

A Mass Climate Mobilization Is Taking Place Sunday. Here's Why It's Urgent.



Robert Pollin

Economist Robert Pollin analyzes the state of the global green transition in the lead-up to Sunday's mass protest.

A [UN climate report](#) ahead of the upcoming COP28 summit says that governments are failing to cut emissions fast enough for the planet to avoid an unmitigated disaster and calls in turn for the phasing out of fossil fuels. In the wake of the hottest summer on record, climate advocates have organized a “March to End Fossil Fuels” in New York City as part of the wave of global mobilizations with the aim of putting an end to the poisons that are killing the planet. The action will take place Sunday, September 17.

Amid this crucial mobilization, the climate movement is working hard to expose the roots of this crisis and chart an alternate course, wrestling with questions such as: Why do governments continue to subsidize fossil fuels? Aside from the obvious resistance of the fossil fuel industry, what are the economic and technological challenges we would face by moving to a post-fossil fuel future? How do we actually get to zero emissions?

Robert Pollin, one of the world's leading progressive economists and an expert on the macroeconomics of climate change and energy, tackles these questions in an extensive and exclusive interview for *Truthout*. Pollin is distinguished professor of

economics and co-director of the Political Economy Research Institute (PERI) at the University of Massachusetts Amherst. He has published scores of books and articles on jobs and macroeconomics, labor markets, wages and poverty, and environmental and energy economics. He was selected by *Foreign Policy Magazine* as one of the “100 Global Thinkers for 2013.” His latest book, coauthored with Noam Chomsky, is *Climate Crisis and the Global Green New Deal: The Political Economy of Saving the Planet*.

C. J. Polychroniou: On Wednesday, September 6, the European Copernicus Institute reported that the summer of 2023 was the [hottest ever recorded](#) in history by a large margin, prompting in turn UN Secretary-General António Guterres to issue a statement saying “climate breakdown has begun.” And speaking of the UN, on Friday, September 8, it released an [assessment of the progress on cutting emissions](#) in which it said that countries are failing to make good on their commitments to curb emissions and that, subsequently, “there is a rapidly closing window of opportunity to secure a livable and sustainable future for all.”

First, what’s the current picture of energy-related carbon dioxide (CO2) emissions and that of renewable energy, respectively, and why is it that eight years after the Paris Agreement the world is still falling short of its climate goals?

Robert Pollin: To have any chance of moving onto a viable global climate stabilization path, the single most critical project at hand is straightforward. It is to phase out the consumption of oil, coal and natural gas, so that, by 2050, fossil fuel consumption for producing energy will have fallen to zero. This is because producing and burning fossil fuels to produce energy is responsible for about [90 percent of all CO2 emissions](#).

As of the most recent data from the International Energy Agency (IEA), the leading mainstream organization focused on global energy market conditions, global CO2 emissions were at around [36 billion tons in 2021](#). This represents a roughly 70 percent emissions increase since 1990 and a 14 percent increase just since 2010. More to the point, according to the IEA’s estimates for future emissions under two alternative realistic scenarios — what they term as their “stated policies” and “announced pledges” scenarios — emissions will fall barely at all by 2030 and will not come close to achieving the zero emissions target by 2050.

The IEA does also develop a scenario through which the world can reach zero emissions by 2050. The difference between the IEA's stated policies and announced pledges scenarios relative to their net zero emissions by 2050 scenario is what the IEA demurely terms an "ambition gap." The question for getting to zero emissions is therefore to figure out how to close this "ambition gap."

Closing this ambition gap must, of course, recognize that people do still need to consume energy to light, heat and cool buildings, to power cars, buses, trains and airplanes, and to operate computers and industrial machinery, among other uses. As such, to make progress toward climate stabilization requires a viable alternative to the existing fossil fuel dominant infrastructure for meeting the world's energy needs.

Specifically, we need to be building a high-efficiency clean renewable energy-dominant global energy system as we also phase out to zero the fossil fuel dominant global energy infrastructure. There are important, if still not nearly adequate, positive developments here. First of all, on costs: The International Renewable Energy Agency (IRENA) [reports](#) that, as of 2021, fossil fuel-generated electricity ranged between 5-15 cents per kilowatt hour within the high-income economies. By contrast, the global average costs for generating a kilowatt of electricity from existing utility-scale onshore wind, at 3.3 cents, or solar photovoltaic technology, at 4.8 cents, were already at the low end of the fossil fuel-generated electricity cost range. It is therefore reasonable to assume that, even with existing clean energy technologies, electricity can be delivered now at approximately half the costs of fossil fuel-generated electricity. This is without taking account of any policy incentives to support clean energy investments or, for that matter, any environmental costs from continuing to burn fossil fuels.

