would.’”

most of their cultural creations. Putin was not the inventor of this tactic. Tacitus, the prominent Roman historian, described a 2,000-year-old Russian victory this way: “They created desolation and called it peace.” Kharkiv is the first example. The city is a smoking ruin, its smashed buildings standing like a broken Stonehenge, its streets empty of most citizens—some having been killed, some having fled—a testimony to humanity’s potential for evil. Mariupol is another such example. There’s still time to save Lviv, near the Polish border and Ukraine’s second most important historical city.

In addition to its documented horrors in Ukraine, Russia has given a demonstration of the utility of nuclear weapons, according to David Ignatius in his *Washington Post* column of March 18. He writes,

NATO isn’t intervening directly in this war because Russia has 4,000 nuclear weapons. It’s that simple. And let’s be honest: Would Putin have invaded if Ukraine had kept its arsenal back in 1994, when the United States pressed it to disarm? I doubt it.<sup>3</sup>

This situation won’t be lost on other states that are interested in—or already have—nuclear weapon, such as Saudi Arabia, Iran, North Korea, Turkey, Algeria, Vietnam and so on. “This war might prove the greatest stimulus to nuclear proliferation in history,” says Ignatius. Russia seems to believe it can do anything it wants to other states if it just makes a nuclear weapon threat first. And NATO is forced, it believes, to make unusual choices: air defense missiles are OK to transfer to Ukraine but not air defense fighter planes. “America and its allies are deterred in this conflict, but Russia isn’t. The paradox of our restraint is that it enables the unrestrained.” Concludes Ignatius, “Somehow, the balance of deterrence must be restored.” Otherwise, Putin

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<sup>3</sup> David Ignatius, “Watching Russia’s Military Failures is Exhilarating. But a Cornered Putin Is Dangerous,” *Washington Post*, March 17, 2022, <https://www.washingtonpost.com/opinions/2022/03/17/cornered-putin-dangerous-ukraine-david-ignatius/>.

may realize his dream of a Russian “imperium” and wipe Ukraine off the map. Then, when he is ready to absorb the Baltic states, he perhaps believes will just make another nuclear threat and the same thing will happen. Fiona Hill thinks the entire world should be following the war. India abstained in the United Nations censure vote, but any free nation could be attacked next.

But, Russia’s war on Ukraine must end quickly, positively and decisively and Putin, along with any other aggressiver, conflict-inclined dictator, in order that policy can be directed to a far greater threat than Putin’s bearing down upon Ukraine. Indeed, war must become obsolete if civilization is to survive global warming. Perhaps some combination of the rising dissent in Russia, the failure of Putin’s army, the heroic performance of the army and people of Ukraine, a huge effort by NATO and the restoration of deterrence can cause the end of this war sooner than expected. Afterwards, all countries must cooperate as never before in facing the truly existential threat posed by global warming (climate change) to world civilization as we know it. Most know about the challenge of global warming, but only a few are ready for it and a smaller number still are doing something about it.

A good example of unreadiness to take on global warming was the successful blocking of Sarah Bloom Raskin’s nomination to the Federal Reserve Board recently. According to Jane Mayer, certain conservative Senate Republicans, although unconcerned about her being married to Democrat Jamie Raskin, couldn’t countenance her having “special interests.”<sup>4</sup> Raskin had described climate change in speeches and op-ed pieces as a potential threat to global economic security. She had encouraged a shift away from fossil fuel energy sources to renewable energy. Although she was a candidate for the Federal Reserve Board, not the EPA, the fossil fuel

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<sup>4</sup> Jane Mayer, “How Fossil-Fuel Companies Are Stonewalling Sarah Bloom Raskin’s Nomination to the Fed,” *The New Yorker*, March 2, 2022, <https://www.newyorker.com/news/news-desk/how-fossil-fuel-companies-are-stonewalling-sarah-bloom-raskins-nomination-to-the-fed>.

industry, which had contributed to the campaigns of all twelve Republicans on the Banking Committee, saw her as a threat. The recent report of the Intergovernmental Panel on Climate Change at the United Nations has warned that intensifying heat waves, droughts, and floods will catastrophically affect billions of people—across huge swaths of the planet. But, Meyer concludes, we can't beat global warming with the sort of Senate behavior displayed during consideration of the Raskin nomination.<sup>5</sup> Raskin subsequently asked that her nomination be withdrawn.

The fossil fuel industry is essentially responsible for climate change. In the 1980s, President Ronald Reagan used a cap-and-trade system to phase out leaded gasoline. President George H. W. Bush proposed the use of a cap-and-trade system to reduce by half emissions from coal-fired power plants in 1989. This was noted by MIT Economics professor Richard Shalmaneser and Harvard Kennedy School government professor Robert Stavins in a 2013 article in the *Journal of Economic Perspectives*.<sup>6</sup> A resistant Congress ultimately overwhelmingly supported the Bush proposal and it was incorporated in the Clean Air Act amendments in 1990. Those amendments passed the House and Senate by very large margins. The president not only signed the legislation but supported environmentalists who wanted a larger reduction than his own advisors had advocated for the amendments.

