



Just Stop Oil! ? Not even a pencil can be produced without petroleum

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*There is not a single person on earth who knows
to do something as simple as a pencil.*

(trad. pers.)

Leonard E. Read

At first reading, the strange claim in the article's motto seems a bit far-fetched. Because, after all, it's not a plane, a car or a spaceship, but a pencil case. That is, a piece of painted wood with a thin lead of graphite and an eraser at one end (Fig. 1). The number of pencils manufactured annually worldwide exceeds [14 billion](#). That the statement in the motto corresponds to the truth was brilliantly demonstrated in the essay *I, Pencil* (*I, the Pencil*) published in 1958 and resumed in 1964 under the title *Only God Can Make a Tree – or a Pencil*. The author, Leonard E. Read, founded the Foundation for Economic Education – the first *think tank* modern libertarian in the United States – and was one of the main people responsible for the revival of the liberal tradition in America after World War II.

I, Pencil is a subjective genealogy narrated by the main character, a pencil. Using numerous examples to demonstrate the existence of a vast and complicated production structure controlled by the division of labor in free markets, *I, Pencil* explains that no one knows how to make a pencil because of the myriad production processes involved:

My family tree begins with what is actually a tree, a cedar tree...that grows in Northern California and Oregon. Now imagine all the saws, trucks, ropes and countless other machines used to cut and transport the cedar logs to the railroad. Think of all the people and the countless professional skills that went into making them: mining ore, making steel and turning it into saws, axes, engines; the cultivation of hemp and its passage through all stages to the stage of heavy and durable ropes; the logging camps with their dormitories and canteens, with the production and cooking of all the food. Alas, no one knows how many thousands of people contributed to every cup of coffee drunk by the forest workers!

The pencil then details the rest of the labor required for its production: the manufacture of platform cars, rails and railway locomotives to ensure the shipment of logs to sawmills; the development of transport systems - ships, trains, trucks; providing heat, light and power; building a pencil factory; manufacturing of mining equipment; graphite extraction; shipping materials in one place. Next, the materials needed to paint the pencils and the process of painting, labeling and adding the brass end are described; extracting zinc and

copper for the manufacture of brass; eraser manufacturing. And the examples don't stop there:

Even mine has a complex composition. Graphite is extracted from Ceylon. Think of these miners, of those who make their many machines, of those who make the paper bags in which the graphite is transported, of those who weave the string with which the bags are tied, and of those who load them into the ships, and to those who build ships. Even the lighthouse keepers along the route have a hand in my birth, as do the tugboat pilots.

While the division of labor required to make a pencil is impressive—a complex global collaboration to bring all the component parts together, the family tree of other, more complicated objects (eg, a computer or a "smart" phone) includes obviously many more branches. However, one common resource is needed by all family trees: energy.

Even a simple pencil needs the electrical and thermal energy produced by millions of barrels of oil, billions of cubic meters of gas and thousands of tons of coal. All components of the pencil family tree are, to a greater or lesser extent, tribute to fossil fuels. A detailed analysis of these intrinsic links was recently published [here](#). A short excerpt is edifying:

In the cedar forests of Oregon, a lot of loggers wake up in their own homes very early in the morning; hundreds of people, turning on the lights, boiling water for coffee, going to work in diesel-powered trucks. The tools they carry are made of steel and iron ore, fastened with metal screws, plastic casings, adhesives and rubber. Gasoline and lubricants are needed to fuel and lubricate the chainsaws, while nylon and polypropylene ropes help loggers climb and abseil the towering trees.

Oil and natural gas made it all possible, from the heavy machinery needed to extract the materials to be used in the synthetic fibers and, of course, the combustion engines that power the operations. You can already see why a rise in the price of oil could start to put pressure on pencils as well.

The plea for appreciating the moral, not just material, values of oil and gas is sublimely presented by the Czech-Canadian professor Vaclav Smil in his book *How the World Really Works* (2022).

In the chapter "The Four Pillars of Modern Civilization", Professor Smil argues and demonstrates that the modern world arose due to and cannot exist without four essential materials: steel, cement, plastics and ammonia. The last one is actually the most important because at the beginning of the 20th century, the German chemists Fritz Haber and Carl Bosch discovered the secret of the industrial production of synthetic ammonia, by which they *turned air into bread*. Today, half of the food for the 8 billion inhabitants of the planet is due to synthetic fertilizers produced using the Haber-Bosch process.