In addition to these figures on costs, IRENA reports that global investments in renewables and high efficiency reached a record high of \$1.3 trillion in 2022. However, IRENA also emphasized that this wasn't nearly enough, stating that annual investments need to "[at least quadruple](#)" to be on track for bringing global emissions down to zero by 2050.

Putting it all into some basic arithmetic: As of 2021, total fossil fuel energy consumption amounted to [502 quadrillion British Thermal Units](#) (Q-BTUs). To bring fossil fuel consumption down to zero by 2050 would entail, in absolute figures, cutting consumption by an average of about 19 Q-BTUs per year over 27

years, starting in 2024. This amounts to a 3.8 percent cut in fossil fuel consumption each year relative to the 2021 consumption level.

Technically speaking at least, this is an entirely realistic path to zero CO2 emissions, as long as the clean energy infrastructure is advancing in full force while fossil fuel energy consumption falls to zero. But it will obviously require a massive political movement to overcome the power of the global oil companies, who continue to reap record-breaking profits from destroying the Earth. In 2022, profits for the major oil corporations reached an all-time high of [\\$200 billion](#). The oil companies and their shareholders have no intention whatsoever of relinquishing these riches. That is the simple answer to your question as to why we have accomplished so little on behalf of saving the planet eight years after 193 countries formally endorsed the Paris Climate Agreement in 2015.

Clearly, the “March to End Fossil Fuels” coming up this Sunday, September 17, in New York City, could not be more timely and important. I myself very much look forward to being out there with hopefully hundreds of thousands of other marchers.

The 2015 Paris Agreement failed, ironically enough, to make any mention of fossil fuels even though these poisons are responsible for most greenhouse gas emissions and hence global warming. Yet, the UN assessment of global progress on cutting emissions calls for the immediate phase out of fossil fuels and even the European Union is pushing for fossil fuel phaseout “well ahead” of 2050 at COP28 climate summit. Undoubtedly, leaving oil, coal and gas in the ground is the most effective way to curb global warming, but this is not happening. Are economics or lack of technological innovation in any way responsible for delaying the transition to a post fossil fuel future?

Inevitably, there are major economic and technical challenges involved in completely transforming the global energy system from being dominated by fossil fuels to one being dominated by clean renewable energy sources and high efficiency. But these challenges are by no means overwhelming, much less insurmountable. By my own calculations, the level of new global investment spending on clean renewables and high efficiency will need to average about \$4.5 trillion per year, every year until 2050 — a figure that is very close to the IRENA estimate that I cited above. This amounts to an average of about 2.5 percent of global GDP per year between now and 2050. It is also less than 1 percent of the

current level of total global financial assets of \$470 trillion. So, considering the big global financial framework, the transition project is an entirely realistic proposition.

There are three major sets of challenges in building a high-efficiency/renewable-energy dominant global energy infrastructure. These concern the issues of 1) intermittency with solar and wind energy; 2) mineral requirements as inputs in building the clean energy infrastructure and 3) land-use requirements for renewables, especially solar and wind. Let's briefly consider these.

Intermittency refers to the fact that the sun does not shine and the wind does not blow 24 hours a day. Moreover, on average, different geographical areas receive significantly different levels of sunshine and wind. As such, the solar and wind power that are generated in the sunnier and windier areas of the globe will need to be stored and transmitted at reasonable costs to the less sunny and windy areas.

In fact, these issues around transmission and storage of wind and solar power will not become pressing for many years into the clean energy transition, probably until the mid-2030s. This is because fossil fuels, along with nuclear energy, will continue to provide a baseload of nonintermittent energy supply as these energy sectors proceed toward their phase out while the clean energy industry rapidly expands. Fossil fuels and nuclear energy now provide roughly 85 percent of all global energy supplies. Even with a phase out to zero by 2050 trajectory, with fossil fuel supply cut on average by 18 Q-BTUs per year, fossil fuels will continue to provide the majority of overall energy demand through about 2035. Meanwhile, fully viable solutions to the technical challenges with transmission and storage of solar and wind power — including around affordability — should not be more than a decade away, certainly as long as the market for clean energy grows at the rapid rate that is necessary. For example, IRENA estimates that global battery storage capacity could expand between 17- to 38-fold as of 2030.

Building a global clean energy infrastructure will entail a massive expansion in demand for the set of minerals that are used intensively in clean energy technologies. Some of the most heavily required minerals include lithium, graphite, cobalt, nickel. Several rare earth minerals will also experience heavily increasing demand, including tellurium, used for solar cell production and neodymium, used in producing wind turbines and electric vehicles.

