

Why We'll Never Run Out of Oil — But Will Stop Using it Anyway



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Let's do a thought experiment. Say the world's proven oil reserves are 400 million barrels. And say world oil consumption is 20 million barrels a year, growing at 5 percent annually.

Question: when will earth's oil reserves be 100 percent depleted?

OK, timeout. Before you grab a pencil and break out the scratch paper, I should warn you—the answer isn't 14.2 years. Or 20.4 years. Or any other number of years.

It's *never*.

That answer strikes most non-economists as an astonishing—and possibly immoral—claim. So let me explain.

Oil as a Room of Nuts

Consider the following: Imagine it's your 10th birthday, and you really like pistachio nuts. For a present, your folks give you an entire room full of pistachios—a 4-foot-deep sea of tasty, salted treats.

Sounds delicious. At first, they're easy to eat. Pick one up, eat it, and throw back the shells. But over time, pistachios get harder to find. As you eat, there are fewer nuts, and more shells.

Eventually you get frustrated, spending more and more time sifting through shells looking for a single pistachio. This continues until, finally, you give up altogether.

It's just too costly to find those last pistachios. You decide it's cheaper to go to the kitchen for a different snack, and abandon the pistachio room forever—even though you haven't "run out" of pistachios in any absolute sense.

Okay, back to oil markets.

Just like pistachios, as we deplete easily-drilled oil reserves oil gets harder and harder to extract. As it does, market prices rise to reflect this.

These rising oil prices encourage people to 1) conserve oil, and 2) find cheaper substitutes, like wind, solar or other renewable energy sources.

The process continues until the price of oil rises to the point where it equals the price of the next-best renewable energy substitute—whatever that is—and we stop using oil. We will never actually “run out” of oil in any technical or geologic sense.

Getting Real About Quitting Oil

Now, that's a simple but powerful story. It certainly does not settle every question about oil and fossil fuel use—it says nothing about climate change, unstable middle east regimes, or oil's broader impact on society and the environment. And this story doesn't tell us exactly which renewable energy technology we'll eventually switch to when oil supplies dwindle.

But what it does do is important. It provides a useful way of thinking about alarmist claims that the world is “running out of oil.” And it helps us imagine what a future without oil might look like, and how we will actually get there—bit by bit, through an incremental process as oil prices rise over time, gently pushing American consumers and employers in a different direction for their energy use. There is no apocalyptic “cliff” we will ever fall off, in which oil is suddenly and completely gone and disaster unfolds.

Why am I tell you this story? Because it helps us imagine a new and better future, in a realistic way. And that is what economic theory is supposed to do for us. This story helps us think more clearly about the future of America's dependence on oil, and what our eventual switch to more sustainable alternative energy sources will actually look like when it happens.

In reality, the end of oil in America will be boring and slow, like eating our way out of a room of pistachios—and that's probably a good thing.