The key element common to the four essential pillars of the modern world is important to discuss, especially in the context of a future without fossil carbon (*Just Stop Oil!*): the industrial-scale production of the four materials depends heavily on the burning of fossil fuels and some of these fuels are the raw material for the synthesis of ammonia and plastics. A mundane example of plastic: I'm writing these lines on an HP laptop, with letters and a wireless mouse made of acrylonitrile butadiene styrene (ABS), sitting on a polyester-backed swivel chair with nylon wheels that spin on a mat polycarbonate protector placed over a polyester carpet... *Just Stop Oil?!*

Let's look at the bigger picture: Life without oil will not be as simple as some think

What do Just Stop Oil activists say ? | quote :

It has to stop. If we continue on the current path, we will destroy families and communities. We will face the starvation and slaughter of billions of poor people – and the utter betrayal of our children and their futures. . . In eight years we must completely end our dependence on fossil fuels. . . Climate collapse will mean the end of workers' rights, of women's rights, of all human rights. It is already the greatest injustice in human history against the global south. If you do not resist, you are in favor of evil.

Could it be so?...

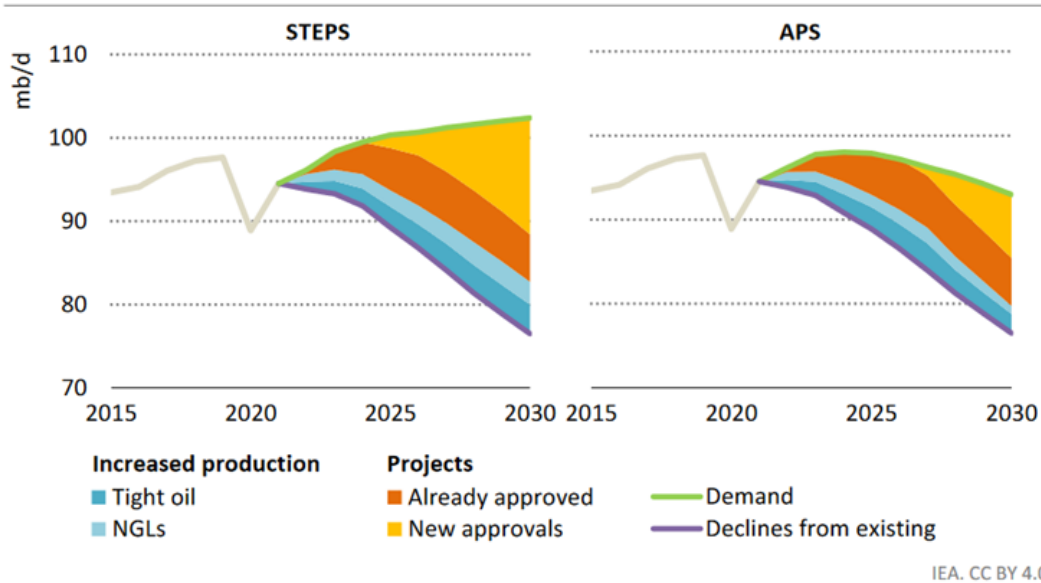
In 2018, I argued that [oil is the Achilles heel of modern agriculture](#) , which is meant to feed 8-10 billion people, and that a future based on *Just Stop Oil* will be a huge problem for securing daily food. At the level of 2016, less than half of the extracted oil was transformed into gasoline, the most used car fuel (Fig. 2). Let's assume that all world transportation will use renewable energy sources by 2050 or even sooner. But this environmental movement – *Just Stop Oil* – does not explain how the materials that currently use more than 50% of extracted and refined oil will continue to be produced (Fig. 2).



Fig. 2. **Just Stop Oil?!** How will we produce medicines, cosmetics, plastics, synthetic rubber, cleaning products, asphalt, insecticides, lubricants, etc. ?

Let's assume again that the activists' request will be granted. What will happen? An answer was already formulated in 2022 by *the International Agency for Energy* (IAE) (Fig. 3):

Figure 7.16 ▷ **Contribution of increased production of tight oil and NGLs, and new and approved projects in the STEPS and APS**



Although tight oil is set to grow strongly, declining output from existing sources of production means new conventional projects are essential in both the STEPS and APS

Fig. 3. Demand estimates for hydraulic fracturing oil and natural gas liquids until 2030.

Under the scenario of current policies (called STEPS) and those announced by governments (called APS), the world will need new sources of oil supply to meet demand this decade, not less oil.

What will be the situation with natural gas? The IEA provides the following graph (Fig. 4), according to which, by 2050, natural gas will dominate the three investment scenarios.

