A man who once flew all the way to Copenhagen from Washington, D.C., just to tell journalists that climate change wasn't that big a deal is likely now to return to lead (or at least strongly influence) the environment committee of the U.S. Senate. As Sen. James Inhofe (R–Okla.) said at that time, in December 2009, he came to Copenhagen to "make sure that nobody is laboring under the misconception that the U.S. Senate is going to do something" about climate change. His thinking likely will not change by 2015; in fact, Inhofe has already derided the new U.S.–China climate agreement as a "nonbinding charade."

Even though the U.S. is responsible for the largest share of carbon dioxide and other greenhouse gases in the atmosphere, the country will not be able to take national legislative action on climate change anytime soon. Despite a president who avers that "those who are already feeling the effects of climate change don't have time to deny it—they're busy dealing with it," the U.S. Congress seems content to let climate change languish as a priority. National climate action is already devolving into a fight over approval of the Keystone XL Pipeline that would enable more oil to flow from Canada's tar sands and implementation of the Clean Power Plan, known to some as the "war on coal." In fact, the likely new Senate Majority Leader Mitch McConnell (R–Ky.) was reelected in part based on a platform reduced to a bumper sticker: "Coal. Guns. Freedom."

As a result of similar complacency or intransigence around the globe, greenhouse gas pollution continues to rise and atmospheric concentrations have now touched 400 parts per million. Australia elected a climate skeptic as prime minister who promptly repealed its carbon tax—and pollution has promptly soared this year. In fact, the world has dawdled long enough that the United Nations Intergovernmental Panel on Climate Change now suggests that technologies to remove CO2 from the atmosphere will be required to prevent too much global warming this century.

But, believe it or not, action on climate change is taking place in the U.S. "We don’t have time for a meeting of the Flat Earth Society," Pres. Barack Obama noted back in June 2013. So his administration has moved forward without Congress as a result, through the U.S. Environmental Protection Agency’s Clean Power Plan and the new agreement to reduce pollution with China.

Here are seven solutions to global warming that are advancing and gathering steam in the U.S.—and around the world.

1. **Clean Power Plants**—More than 20 percent of new, large power plants built in the U.S. in 2013 employ sunlight to generate electricity. And that does not include solar panels on people’s rooftops, which alone added nearly two gigawatts of capacity last year. In addition, natural gas replaced coal as the largest source of new electricity generation. The shale revolution enabled the U.S. to reduce its carbon dioxide emissions "while maintaining economic growth by switching from coal to gas," notes Nobuo Tanaka, former head of the International Energy Agency (IEA) and now a visiting fellow at Columbia University.

Of the two coal-fired power plants that were completed last year, one was the coal gasification facility in Edwardsport, Ind., which could one day incorporate technology to capture its CO2 emissions. Per megawatt-hour, the new power plant also spews half the CO2 as the old coal-fired power plant it replaced.

Although the U.S. is currently retiring more nuclear reactors than it is building, the same is not true in China. In addition to its 22 operating reactors, it has 26 under construction and plans for even more. That’s because the Chinese leadership sees nuclear power as one of the key ways—besides solar, wind and hydropower—to cut down on the country’s coal burning, which is responsible both for its choking air pollution and swelling greenhouse gas emissions.

Without nuclear power the IEA and other energy experts suggest that curtailing climate change may prove impossible. Regardless, nuclear power today, along with hydropower, provides the bulk of low-CO2 electricity production. "We need everything," Tanaka says. "We need CCS [carbon capture and storage]. We need nuclear. We need renewables."
2. Local Action—In 2008 six states in the northeastern U.S. launched a regional effort to cap CO2 pollution from power plants in the region via the use of alternative sources and energy-efficiency programs. By 2014, the effort had grown to include nine states and had helped cut such greenhouse gas emissions in nearly half. In fact, the program has been so successful that the states agreed to lower the overall cap by an additional 45 percent starting this year.

The Regional Greenhouse Gas Initiative, aka RGGI, or "Reggie" for short, is not the only climate action in the U.S. in the absence of a federal effort. California has launched its own cap-and-trade market, and it has, along with 34 other states, some form of mandate for electricity generated from less polluting sources, such as the wind, sun and Earth’s geothermal heat. Cities large (New York) and small (Dubuque, Iowa) have set targets to reduce greenhouse gas emissions. In fact, cities around the world are reducing CO2 in a bid for self-preservation, and some, such as Copenhagen and Melbourne, are aiming to cancel out any CO2 emitted with CO2 absorbed or otherwise avoided.

As a result of these actions—and the surge in generation from cleaner power sources—U.S. greenhouse gas pollution has dropped by 10 percent since 2005. And the recent election holds out the prospect that RGGI may gain another member state—Pennsylvania.

3. Control of Methane Leaks—Colorado has become the first state in the nation to try to address methane—a greenhouse gas even more potent than CO2. Leaks in pipelines, storage tanks and other infrastructure will have to be fixed within weeks after their discovery, among other new regulations administered by the Colorado Air Quality Control Commission. The Rocky Mountain state is unlikely to remain the only place to act to control such pollution.

