

# Got Milk?

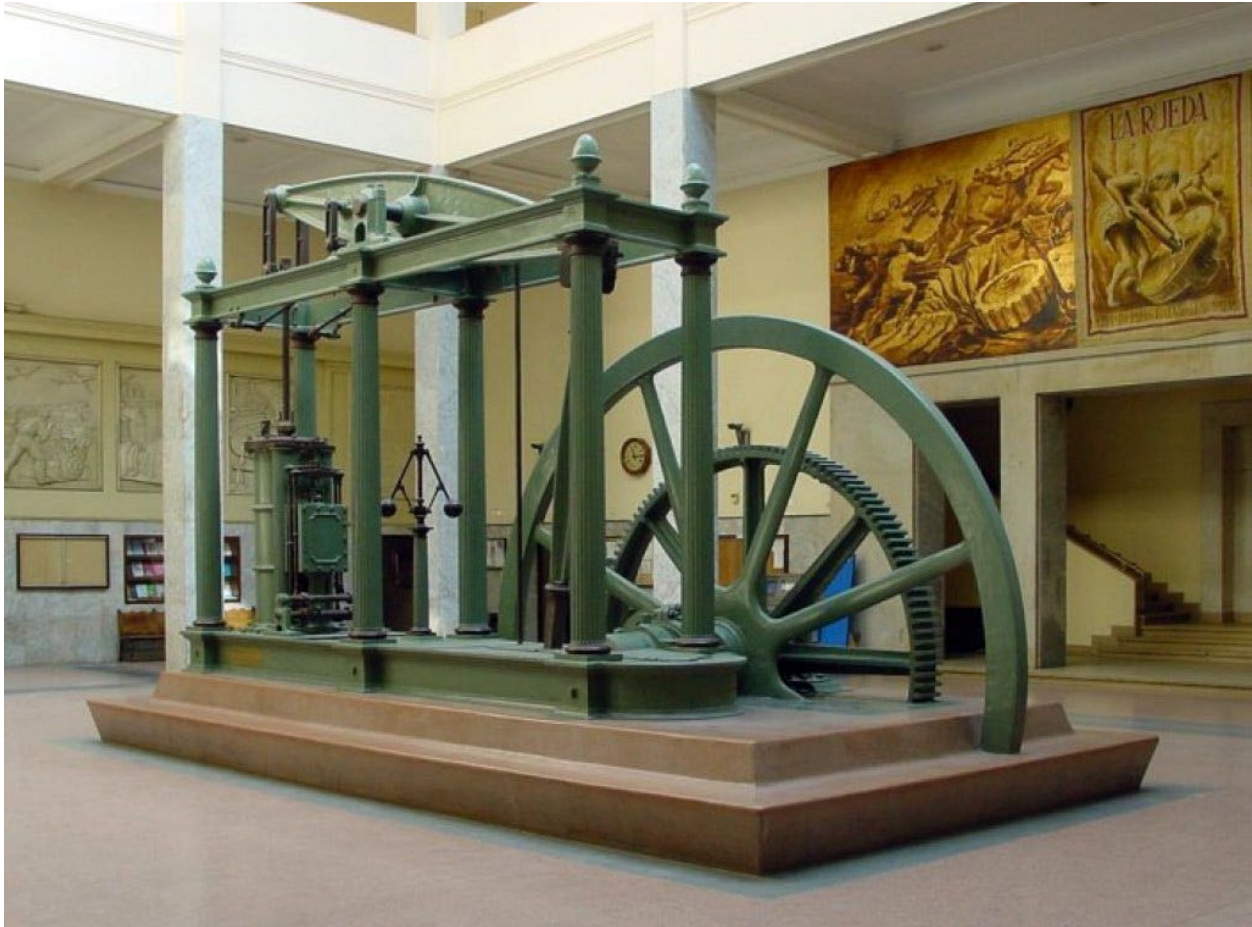


[DOOMBERG](#)

JUN 13, 2023

*“I take a vitamin every day—it's called a steak.”* – Jim Harbaugh

Prior to the widespread proliferation of the steam engine, mining for coal was back-breaking work. The industry relied on human and animal strength, with laborers using primitive tools, to extract the stuff from hand-dug mineshafts. The work was as dangerous as it was dirty, and fatalities were commonplace. Then, a revolution unfolded. A step-change improvement to existing steam engine design, engineered by James Watt, allowed miners to leverage machinery such as pumps, hoists, and ventilation systems to alleviate significant portions of direct human effort. Pumps that used Watt’s engines were particularly effective at draining water from deep mineshafts, making vast and previously inaccessible coal reserves economically viable. The genius of his invention was in delivering far more work per quanta of fuel.



