Deep thoughts this week:
1. Love it or hate it, fracking will redefine the U.S. economy. **2.** Yes, there are serious environmental issues to address. **3.** But the worst hazards may be political. **4.** And even economic.

WELCOME TO SAUDI ALBANY?

Fracking isn't just going to change the energy business; it could change every business. And that's pretty scary.

By ADAM DAVIDSON

The people who run U.S. Steel have not had much reason to celebrate in a long time. Once the icon of American manufacturing, the company became shorthand for the country's industrial decline. For decades, it ignored innovation and was undercut by cheaper Asian producers and outflanked by U.S. start-ups. It's brief glory in the mid-2000s turned out to be fueled by housing-bubble excess; and its stock price has dropped nearly 90 percent since late 2008. A few months ago, John P. Surma, the company's chairman and C.E.O., addressed a Steel Hall of Fame event at which all the inductees were either long dead or retired. He noted that, given the business climate, his own generation of steel C.E.O.'s might have trouble getting the big prize themselves.

Fortunately, Surma went on, this misery is about to change. The American steel industry recently received the economic equivalent of a gift from the heavens: natural gas extracted by means of hydraulic fracturing, or fracking. Fracking involves a whole lot of long steel pipes being sunk into rock formations thousands of feet beneath the ground in search of hydrocarbons. U.S. Steel, which is based in Pittsburgh, also happens to be right on top of the Marcellus Shale, the oil-rich formation that stretches from New York to Ohio. No one knows exactly how much gas is down there, but modest estimates suggest it's at least 100 trillion cubic feet. Given this bounty, U.S. Steel recently spent $100 million on a facility whose entire purpose is to make "tubular product" for gas companies.

For Surma, an even bigger gift should come over the next few decades. The switch from coal

Adam Davidson is co-founder of NPR's "Planet Money," a podcast and blog.

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to cheaper natural gas will save U.S. Steel hundreds of millions of dollars a year. These savings will be amplified by the fact that the company's competitors in Europe and Asia will need to pay much more. In fact, many economists say that fracking will soon fundamentally shift global economic logic to uniquely benefit the United States. Ed Morse, an influential energy analyst at Citigroup, argues that the natural-gas industry will bring around three million new jobs to the United States by the end of this decade. He also expects that fracking will add up to 3 percent to our G.D.P. and trillions in additional tax revenue. Along the way, it will turn around perennial stragglers, like steel and manufacturing. For millions of workers, there could not be any better news.

Fracking, of course, is not universally embraced. The State of Pennsylvania lists more than 80 chemicals that are injected into the earth as part of the hydraulic-fracturing process. Many are pretty nasty, including formaldehyde, naphthalene and crystalline silica, which are known to cause all sorts of illnesses, including cancer. Fracking's early years, more than a decade ago, were similar to the old wildcatter days in California and Texas. Small companies dug quickly and with little constraint from unprepared regulators.

More recently, this has changed considerably. Earlier this year, Ohio passed new rules requiring higher standards for fracking-well construction. Pennsylvania is expected to update its regulations very soon. West Virginia, a state historically friendly to the hydrocarbon industry, passed rules allowing for more public comment before any new wells are dug. New York, the only significant Marcellus Shale state that is still deciding whether to allow fracking, commissioned a panel of independent experts to determine whether the industry, overseen by strict regulation, can operate without hurting citizens. The review is expected early next year.

Most observers would agree, though, that changes in regulation do not come from objective scientific studies. (Both sides, after all, can flood any government hearing with experts and impressive-looking scientific reports.) Regulations are determined, in large part, by politics. And the politics of fracking are changing and are very likely to change drastically in coming years. As examples from the last century suggest, the sudden discovery of oil and gas can transform an entire economy and regulatory system to serve the industry's interests. Economists call this the resource curse — the perverse process in which a valuable discovery like oil, gas, diamonds or gold ends up enriching a few at the cost of impoverishing most of the population. At its worst, the resource curse leads to deeply corrupt regimes like those in Iraq, Iran, Myanmar and Libya. At its mildest, this can create one-industry economies in which there is little innovation and even less resistance to the whims of a handful of powerful interests. Many believe this already describes the oil economies of Louisiana, Texas and Oklahoma and, increasingly, North Dakota, where the fracking industry is entrenched. Politically and economically, it's hard to argue with an industry that has helped keep the state's unemployment rate at about 3 percent.

If there is an uneasy equilibrium, right now, between environmentally concerned citizens and pro-fracking industrial groups, what will the political balance be like in a decade? What pressures will be on state legislatures and regulators if the projections are true and the millions of workers in Pennsylvania, Ohio, West Virginia and maybe New York will owe their jobs to fracking. There will be trillions of dollars of new wealth. Will environmental and health concerns have any chance against that juggernaut?

It doesn't necessarily have to end badly. In the late 1960s, Norway's economy was immediately transformed when it discovered massive crude deposits off its North Sea shores. Back then, Farouk al-Kasim, an Iraqi-born Norwegian petroleum engineer, warned that all that sudden easy money could create "so much pressure that it will completely overwhelm environmental concerns; the force can undermine moral, ethical barriers." The money available to the industry and government was so ample, he told me recently, that people soon began to say, "I don't care, I'm getting rich, to hell with everybody else."

Norway avoided the curse, and America will, too, Kasim said, because it has a huge, diverse economy. Still, as oil-rich states have shown, it's possible for even a relatively small extractive industry to cause severe damage. In fact, the best thing that any U.S. environmentalist can do is to start thinking like an economist — particularly a Norwegian one. In 1990, Norway began channeling money from oil and gas into a pension fund designed to keep the country stable when the crude ran out. It's now the largest sovereign wealth fund in the world, as Norway showed that the best defense against an extraction industry was diverse economic growth. For environmentalists, and even steel behemoths, it's a point worth remembering. ◆