Short-term supply shortages will likely emerge with some of these minerals as demand for them expands rapidly. But none of the likely shortages should be insurmountable. One solution will be to greatly expand the industry for recycling the needed metals and minerals. At present, average recycling rates for these resources are below 1 percent of total supply. By contrast, [recycling rates](#) for aluminum throughout the world are at around 75 percent. Increasing recycling rates by even relatively modest amounts will make a substantial contribution towards overcoming supply shortages.

Beyond these considerations are the equally critical issues relating to where, and under what conditions, these required minerals will be extracted. To begin with, the majority of deposits of the key minerals are located in the Global South. Thus, over 50 percent of all lithium deposits are located in the so-called "[lithium triangle](#)" of Chile, Argentina and Bolivia. Nearly 50 percent of all cobalt deposits are in the Democratic Republic of Congo, with another 12 percent in Indonesia and the Philippines. Indonesia, Brazil and the Philippines account for 44 percent of all nickel deposits, while South Africa and Brazil account for 61 percent of all manganese deposits.

The rapid expansion of mining in these regions creates conditions for both significant positive as well as negative impacts. The positive possibilities include the employment creation, infrastructure investments and export earnings that could result through the large-scale expansion of the respective regions' mining operations. On the negative side, the major expansion of these mining operations will almost certainly create harmful environmental impacts. For example, in the Chile/Argentina/Bolivia lithium triangle, approximately 500,000 gallons of water are needed to produce one ton of lithium through the particular "brine pumping and solar evaporation" extraction technique deployed there. This alters the natural hydrodynamics of the region and reduces the availability of water for local communities.

It will also always be an open question as to how large a share of the export revenues generated by these mining operations will accrue to the host country governments or local enterprises. This will depend on the terms established between the respective countries' governments and local enterprises vis-a-vis the multinational corporations who obtain concessions to develop and operate the mines. Unless the local governments and enterprises succeed in gaining favorable terms, the profits from these mining operations will then mostly be repatriated

back to the shareholders of the multinational firms, thereby replicating a pattern of [corporate imperialism](#) that has deep historical roots.

The issue of land use requirements is frequently cited to demonstrate that building a 100 percent renewable energy global economy is unrealistic. But these claims are not supported by evidence.

As one individual country case, the situation in Greece is useful in demonstrating how land use issues with respect to renewable energy development can be managed either poorly or well. In fact, land use for renewable energy projects has been controversial in Greece for several years. This is primarily because wind turbines have already been erected in environmentally sensitive areas such as mountaintops and pristine ecological sites. These installations are scarring the impacted land areas and contributing to biodiversity losses.

My coauthors and I have developed a series of scenarios through which Greece can supply 100 percent of its energy needs with renewables by 2050 while creating minimum impact on undeveloped or agricultural land areas. In one specific case, we show how the 100 percent renewable energy requirement by 2050 can be met while locating renewable installations on a total of 709 square kilometers (km²) of land, which amounts to only 0.5 percent of Greece's total land area. Crucially, within this scenario, we show that renewable installations would need to be located on only about 0.2 percent of Greece's roughly 88,000 km² of agricultural and undeveloped areas. We also exclude altogether the roughly 37,000 km² of forests and woodland shrub areas of land cover in Greece. The key to minimizing solar and wind installations on environmentally sensitive sites is to maximize installations on the full range of available artificial surfaces, including commercial, industrial and residential rooftops, along roadways and rail lines, at airports, sports and leisure facilities and at mineral extraction sites.

How much of a role do subsidies play in hindering fossil fuel phaseout?

One of the few postulates in economics that you can actually count on is: "If you pay people lots of money to do something, you will get more of that something than if you didn't pay them." This pretty much sums up the situation with fossil fuel subsidies all over the world today. Despite reams of official pledges and resolutions over many years from virtually every international and national governmental body, governments continue to pay out huge sums of money to

underwrite the production and consumption of fossil fuels and thus, the ongoing destruction of a livable planet.

There are [different estimates](#) as to exactly how much governments are now spending on fossil fuel subsidies. In my view, the most relevant measure — combining figures from the International Energy Agency and Organization for Economic Cooperation and Development (OECD) — is [\\$1.4 trillion for 2022](#). This figure is roughly equal to the record amount of global clean energy investments in 2022 that I cited above. It is also roughly double the total fossil fuel subsidy figure of \$650 billion from 2019, just prior to the COVID lockdown of 2020.

Why are governments still paying out fossil fuel subsidies in the face of all the commitments they have made to eliminate them? The most benevolent explanation is that these subsidies have been critical for keeping low-income people afloat. This is true, most especially in poor countries but in high-income countries as well. However, governments would be able to provide much more generous levels of support to low-income people, at much lower costs, through other measures, including simple cash transfers or subsidized prices for food.

