

The column was augmented by the following comments:

A reader challenged the U.S. carbon emissions of 1.5 bil tons/day in this column. The figure comes from Fred Guterl's 2012 *The Fate of the Species*. Page 177 discusses the hazards of sequestering carbon, and the third paragraph reads as follows:

“Carbon sequestration carries risks, to be sure. The United States pumps about 1.5 billion tons of carbon into the air every day. To keep up, we would have to sequester 20 million tons every day. It would only take a small leak to put much of that carbon back into the air . . . “

After my reader's comment I googled “United States daily carbon dioxide emissions.” An article came up by the British *The Guardian* of May 29, 2011: “Worst Ever Carbon Emissions Leave Climate on the Brink.” It states that in 2010, “a record 30.6 gigatons of carbon dioxide poured into the atmosphere.”

Another site states that, in 2011, emissions were even higher; the CO<sub>2</sub> had increased to 31.6 gigatons.

I believe these are figures of annual global output. Inasmuch as one gigaton equals 1 billion tons, Mr. Guterl's figure does indeed appear doubtful, at least in terms of U.S. daily emissions.

Oh, yes. The cartoon the editor added is of a grim-reaper-type cornstalk striding across a barren, parched earth. Where its cob would normally be, a silo, barn, and farmhouse are held in place, from which a bubble emanates: “And you believed those radio talk folks who said that global warming is a hoax, Wilbur?”

Climate change may be here to stay, writes one skeptical reader, but does this mean humans are responsible? Mother Nature has yet cards up “her” sleeve. Things will work out; they always have.

In February Oklahoma Senator James Inhofe came out with a book that termed global warming the “greatest hoax” ever, but now that the country is held in thrall to record droughts, climate skeptics have begun to indict the supposedly female element. Says John Christy of the University of Alabama in Huntsville: “The guilty party in my view is Mother Nature.”

Touting technological fixes is another way of dodging the climate predicament. ExxonMobil CEO Tillerson, speaking to the Council of Foreign Relations, did acknowledge that fossil-fuel consumption contributes to climate change, but our fears thereof are “overblown.” “We have spent our entire existence adapting, okay? So we will adapt to this. . . It's an engineering problem, and it has engineering solutions.”

Like the card-carrying skeptics above, the CEO is a day late and a dollar short. It's no longer a question of fears; Wyomingites, as our neighbors in Colorado and New Mexico, are dealing with devastating consequences. Quantitatively, Wyoming residents have not suffered the losses of our coevals to the south, but qualitatively, the destruction of a home, a cattle herd, a corn field is a tragedy in either place. What fixes can we hope from “Mother Nature”? What “engineering

solutions” to these catastrophes does Mr. Tillerson propose? Last year, ExxonMobil reported profits of \$10.7 billion—in its second quarter alone. That’s billion with a “b”, not millions.

Every day the United States discharges 1.5 billion—that’s billion with a “b”—tons of carbon dioxide into the atmosphere. Are any Exxon profits directed toward “engineering solutions” of the CO<sub>2</sub> discharge? Hardly. Mr. Tillerson has teamed up with Russian state oil giant Rosneft to drill for deep-sea oil in the Arctic.

“There’s not a more reckless man on the planet than Tillerson,” thunders Bill McKibben in his recent Rolling Stone piece, “Global Warming’s Terrifying new Math.” The fossil-fuel industry is about to wreck the planet; “they’ve already got enough carbon in their reserves to drive the heat past anyone’s definition of okay.” The industry’s plan is business as usual, only more of it.

Professor McKibben points out that most fossil-fuel profits stem from a historical accident: “Alone among businesses, the fossil-fuel industry is allowed to dump its main waste, carbon dioxide, for free. Nobody else gets that break—if you own a restaurant, you have to pay someone to cart away your trash, since piling it in the street would breed rats,” he writes. The fossil-fuel industry is exempt because thirty ago, few people anticipated the extent of the CO<sub>2</sub> danger. Since then, public awareness has changed. “[N]ow that we understand that carbon is heating the planet and acidifying the oceans, its price becomes the central issue,” says McKibben in Rolling Stone.

If a price were put on carbon, through a direct tax or other methods, it would enlist markets in the fight against global warming. “Once Exxon has to pay for the damage its carbon is doing to the atmosphere, the price of its products would rise. Consumers would get a strong signal to use less fossil fuel—every time they stopped at the pump, they’d be reminded,” he writes. Soon economic considerations would level the playing field for nonpolluting energy sources. “By switching to cleaner energy sources, most people would actually come out ahead.”

The problem: Putting a price on carbon would reduce the profitability of the fossil-fuel industry. After all, the answer to the question “How high should the price of carbon be?” is “High enough to keep those carbon reserves . . . safely in the ground.” The higher the price on carbon, the more those reserves become worthless. Will the industry succeed in keeping its pollution-break alive past the point of climate catastrophe? McKibben foresees that, “in the economists’ parlance, we’ll make them internalize those externalities.”

Climate change now poses a risk to the stock prices of energy companies. Once something big happens (a megadrought wiping out Midwest agriculture?) even the political power of the industry will be unable to keep legislators from regulating carbon. Suddenly those Chevron reserves become a lot less valuable; the stock would tank. Given that risk, “Carbon Tracker” recently warned investors to lessen their exposure and hedge it with plays in alternative energy.

As millions of acres of corn languish under triple-digit heat-waves, drought conditions prevail over more than 60 percent of the lower 48 states. The Department of Agriculture just extended drought aid to an additional 39 counties designated as primary natural disaster areas, bringing such aid to a total of 1,297 counties across 29 states.

A failed corn crop means higher food prices. Meat and poultry prices, too, will climb. Hence, livestock producers and other groups want the Environmental Protection Agency to give oil refiners a waiver from the mandate to blend ethanol into gasoline, arguing that demand for the corn-based fuel is driving up corn prices. Today about 40 percent of the U.S. corn crop is used to produce ethanol. Because its production uses up as much energy as it generates, ethanol was never a good idea, arriving as an agribusiness pseudo-fix for our “dependence on foreign oil.”

Global warming revs up slowly but continues inexorably on its upward course. This summer’s events provide “a window into what we can expect in the future as the climate heats up,” says Steven Running of the Nobel Prize-winning Intergovernmental Panel on Climate Change. According to the National Oceanic and Atmospheric Administration, since January 1, the United States has set more than 40,000 hot-temperature records.

Scientists have voiced global-scale environmental concerns for decades. But science is complicated, often confusing, and sometimes counterintuitive. We’d rather shrug off the scientists and go on with business as usual, like a CEO who wants to drill in the Arctic. Unfortunately even billions won’t save us from a horrid future.