If this compromise had been implemented, there never would have been a global warming problem in all likelihood. The solution was fashioned by Presidents Reagan and Bush but undermined and eventually destroyed by the fossil fuel lobby. The result was that the strong public support of the cap-and-trade proposal that existed in 1990 disappeared as did support for it

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<sup>5</sup> Jane Meyer, "Sarah Bloom Raskin's Nomination to the Fed."

<sup>6</sup> Richard Schmalensee and Robert N. Stavins, "The SO<sub>2</sub> Allowance Trading System: The Ironic History of a Grand Policy Experiment," *Journal of Economic Perspectives* 27, no.1 (Winter 2013): 103-122, <https://www.aeaweb.org/articles?id=10.1257/jep.27.1.103>.

in Congress and, most importantly, the Republican Party. “In 2020, about 60% of U.S. utility-scale electricity generation was produced from fossil fuels (coal, natural gas, petroleum).<sup>7</sup> The world numbers in 2019 weren’t much different, 63% of fossil fuels, 26.8% for renewables and 10.3% for nuclear.<sup>8</sup> The number 400 parts per million of carbon in the atmosphere was considered in 1990 and for some years thereafter a red line for harm to the planet. That number for the planet in 1989 was 366.84 parts per million; it was 411.66 in 2019, which represented a significant increase over 1989 and by 2021 was 416.45 parts per million.<sup>9</sup> As these data indicate, we are now nearing catastrophe instead of enjoying the fruits of the long-past wise policy decisions of Presidents Reagan and Bush. In the face of catastrophe, the fossil fuel industry won’t let us deal with it.

Climate scientists believe that before industrialization began around 1800, the global mean temperature had not varied by more than 1.1 degrees Celsius in the previous 10,000 years. Over the millennia there have been considerable variations but not much during this period of human habitation. So climate scientists and the U.S. government through its agency, the National Oceanic and Space Administration, have adopted the temperature around 1800 as a reference point. Thus, the increases in temperature of the planet from the preindustrial norm (the norms of the previous 10,000 years before 1800) is used to determine how well the planet is doing against Global Warming. More than 2 degrees Celsius above that level is considered quite dangerous; plus 3 degrees Celsius—borderline catastrophe; plus 4 degrees Celsius—catastrophic and

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<sup>7</sup> “Electricity Explained: Sources of U.S. Electricity Generation, 2020,” *EIA (U.S. Energy Information Administration)*, <https://www.eia.gov/energyexplained/electricity/electricity-in-the-us-generation-capacity-and-sales.php#:~:text=In%202020%2C%20about%2060%25%20of,was%20from%20renewable%20energy%20sources>.

<sup>8</sup> “World Gross Electricity Production by Source, 2019,” *IEA*, <https://www.iea.org/data-and-statistics/charts/world-gross-electricity-production-by-source-2019>.

<sup>9</sup> “Historic Average Carbon Dioxide (CO<sub>2</sub>) Levels in the Atmosphere Worldwide from 1959 to 2021 (in ppm),” *Statista*, <https://www.statista.com/statistics/1091926/atmospheric-concentration-of-co2-historic/>.

probably irreversible and plus 6 degrees Celsius, likely extinction of human civilization as we know it.

Approximately 6 degrees Celsius was the level believed to have been reached about 250 million years ago as a result of ten thousand years of volcanic eruptions—not 150 years of fossil fuel use—and 90% of aquatic species died along with 85% of land creatures. “That six-degree increase is estimated to have taken some 10,000 years to occur, probably from volcanic eruptions, and it took life on Earth tens of millions of years to recover from that catastrophic episode of global warming.”<sup>10</sup> In 2021, this warming level was 1.27 Celsius.

What are the symptoms of advanced climate change/global warming?

#### Waves of extreme heat.

Floods and droughts, both aggravated by heat, have killed millions since 1900. Wildfires have become enormous and less controllable as climate change advances. More and more, the world will look like summertime in Australia and California—and not only in summer, but rather year round. As the planet heats up, water molecules near the surface become energized and enter the atmosphere as water vapor, leaving a desert in one place and becoming part of a huge storm elsewhere. Because of heat, fresh water sources and arable land will eventually disappear and deserts expand as the planet desertifies.<sup>11</sup>

#### Oxygen Decline

The world’s oxygen is produced 28% by rainforest and 70% by marine plants, algae and phytoplankton (primarily by phytoplankton). The oxygen is produced as a by-product of photosynthesis. The increasing acidity of the ocean is gradually killing off the phytoplankton and

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<sup>10</sup> Charles, the Prince of Wales, *Harmony: A New Way of Looking at Our World* (Great Britain: Harper Collins, 2010), 45.

<sup>11</sup> Robert Rohde, “Global Temperature Report for 2021,” *Berkeley Earth*, January 12, 2021, <http://berkeleyearth.org/global-temperature-report-for-2021/>.

land development is doing the same to the Amazon rainforest. There will be less and less oxygen in the atmosphere as global warming advances.