In fact, the overwhelming amount of support provided by fossil fuel subsidies is not received by poor people, but rather flows to high-income households and the fossil fuel companies. To take [the case of Indonesia](#), the share of total fossil fuel subsidies going to the richest 10 percent of households is approximately 10 times greater than the amount going to the poorest 10 percent. This results because every Indonesian is able to buy fossil fuel energy at the same subsidized retail prices. The only difference is that, on average, rich households spend 10 times more on energy than poor households.

Still more lavish benefits go to the fossil fuel companies. If these subsidies were channeled instead into clean energy investments, as they should be, the fossil fuel companies would face steadily mounting competition from clean energy sources and their markets would dry up. Instead, thanks to ongoing subsidy support, fossil fuel companies continue to reap outsized profits.

What do you think of the idea of a [Fossil Fuel Non-Proliferation Treaty](#) as a way of stopping the expansion of fossil fuel exploration?

The Fossil Fuel Non-Proliferation proposal is being led by the Pacific Island nations of Vanuatu and Tuvalu that are being severely impacted by the rising sea

levels resulting from global warming. The website for this initiative states: "It's time to leave behind the pollution, economic and climate and security risks caused by coal, oil and gas. There is enough affordable, renewable energy capacity in every nation of the world to power people's lives and communities." I completely agree with this. Of course, we have to embrace all forms of mobilization to save our planet, including this important one.

Hundreds of international, national and local organizations have endorsed the September 17, "March to End Fossil Fuels" in New York City, which is part of a mass global escalation to put an end to fossil fuel production. Similar demonstrations have already taken place in different parts of the globe, including London on April 24, 2023, where some 50,000 people gathered outside Parliament to demand that the U.K. government stop all fossil fuel explorations immediately. What should we make of concerns and claims that demands for climate regulations are driving voters straight into the arms of extreme populist parties and movements?

The point here is that building a clean energy economy cannot just be seen by voters only in terms of "demands for climate regulations." It is critical to understand the clean energy transition as a great source of new opportunities, along multiple dimensions. First, investments to build a clean energy economy have already become a major new source of job creation in all places that clean energy investments are being mounted. This expansion of job opportunities will continue growing as the clean energy transition proceeds. As we have seen, clean renewable energy, combined with high efficiency, will also deliver energy at lower prices than the current costs of fossil fuel energy. Further, low-income economies will be able to build relatively small-scale, lower-cost, clean energy infrastructures in their rural regions. To date, working within the conventional massive fossil fuel infrastructure scale, governments in developing economies have failed to deliver electricity to roughly half of their rural populations. Finally, of course, there will also be major health benefits everywhere through eliminating both indoor and outdoor pollution generated by burning fossil fuels. These are all in addition to the fundamental goal of driving emissions to zero.

Still, there is also no question that workers and communities throughout the world whose livelihoods depend on people consuming oil, coal and natural gas will lose out in the clean energy transition. As such, just transition policies for these workers and communities have to be understood as central features of the

overall clean energy transition project.

Along with several coworkers, I have developed [just transition programs for eight U.S. states](#), as well for the U.S. economy overall and for other countries, most recently [South Korea](#).

Focusing on transition policies for the fossil fuel industry dependent workers, I would argue that, as a first principle, the aim of such policies should be, simply, to truly protect them against major losses in their living standards. To accomplish this, the critical components of a just transition policy should include three types of guarantees for the workers: 1) a guaranteed new job; 2) a guaranteed level of pay with their new job that is at least comparable to their previous fossil fuel industry job and 3) a guarantee that their pensions will remain intact regardless of whether their employers' business operations are phased out.

The imperative of generous just transition policies was recently described by Norman Rodgers. Rodgers has been an oil refinery worker in Los Angeles for 24 years and is a leader of the United Steelworkers Local 675 that represents the region's oil refinery workers. Rogers [writes](#) as follows:

'Many speak of a 'just transition,' but we've never seen one. No worker or community member will ever believe that an equitable transition is possible until we see details fully funded state safety net and job creation programs.... With a fully funded equitable transition plan — meeting the immediate need for a safety net for workers and communities and offering a bold vision to restructure our economy — we can ... move California workers, communities and the planet toward a more secure future.'

Following from Norman Rodgers, I hope that Sunday's "March to End Fossil Fuels" will highlight and celebrate the massive opportunities — including the immediate tangible opportunities, like jobs, greater access to affordable electricity, and healthy environment — that will result through creating our clean energy future. Of course, these are all in addition to saving the planet by driving C2O emissions to zero. Equally, I hope we marchers will loudly insist on just transition policies for all workers and communities whose livelihoods now depend on the fossil fuel industry.

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