The Watt steam engine | Wikipedia

What did these advances in energy efficiency do to the demand for coal? Did society limit itself to doing the same amount of work as it had done before, just more economically so? Quite the contrary. Coal-powered steam engines made mining for coal easier, making coal more widely available, which increased the demand for steam engines to do ever more work across multiple industries, which further increased the demand for coal, ultimately resulting in what's known today as the industrial revolution. Watt's efficiency breakthroughs catalyzed a singularity in energy demand.

In his 1865 [book](#) *The Coal Question*, economist William Stanley Jevons highlighted this phenomenon and theorized that it was a more general one. Wherever inventions facilitated the more efficient use of a resource, an increase in demand for that resource inevitably followed. If true, the so-called *Jevons Paradox*—or *Rebound Effect*, as it is known among modern academicians—

dictates that energy efficiency improvements cannot be counted on to meaningfully reduce global carbon emissions. An entire field of academic research is dedicated to debating this question, and an [editorial](#) introducing a special series of [eight research papers](#) in *Frontiers of Energy Research* frames the current state of thinking on the subject (emphasis added throughout):

*“The rebound effect (RE) is an umbrella term for a range of mechanisms that undermine the expected energy savings from improved energy efficiency. Since the seminal work of Stanley Jevons (‘The Coal Question’), the ‘problem’ of the rebound effect has repeatedly appeared in energy policy debates, **challenging the consensus that improved energy efficiency will reduce energy use and carbon emissions and mitigate resource depletion.** Most authors view energy efficiency as essential for reconciling economic growth with environmental sustainability, and consider rebound effects to be modest in size and easily addressed. However, there has always been a vocal minority who argue that **rebound effects frequently exceed 100% and can potentially eliminate all of the energy savings from improved energy efficiency (‘Jevons’ Paradox’).**”*

To refer to Jevons’ observations as a paradox is to misunderstand the fundamental axiom of humanity: **energy is life**. Disorder is spontaneous, and thus your standard of living is defined by your ability to impose order on your local environment. Further, because it requires a constant flow of energy to beat back the forces of entropy, it follows that **your standard of living is a proxy for how much energy you get to consume.**

On balance, all humans everywhere want a higher standard of living, a fact that allows us to extend Jevons’ thinking from the field of energy efficiency to that of **energy conservation** and formulate *Doomberg’s Postulate*<sup>TM</sup>: “Every molecule of fossil fuel produced worldwide will be burned by somebody somewhere, and local efforts to restrict consumption merely relocate the enjoyment of that privilege.”

So armed, ponder the deep unseriousness currently on display in Ireland where news [broke](#) last week that the country is considering doing its best impression of the Netherlands:

*“Irish farmers are rebelling against a proposal to cull tens of thousands of cattle a year to help Ireland meet its climate change targets. The Irish government wants to reduce emissions from farming by a quarter by 2030. Media reports last week suggested that one option being considered was to reduce the national dairy herd by 10 per cent – **meaning a cull of 65,000 cows a year for three years**, at a cost of €200 million (£170 million) annually.*

*One Irish politician described the plan as ‘**absolute madness**’ and there are warnings that some farmers will refuse, and others will leave the sector, if an order is introduced. The Irish government says that no final policy decision has been taken and that any cull would be voluntary as part of a ‘retirement exit scheme’ for farmers.”*

