ready started). Instead we need a crash program for energy efficiency, and all renewable energy by 2030.

We don't have time for the conventional proposals. We don't have decades to wait while politicians make the usual slow, slow progress. We are balanced over a chasm, and the tipping points are almost upon us. Drastic changes are necessary, and hundreds of thousands of us have to get into the streets and start demanding them.

#BanFracking #KeepItInTheGround

In October 2108 the U. N.'s IPCC panel issued a report saying we have until the year 2030 to cut global warming gas emissions drastically. If not we'll face the total loss of coral , many more devastating heat waves and other terrible effects. Yet in some ways it *understates* the crisis. It doesn't mention the threat that the world is reaching tipping points that would bring irreversible climate changes.

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On June 12, 2016 Dr. Robert Howarth told a meeting of 350CT, a Connecticut-based group promoting grass-roots environmental organization, about a briefing he had given last month to the White House Office of Science and Technology Policy. Howarth is professor of ecology and environmental biology at Cornell University and an associate of former top NASA climate scientist James Hansen. In 2011 he was in the running for Time magazine's "Person of the Year." His message this summer is that we know what to do to solve our climate worries, but we're on the wrong path and have only a very short time to change direction.

The COP21 climate meeting in Paris in December 2015 finally recognized what ought to be the absolute limit for global warming: no more than 1.5 degrees Celsius. Beyond that point, we would initiate feedback loops that drive things totally out of control. An example would be a major spike in global temperatures following the melting of the Arctic permafrost.

The politicians talk about the years 2100 and 2050, but we don't have that long to fix things. **Howarth said his best estimates suggest the world will pass the 1.5-degree mark in 2029, just a dozen years.**

The problem therefore is in the short run. To avoid feedback loops, we need to urgently reduce greenhouse gas emissions. Unfortunately, we seem to be going in the wrong direction. The Obama administration pushed fracked natural gas as a "bridge" fuel to the time many decades in the future when we will go 100 percent renewable. Howarth explains that this won't work because natural gas is a much worse greenhouse gas than carbon dioxide in the critical short run.

Natural gas is almost entirely methane, and Howarth has calculated that the **global warming effects of methane over a 20-year period are 105 times that of carbon dioxide.**

There's another problem. In the U.S., we now get a majority of our natural gas by fracking shale rock. Howarth said that getting the gas this way leaks ***three times*** as much methane into the air as does traditional extraction methods. Obama had bragged about how carbon dioxide emissions had leveled off. Howarth agrees that CO2 emissions have not been rising for the last five years, but that misses the point. Because of fracking, total U.S. *greenhouse gas emission since 2008 has risen at the most rapid rate ever*, Howarth said. Our "meth" habit—our growing addiction to methane gas—is keeping us on the road to climate catastrophe.

Now, here's the good news. Cutbacks in carbon dioxide output are absolutely necessary, but we won't see the effects for a very long time. Cutbacks on methane (and "black carbon" soot from burning), however, can reduce the effects of global warming in the coming decades. The fight against fracking is thus THE fight against global warming.

The world needs to go fossil-free by 2050, and the U.S. must lead the way by going fossil-free by 2035. One means of achieving this, Howarth said, is by imposing a tax on methane emissions that would be 105 times the cost of a tax on CO_2 emissions.

There's also an ecosocialist solution: Declare a state of emergency, nationalize the energy industry and go on a crash "Manhattan project" program to completely change energy/heating/transportation. Howarth didn't call for that, but he did point out that there have been massive changes in energy use in this country in a matter of decades, pointing to a transformation from transportation by horse to automobiles in just 40 years.

A complete ban on fracking would get the ball rolling. On July 24, 2016 perhaps as many as 10,000 people marched on the streets of Philadelphia to demand an end to fracking. There has been some response. In March 2017 Maryland became the third state to ban fracking. Laws in state legislatures to ban storage of massive fracking wastes are being considered in several states. Direct actions against pipelines are taking place. On the other hand Trump is determined to go the other way. He has erased the rule that required companies keep track of how much methane they were spewing into the air.

We need to oppose the construction of new fracked methane power plants (even one's al-