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A nuclear power plant. (photo: blickwinkel/Alamy)

Nuclear Power Will Not Save Us From Climate Change

By M.V. Ramana and Robert Jensen, Yes! Magazine, 03 November 18

How the IPCC's solutions for reversing the Earth's warming encourage business as usual.

The Intergovernmental Panel on Climate Change's special report released in October rightfully elicited much public commentary about global warming and its truly frightening impacts. But in those initial reactions, less attention was paid to the unnerving implications of the report's suggested solutions, which encourage us to roll the dice on unproven technologies and double down on nuclear power.

Underlying the IPCC report's claims is the belief that technological solutions can fix the climate problem. Yet these fixes don't address the root cause of climate change.

Let's start by facing the frightening facts. The report shows that warming must be held to no more than 1.5°C above preindustrial levels to avoid truly catastrophic consequences. This requires emissions of CO2 to be limited to an amount that, at the current rate, will be breached in 10 to 15 years.

The report outlines four broad pathways to stay within that limit, all of which include large-scale deployment of various technological fixes to climate change. These include not just the sensible pursuit of solar energy and wind power but also of unproven technologies, such as bioenergy with carbon capture and storage, which has not been demonstrated to work at scale.

Why bioenergy with carbon capture and storage? Because, in the models that the panel's report relies on, the projections of energy use show that the emissions limit will be crossed over the next few decades. Therefore, modelers assume large-scale CO2 removal to reduce the amount of gas in the atmosphere. The means of removal include familiar ideas—like increasing forest cover—to technical ideas like bioenergy with carbon capture and storage and even more futuristic proposals like trying to capture CO2 directly from the air and adding limestone powder to the oceans.

The scariest of the four pathways outlined in the report is a "resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products." In other words, business as usual in a world where the usual business leads to the edge of a cliff. What could justify such an approach? The belief that technology will save us.

These technologies would have to be deployed at massive scales. The amount of carbon dioxide that

would have to be captured and stored (i.e., buried) is nearly 1,200 billion tons (gigatons). To put that in perspective, the report also states that "by the end of 2017, anthropogenic CO2 emissions since the preindustrial period are estimated to have reduced the total carbon budget for 1.5°C" by the rough equivalent of 2,200 gigatons of carbon dioxide—give or take 320 gigatons. So, within 80 years, an amount that is more than half of all the CO2 emitted over two and a half centuries will have to be captured and stored using a technology that has not been demonstrated.

Along with these futuristic technologies, a more familiar savior also comes to the rescue: nuclear power. In the report's "energy-intensive scenario," nuclear energy has to increase by a factor of around five. Wishful thinking about unproven technologies is easier to understand than the continued faith in the failed project of nuclear energy. Nuclear energy has been generating electricity since the 1950s, with more than 400 nuclear power plants operating in the world today—long enough for us to evaluate its ecological and economic costs, risks, and benefits.

Nuclear energy has been declining, not growing, as a share of the electricity market during the period that climate change has become recognized as an important problem. In 1997, when the Kyoto Protocol was signed, nuclear power's share of global electricity generation was about 17 percent. Twenty years later, nuclear energy contributed barely 10 percent of global electricity production in 2017. This included a period when the nuclear industry was heralding a renaissance. The downward trend is expected to continue.

Despite governments subsidizing the technology in various ways over the decades, the economics of nuclear energy is a major problem: Nuclear reactors are expensive to construct, and prone to costing more than budgeted and taking longer to build than projected. The flagship projects in Europe—Olkiluoto (Finland) and Flamanville (France)—use the latest reactor design, the EPR (which stands for either European Pressurized Reactor or Evolutionary Power Reactor). In the United States, Vogtle (Georgia) and V. C. Summer (South Carolina) use the Advanced Passive (AP1000) reactor design. What they have in common is unexpected cost increases: Costs at V. C. Summer went up so high that the utility constructing the plant abandoned it after spending billions.

One would think that these trends would lead policymakers to abandon nuclear power, but faith that these failures can be resolved is fueling government and private investments in a new generation of reactor designs—advanced reactors, small modular reactors, and Generation IV reactors. On paper, these look great, just like the EPR and the AP1000. But there is no reason to believe these new designs will prove cheaper than current reactors—unless the designers, constructors, and regulators emphasize lowered costs over safety, which increases the risk of future Chernobyls and Fukushimas.

Back to the panel's report. The models it uses do not deal with these problems of nuclear energy. They simply assume that nuclear reactors will be built. And because of the focus on CO2 emissions, they don't highlight the accompanying problems such as increased quantities of radioactive waste that would have to be stored and isolated from human contact for hundreds of thousands of years.

The underlying cause here is "technological fundamentalism," the belief that the increasing use of evermore sophisticated, high-energy, advanced technology can solve any problem, including those caused by the unintended consequences of earlier technologies. This Panglossian approach allows modelers to state the climate problem can be contained without giving up a social and political system that is founded on continued and endless economic growth.

This belief also allows for the idea that the business-as-usual approach can continue, and the solution is replacing coal, gas, and nuclear plants with solar panels, wind turbines, and batteries or other storage technologies. As supporters of the fossil fuel and nuclear industries like to point out, even these technologies have environmental and social impacts. To live sustainably on this planet—and despite what folks such as Elon Musk might promise, this is the only planet available for the vast majority of the world's inhabitants—even these more benign technologies have to be limited in scale.

The alternative is obvious. The starting point of any serious discussion of climate change must be to recognize that it is not possible to limit global warming to either 1.5 or 2°C in any "resource- and energy-intensive scenario" where economic growth continues in the usual fashion. To put it more bluntly, one cannot resolve the climate problem under capitalism, which cannot survive without endless growth.

Arguments against capitalism are at least as old as capitalism itself. If one is honest about the implications of the latest report, climate change is providing another compelling argument for fundamental economic change.