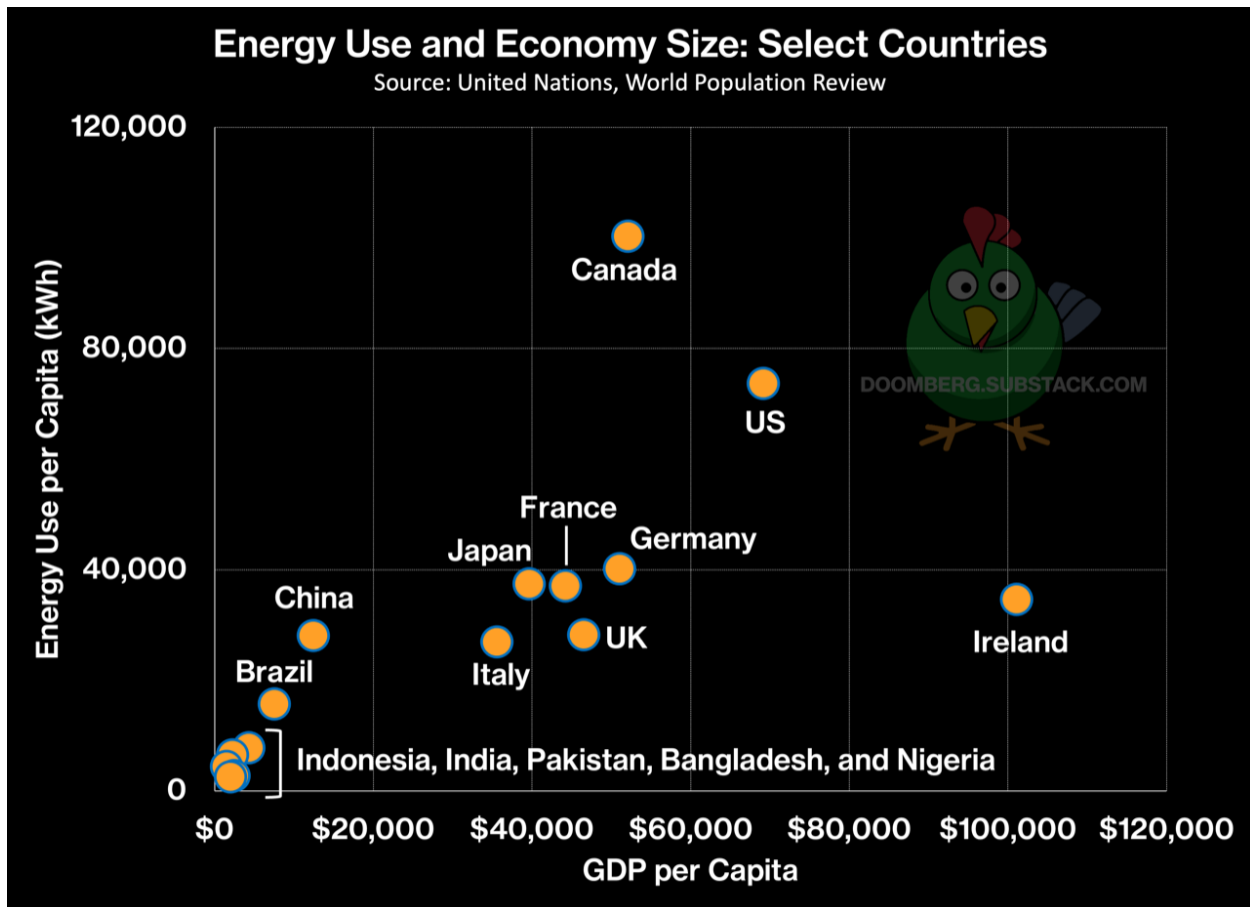


Aren't the wind turbines good enough? | Getty

A look at the data proves that this is absolute madness, indeed. Let's give the proposal some much-needed context.

We begin by evaluating Ireland's energy use against the size and nature of the global economy. The country's population of 5.15 million ranks it 122<sup>nd</sup> on the [global list](#), accounting for just 0.06% of all humans on Earth. Having successfully positioned itself as a hub for multinational corporations, particularly in the technology and pharmaceutical sectors, Ireland sports a healthy gross domestic product (GDP) per capita of \$101,109, one of the highest in the world according to [data](#) prepared by the United Nations. This number is all the more impressive when you consider Ireland's [energy](#) use per capita of just 34,600 kWh is less than half that of the US. Some 46 other countries use more energy per capita to produce less per capita GDP, a fact that should make Ireland a uniquely low priority for efficiency concerns.

In the chart below, we plot Ireland's per capita GDP and energy use against the Group of Seven (G7) countries plus China, India, Indonesia, Pakistan, Nigeria, Brazil, and Bangladesh. The latter seven are the most populous nations not currently included in the G7 and represent a combined total of over 3.9 billion people. On average, citizens in those countries use 14,360 kWh of energy per year, and improving their quality of life by just 10% would cumulatively require more than 31 times Ireland's total energy use. Leveling them up to Ireland's efficient consumption of 34,600 kWh? 444 times.



