

To head off disastrous climate change, we need to radically transform the modern energy system. We must largely move beyond the use of fire, the first and most important of inventions. The core energy technology used by humans has always involved, in one form or another, burning things up. To a large extent, combatting climate change will mean bringing this long era to an end. In that sense, the energy transition will be truly epochal.

Long before modern humans had evolved, our ancestors began to tame fire, perhaps over a million years ago. The exact timing is unclear, but sometime in the past 100,000 years or so humans invented ways to begin fires. Some scientists think that the ability to cook meat was what made possible the evolution of the human brain. Later fire would make it possible to smelt metals, ending the Stone Age. Even in the far north, where there's no vegetation to burn, people burned whale or seal oil for light and heat.

When we think about the invention of fire, we think about cave dwellers huddled around a fire. Yet to a large extent, human beings haven't gotten beyond this primitive technology. We burn coal and natural gas for heat and to make electricity. We burn gas, diesel, and jet fuel to power cars, trucks, trains, and planes. Ships are powered with bunker oil. In some parts of the world, burning wood remains the basic source of heat for cooking and warmth. As much as we like to think we have moved beyond our cave-dwelling ancestors, the basis of our civilization is just a fancier form of rubbing two sticks together to start a campfire.

Some uses of fire will undoubtedly survive the energy transition. We may well burn hydrogen as a source of heat for industrial processes or as part of an energy storage method. If carbon capture from smoke stacks and storage ever becomes feasible at a large scale, fossil fuels may still be used to store electricity. No doubt there will be other niche uses for combustion. But in order to limit climate change, the long, long Age of Fire will have to come to an end.