### Sea Ice and Glacial Melt

As the vast ice area of the Arctic and the Greenland and Antarctic ice sheets melt, sea levels will steadily rise everywhere. One special danger to humanity in this process are the billions of tons of methane clathrates (or hydrates)—150 times more concentrated than methane itself. Their release, because of the melting of the permafrost, would be far, far larger than existing carbon emissions. This would take global warming well beyond existing projections. But, since methane only lasts 10-12 years in the atmosphere, its effect would not be permanent unless a particular release were truly enormous.

### Large, Frequent Killer Storms

As a result of increased water vapor in the atmosphere, storms will be much larger, more violent and more frequent in the future. Just look at the effect of Katrina in New Orleans in 2005, to get an idea.

### Sea Level Rise

During the last warming period about 100,000 years ago, coastlines were 20-26 feet above current levels. During this period the temperature of the earth was only slightly warmer than today. *The New York Times* reported nearly six years ago that the entire East Coast was at risk to significant and regular flooding. Scientists have known for a long time that global warming would imperil the U.S. East Coast.

Perhaps tactics for coping with such changes could include developments like building large coastal cities inside glass bubbles high above the shoreline with a tolerable atmosphere produced and piped in from nuclear power reactors outside and the same thing for fresh



desalinated water piped in from the ocean leaving only wasteland between these enclaves. This solution is imaginary, of course, but strategies like this would be needed to save some of humanity.

What can be done?

More than three decades after the failed agreement on cap and trade which probably would have prevented global warming's existential threat, the United States and the world community are still getting nearly two-thirds of their energy from fossil fuels. This practice must drastically change and quickly. The change to noncarbon energy worldwide must be largely accomplished by roughly 2035—not by 2040 or 2050. President Biden is right on this one. If we say this timetable is impossible, we likely are also saying that saving world civilization in the form that we know it is also impossible.

Nuclear power continues to be the largest form of noncarbon energy. It has safely and reliably powered cities around the world for over 50 years. It has had only one accident that caused fatalities—the accident at Chernobyl in the mid-1980s, which had some 30 confirmed deaths at the site and some 30 more over time. Fossil fuel facilities have fatal accidents on a yearly basis. Thousands of people die every year in coal mine accidents around the world and millions die prematurely due to coal-related air pollution. When compared to industrial accidents over the years, nuclear power doesn't even rise to the level of an afterthought. Think about the gas accident at the chemical plant at Bhopal, India in 1984, 3,800-10,000 dead in the first few days, 15,000 to 30,000 premature deaths in the next two decades.

Nuclear power is not only important but essential. The idea of letting it die off one reactor at a time is a pathway to increased atmospheric carbon and climate failure. Manufacturing and expanding nuclear energy is requisite if we are serious about saving human

civilization on this planet. To mitigate climate change enough to preserve our quality of civilization, we must eliminate fossil fuel power plants as fast as possible; focus on rapidly building the types of reactors we are currently using; and deploy Small Modular Reactors (SMRs) when they are ready in the early to mid-2030s. We can't sit on our hands waiting for SMRs for another decade if we want to have any chance of prevailing. We should build renewables as well. They require much more space than nuclear power does but are liked by many and can deliver power when the wind is blowing or the sun is shining. Nuclear can deliver power 24/7 with 90 percent reliability all the time. Nuclear and renewable energy together are the noncarbon sources which will lower carbon emissions worldwide and ultimately end carbon emissions entirely for the energy sector. In scientific terms, nuclear and renewable energy sources of power are intimately related. Just as nuclear fission generates the energy for one of them, nuclear reactions within the Sun create the heat and radiation for the other.

In taking these steps, there must also be lasting and intense worldwide cooperation by virtually every state as said previously in this article.

Of course, energy production is only about 40 percent of the problem; the transportation sector contributes another 40 percent and the agriculture/industrial sector the remaining 20 percent. The transportation and agriculture/industrial sectors must be reformed through the use of electric cars, boats, etc., airplanes powered by hydrogen fuel made by nuclear power plants; dairy reformation and structural reform—mostly the impact of large buildings—in cities and towns. With determination, we can and will make needed changes. To be sure, the hour is very late as witness the latest report of the Intergovernmental Panel of Climate Change at the United Nations—its most dire one yet. The Secretary General reported “an atlas of human suffering and a damning indictment of failed climate leadership.” He said that this report represents, “a code

red for humanity and human driven global heating.” He went on to say that “the evidence is irrefutable: greenhouse gas emissions are choking our planet and placing billions of people in danger.” The report warns that many changes such as continued sea level rise “are already irreversible for centuries to millennia.”<sup>12</sup>

The report also says that there is still time to save much if strong action is taken to rapidly eliminate all fossil fuel plants; rapidly build current technology nuclear power plants that can be succeeded by SMRs when they are ready; and speed ahead rapidly on wind and solar combined with nuclear power as backup where necessary, rather than fall back on the fossil fuel plants as backup. The words to remember are electricity, nuclear power and cooperation. With that emphasis we can and will win.

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<sup>12</sup> “IPCC Report: ‘Code red’ for Human Driven Global Heating,” *United Nations*, February 28, 2022, <https://news.un.org/en/story/2021/08/1097362>.