



The Atlantic Coast Pipeline The Scientific Argument Against the Pipeline

The Atlantic Coast Pipeline (ACP), if built, is a perpetuation of **BUSINESS AS USUAL**. The mighty behemoth of Business As Usual is taking the planet's climate systems, hydrological cycles, and oceans into uncharted territory and toward dangerous tipping points, which, once crossed, offer no return. It persists because of the stranglehold that the wealthy fossil-fuel industry and shareholder-owned public utilities have over our Congress. These private interests seduce the public into believing that their new fracked natural gas wells and pipelines are somehow in the public's interests. They are not.

Climate change is relentlessly warming the planet, and we are already experiencing rising sea levels; tropical disease vectors migrating northward; unprecedented droughts and floods and other extreme weather events; acidifying and warming of the oceans with extreme threats to the ocean ecosystems on which we depend; destabilizing the enormous ice sheets in the Arctic, the Antarctic and Greenland; stressing forests around the world, turning them into carbon emitters instead of carbon absorbers; rapidly accelerating extinction of species which are part of balanced ecosystems on which we depend to live; creating positive feedbacks which add to the warming and become unstoppable; and is already threatening the very lives of people around the planet who had the least to do with causing these problems. Now the carbon dioxide is being baked out of the soils, putting into play an enormous new source of heat-trapping greenhouse gases. The ratio of high temperature records to low temperature records keep setting records. The earth is now so hot in places now that humans simply cannot live there.

Carbon dioxide concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from net land use change emissions, and are now the highest in over 800,000 years and perhaps 3 million years. The ocean has absorbed about 30% of the emitted human caused carbon dioxide, causing ocean acidification ... The atmospheric concentrations of the greenhouse gases carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) have all increased rapidly since 1750 due to human activity.

Now pipeline promoters claim that natural gas is clean burning with half the emissions of coal. As someone recently said, "a half truth is a whole lie." By that, when someone says that natural gas produces about half the emissions as coal for the same amount of energy, that part is mostly true on a scientific basis. But if they leave out the part about the gas that is leaked and lost during the harvesting, transport and storage of fracked gas—a phenomenon that totally negates the first part of the argument—then they are allowing you to believe something that is not true.

Natural gas is about 95% methane, a greenhouse gas that traps heat 100 times more effectively than carbon dioxide in the first 10 years, 86 times more than carbon dioxide in the first 20 years, and 34 times more than carbon dioxide in the first 100 years, all according to the Intergovernmental Panel on Climate Change, the United Nations agency charged with the responsibility of studying climate change and publishing useable

information for policymakers. A very important scientific discussion is centered on how much methane is leaking from extraction, piping, and storage of natural gas. One thing known is that fracked natural gas leaks considerably more methane than conventional natural gas and the federal Energy Information Agency tells us that fracked natural gas is now 67% of the natural gas supply for the U.S.

The question of comparing the greenhouse gas release from using coal as a basic fuel compared to using natural gas as a fuel is at the heart of the discussion. The industry says that natural gas emits only about half of the CO₂ as coal per unit of energy, and this contention is accepted by all parties. So, methane is better, right? Not so, and the point of contention is about how much of this powerful greenhouse gas, methane, is leaked by natural gas before combustion.

It is necessary first to dispose of an illogical contention of the utilities. Utilities say they only burn the natural gas, so they cannot be expected to be concerned about the harvesting phase of the process since they do not extract it. This convenient argument is easily countered. If no one demands to burn it, it will not be extracted, and what is burned would have stayed in the ground.

Recent scientific research now reports that enormous amounts of methane are leaked (fugitive methane) from the process of fracking. Scientific studies by Oliver Schneising, Robert Horwath and others report that fracked shale gas has leakage rates range from 5.4% up to about 12%.

So what do these numbers mean? Without doubt, 12% would be considered a huge amount of methane being leaked directly to the atmosphere. A number of about 3% leakage actually makes natural gas about *equal* to coal considering the effects of the CO₂ from combustion plus the methane leakage prior to combustion. The basic conclusion from all the above is that for conventional natural gas (about 33% of natural gas supply today), the GHG emissions of coal and natural gas are about equal when both CO₂ and CH₄ (methane) are considered. When one takes into account the extra leakage from shale gas (the remaining 67% of supply) it has to be worse than coal. The bottom line is that natural gas is equal to or more harmful to the climate than coal. It is not a safe bridge to the future. It is just another fossil fuel that, if incorporated into the power grid, means that renewables will be put off for another 40 years for this part of the supply. All the threats and losses from climate chaos will continue and will worsen.

With these damaging downsides to perpetuating the use of fossil fuels, rational policymakers would look elsewhere for the energy we need as a society. The good news is that renewables are cost-competitive with fossil fuels, and renewables can now be added to the energy supply for all new capacity needed and to replace old, dirty power plants that are retired. We need to begin this process immediately. See “Renewables are Ready.”

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