Figure 8.9 ▸ **Average annual natural gas and hydrogen investment by scenario**

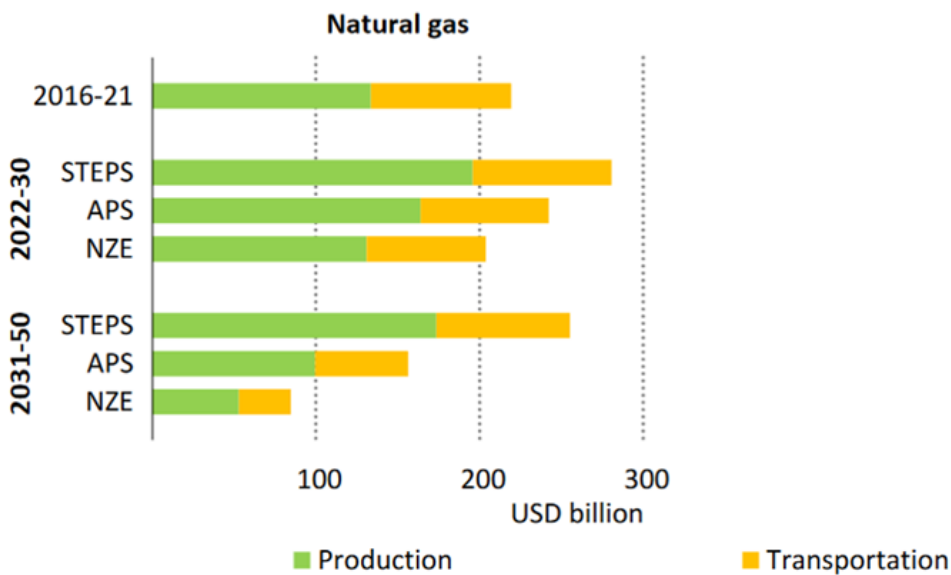


Fig. 4. Investments in billions of US dollars for natural gas extraction in three different scenarios: STEPS, APS and NZE (Net Zero Emissions). Investments in hydrogen are not shown.

To the dismay of Just Stop Oil activists and others like them, I have to say that in all the scientific literature I have consulted there is not a single scenario that suggests it is possible to stop *using* fossil fuels in the next 7 years. And reaching a net zero level by 2050 is almost certainly [utopian](#) .

Just Stop Oil is just another *mission impossible* .

ConCluSlonS

The essay I started with – *I, Pencil* – was brilliantly presented, in less than 3 minutes, by Milton Friedman on a popular PBS public television show in 1980. Winner of the Nobel Prize in Economics (1976), Friedman a demonstrated to viewers the meanings and importance of the subjective genealogy narrated by Creion:

The basic principles underlying the free market, as Adam Smith taught his students..., are very simple. Check out this pencil. There is not a single person in the world who could make this pencil. A remarkable statement? Not at all. The wood it is made from, as far as I know, comes from a tree that was cut down in Washington state. To cut down that tree, a saw was needed. To make the saw, steel was needed. To make steel, it took iron ore...

Literally thousands of people cooperated to make this pencil, people who don't speak the same language, who practice different religions, who might hate each other if they ever met. When you go to the store and buy this pencil, you are actually trading a few minutes of your time for a few seconds of the time of these thousands of people. What brought them together and made them cooperate to make this pencil? There was no commissioner to send orders from a central office. It was the magic of the pricing system, the impersonal workings of pricing that brought them together, and made them cooperate to make this pencil so you can have it for a fraction of the cost.

This is why the functioning of the free market is so essential, not only to promote productive efficiency, but, even more, to promote harmony and peace among the peoples of the world.

Ideas are more powerful when presented in a compelling story. That of the pencil, delightfully told by Leonard Read, manages to convince (me, at least) that economies can hardly be "planned" when no human possesses all the knowledge and skills necessary to produce a simple pencil. And the lesson that the Pencil teaches us is one about the great mysteries and beauties of the modern world (*apud* Benjamin R. Dierker): That so many people and nations, acting only in self-interest, can work to produce a single creation, even though none of them could produce a simple pencil. In a way, the energy required to produce that pencil follows the same pattern. I doubt very much that a single man could produce a megawatt of electricity or a gallon of gasoline from scratch.

PS I accidentally read a [comment](#) in which I am accused of *immense cynicism* :

Professor C Crânganu speaks "about the causes" in the space of this platform, often objectively, but, with immense cynicism, he concludes that life has disappeared from Earth several times throughout history, therefore, if it happens once again due to human causes, no big deal.

To the disappointment of the commentator, I must say that I am not a cynic, but a realist. From a paleontological point of view, to a first approximation, there is hardly any life on Earth: 99% of the species that have ever evolved are extinct. And not because of humans or anthropogenic greenhouse gases. Each species has a certain period of evolution on this planet, after which it becomes a fossil species. Mammals are no exception. The average lifespan of a mammal species is about [2.5 million years](#) before extinction. The cause of periodic extinctions is linked to climate cycles discovered by civil engineer and geophysicist Milutin Milanković.

[The oldest known attestation of the genus *Homo*](#) - the human genus - represented by a lower jaw with teeth, discovered in the Afar region of Ethiopia, dates back to 2.8 - 2.75 million years ago.

In other words, *Our time is up!*

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