This is a mathematically polite way of saying that, when it comes to climate change, Ireland is utterly irrelevant. Its entire citizenry could cut their energy use to zero tomorrow and nobody would notice. Per *Doomberg's Postulate*, the rest of the world would happily and quickly consume the coal, natural gas, oil, fertilizer, chemicals, plastics, and foodstuffs currently being [imported](#) into the country, and do so at an imperceptibly lower price. To believe that the number of cattle alive in Ireland somehow impacts the weather is the functional equivalent of insisting leprechauns are real.

We can hear the voices of protest now, “*What if everybody thought that way? Doesn't this just result in an every-country-for-itself energy free-for-all?*” We have sober news to share: those 3.9 billion people do think that way, and who are we to dictate otherwise? If Ireland's energy suddenly becomes available to them, why shouldn't they consume it? Are we to expect that half the world's

population will never develop? Not even a little? Have we polled them on the question?



Starved for energy in Brazil | Getty

Zooming out to the broader European Union (EU)—a [collection](#) of 27 countries that includes Ireland but excludes the UK and Norway—what does *Doomberg's Postulate*<sup>™</sup> imply for the hundreds of billions of Euros the region has spent trying to wean itself off fossil fuels? These actions have simply *shifted* where carbon emissions are generated. In 2022, the world set a new [record](#) for coal production, and nearly did so for natural gas, coming in just [under](#) the high-water mark set in 2021. And while the production of oil has not yet eclipsed pre-Covid-19 highs, there is a decent [chance](#) it will in 2023 and beyond (although recent voluntary production [cuts](#) by Saudi Arabia might alter such projections). Either way, *every molecule produced will be burned by somebody somewhere.*

Logic dictates that the EU's direct ability to curtail the world's consumption of fossil fuels—and by extension, the world's total carbon emissions—is limited by the amount it produces itself. As you might have guessed, the region is no energy superpower, but the scale of the numbers surprised even us. Using a variety of sources, we estimate the EU's global share of [oil](#) production to be less than 0.4%. For [natural gas](#), the number checks in at only 2.3%. As for coal, the EU [produced](#) 309 Mt of the 8,057 Mt produced [worldwide](#) in 2021, for only 3.8% of the global production share. Of that share, 77% is produced by just three EU countries – Germany, Poland, and the Czech Republic.

Being rather impotent in its direct impact but having nonetheless committed to starving itself of reliable energy, the EU will soon begin to punish those that have not followed suit. In another example of a premeditated own-goal out of this jurisdiction, we [present](#) the world's first carbon import tax:

*“The European Union’s parliament approved legislation to tax imports based on the greenhouse gases emitted to make them, clearing the final hurdle before the plan becomes law and enshrines climate regulation in the rules of global trade for the first time.*

*Tuesday’s vote caps nearly two years of negotiations on the import tax, which aims to push economies around the world to put a price on carbon-dioxide emissions while shielding the EU’s manufacturers from countries that aren’t regulating emissions as strictly, or at all. The tax gives credit to countries that put a price on carbon, allowing importers of goods from those countries to deduct payments made for overseas emissions from the amount owed at the EU’s borders.*

*The tax has raised concerns in the U.S., where companies worry the plan would erect a web of red tape for companies seeking to export to Europe. **It has also drawn criticism from China and parts of the developing world, where manufacturers tend to emit more carbon dioxide than their competitors in Europe and rely more on coal-fired electricity.**”*





Red tape personified | Getty

This action by the EU will hurt its citizens far more than it punishes countries looking to export to the region. Finished goods will simply be redirected to friendlier economies, resulting in a range of painful shortages and a pulse of inflation in Europe. What it won't do is reduce global carbon emissions.

As we have previously [noted](#), *“there are roughly two orders of magnitude more people in the bottom 99% than in the top 1%, and those vast populations will pursue the just and innately human endeavor to improve their quality of life.”* The battle over climate change will be decided in the developing world, and the decision is in. Those countries will accept every morsel of fossil fuel Europe repudiates—happily so—and no accumulation of dead cows in Ireland will make one bit of difference.

***Thanks for reading! If you enjoyed this piece, please hit the “♡ Like” button and tell a friend about Doomberg. Our community grows with your network!***