In this case even the federal government is taking action. The Obama administration has implemented new rules to capture the methane leaking from garbage dumps, coal mines and the manure piles created by large animal farms. And both the EPA and U.S. Bureau of Land Management are considering rules around methane for the oil and gas industry. At the local level Google has partnered with environmental groups and cities to sniff out leaks in aging gas infrastructure.

Methane currently accounts for 9 percent of U.S. greenhouse gas pollution—and growing because of fracking for oil and the gas itself. In fact, that number does not include all the methane that is flared—that is, burned off as a precaution to prevent explosions but in the process releasing CO2. So action against methane can buy more time to address the problem of rising CO2 pollution.

4. Tougher Emissions and Efficiency Standards—New standards for cars are becoming a global phenomenon, whether it’s more stringent rules in China, the European Union or the U.S. As the world heads toward two billion vehicles, making sure that these cars emit less pollution—both smog-forming nitrogen oxides and heat-trapping carbon dioxide—will be crucial, whether it is accomplished via more efficient internal combustion engines or better hybrids. Electric cars, including the Chevy Volt, Nissan LEAF or Tesla Model S, can help, too, provided the electricity does not come from burning fossil fuels.

At the same time, power plants face ever-tighter requirements for air pollution. As a result, U.S. pollution is already 10 percent below 2005 levels and will drop lower. "You can't build a coal plant in the U.S. unless it complies with high emission reductions," says Ethan Zindler, head of policy analysis at Bloomberg New Energy Finance. "People do the low-cost option for compliance, which is to build a new gas plant." One day even natural gas–fired power plants may have to employ CO2 capture and storage, much like new coal-fired power plants in Mississippi and Texas do today.

And new efficiency standards for appliances, from air conditioners to washing machines, have helped keep electricity demand from growing, paired with improvements in basic technology, such as light-emitting diodes, or LEDs, replacing less efficient incandescent bulbs.

5. Greener Farming—The U.S. Department of Agriculture is helping farmers adapt to climate change, even if they don’t believe in global warming. Regional climate hubs now provide extension agents with technical support on best practices to deal with a changing climate, including preserving buffer wetlands to cut down on both erosion and flooding. National forests and grasslands will now be managed with the goal of storing CO2, among other aims. Already farmers have begun adopting various techniques to reduce greenhouse emissions, including precision agriculture to grow crops efficiently, cover crops to reduce soil erosion and biodigesters to reduce animal waste.
Ultimately, farms may even help address climate change by providing energy crops for biofuels. Such fuel from plants paired with the kind of CCS used on coal-fired power plants could even begin to draw down the amount of CO2 already in the atmosphere. And the regrowth of U.S. forests as less land is devoted to farming is already helping restrain global warming.

6. Private Sector Action—It's not just that tech giants like Apple and Google are powering data centers with wind and solar. It's not just big food brands like General Mills and PepsiCo preparing their businesses for the crop and water scarcity predicted by climate change. It's not even the internal carbon prices employed at oil companies like Shell and even ExxonMobil. It's the fact that—outside of coal companies, a few coal-burning utilities and the U.S. Chamber of Commerce—it's hard to find businesses that do not accept the science on global warming or have plans to deal with it.

The simple fact is that climate change also means changes to business models, whether the company is an insurance giant like Swiss Re facing extreme weather risk or a utility, like NRG Energy, facing new regulations as well as customers desirous of a new relationship with power production and producers. And for those in the energy business like Alstom, General Electric, Siemens, Toshiba or Westinghouse, fortunes will be made—or lost—as China and other fast-developing countries build out cleaner energy options.

7. New Kinds of Geopolitical Consensus—On November 12 China and the U.S., the world's two most polluting countries, signed an agreement to combat climate change. China will cap its CO2 emissions by 2030 and plan to get 20 percent of its electricity from the wind, sun, dams and fission. The U.S. will ratchet up its pollution reduction trajectory aiming for a doubling of the annual rate of decline from just over 1 percent per year to more than 2 percent per year. Combined with the pledge of 28 countries of the European Union to reduce CO2 as well in the same time frame, more than half of global pollution is now set to decline in coming decades. "The politics in both countries are easier if both countries move forward together," notes Jennifer Morgan, global director of the climate program at the World Resources Institute (WRI). "If both are acting together, others cannot hide behind them and they can inspire greater ambition."

Nor is the U.S.—China deal the only bright spot, internationally. Brazil and Indonesia—the two countries where deforestation is fastest—are both attempting to reverse course.

At the same time, developing countries are aiming to skip fossil fuels in their drive for prosperity. Kenya has become the world's hotspot for geothermal power, thanks to the Rift Valley, where geology brings hot rocks close to the surface. Both Brazil and India have made big pushes for more solar power. And a recent survey by Bloomberg New Energy Finance found that 55 developing countries installed nearly twice as much renewable power as developed countries between 2008 and 2013. "If you're burning diesel to light your home, that isn't great," says Bloomberg’s Zindler. "You can now displace that with PV," or photovoltaics, thanks to the price drop in these cleaner technologies in recent years.

That's one thing individuals can do: join the growing ranks of solar homeowners. But, at least in the U.S., there is another action that is probably more important to the fight against climate change in the long run: voting for politicians and policies that promise climate action. As WRI's Morgan notes, to keep the global average temperature from rising more than 2 degrees Celsius by 2100, "the pace and scale of change just needs to increase dramatically."