

King Coal Is Dying a Slow Death in America

by [Tara Lohan](#), originally published by [Alternet](#) | TODAY



You've seen the photos or read the stories. In some of China's cities you can't even see the sun. People walk down the streets wearing surgical masks. Tourists pose for photos in front of fake landmarks since the real ones are obscured. China's economic salvation might end up its undoing... and ours. The country's prosperity is clouded in a thick haze of smog belched from coal-burning power plants.

In cities choked by pollution and a world coming to grips with the realities of climate change, what future does coal really have? Is this prehistoric energy source headed for extinction? Or will we hang on to it and risk the same fate?

While China's hunger for coal seems insatiable — it gobbles up 4 billion tons a year, about half of global supply — the story is different in the U.S. Here, coal's share of electricity production has fallen from nearly 53 percent in 2000 to below 40 percent today. Coal companies face economic hardships, dwindling market shares and increasing regulations.

But don't dance on King Coal's grave just yet. The industry may continue to limp along for decades, with little growth, but lots of greenhouse gas emissions nonetheless.

"No one wants to say it — but the U.S. coal industry is in the process of slowly and quietly folding up shop," said Richard Heinberg, a fellow at the Post Carbon Institute and author of many energy books including, [Blackout: Coal, Climate and the Last Energy Crisis](#). "It won't happen overnight and it won't happen this decade. But it's certainly not a growth industry."

Coal's future hinges on how a few key things play out in the next few years: public pressure, regulations, exports, technology, friends in high places, and most importantly, the amount of economically recoverable coal.

200 or 20 Years?

How much coal do we have left? It depends on whom you ask. The Energy Information Administration [says](#) that “estimated recoverable coal reserves” give us about 200 years worth of coal. But not everyone agrees with that figure.

A [report](#) by Leslie Glustrom for Clean Energy Action says that, “The belief that the U.S. has a ‘200 year’ supply of coal is based on the faulty reporting by the EIA of U.S. coal deposits as ‘reserves.’ Most U.S. coal is buried too deeply to be mined at a profit and should not be categorized as reserves, but rather as ‘resources.’”

Glustrom relied on many studies, including information from the United States Geologic Survey. The USGS has examined coalfields across the country and their numbers weren't quite as rosy as the EIA. Take the Powder River Basin in Wyoming and Montana; it's the country's single biggest source of coal. The [USGS found](#) about 1 trillion short tons of coal resources there. But of that, the agency's [research](#) deemed that only “25 billion short tons of coal resources met the definition of economically recoverable resources.

That may seem like a lot, but the U.S. currently produces 1 billion short tons a year, of which about 40 percent comes from the Powder River Basin — which give the region just over 20 years of coal.

The crux is not really how much remains underground but how much is profitable to extract. “If coal can't be mined at a profit, not much of it will be mined,” wrote Glustrom. “It is unclear how long the U.S. coal industry will produce large quantities of coal and at what price, but the current financial distress of U.S. coal mining companies could lead to significant changes in U.S. coal production in less than a decade.”

That doesn't mean that we'll run out of coal in 10 years, simply that mining it will start becoming a losing bet for coal companies. It's easy to see how that could happen. Natural gas prices have already edged coal out of some key markets and the prices of renewable energy are falling. Renewables are already becoming [cost competitive](#) in some places. Just like with oil and gas, the cheap and easy coal is gone. Production costs are rising and that's being passed on to utilities. The prices that utilities have to pay for coal has increased about 7 percent a year since 2004.

Tough Economic Road Ahead

From a business perspective, being a coal company these days is not easy. Writing for Greenpeace, Kelly Mitchell [declared](#) it the “beginning of the end” for coal. “Peabody (BTU) and Arch (ACI), the largest U.S. coal companies, have [lost more than 75% of their peak value since 2011](#), as coal struggles to compete with renewable energy and gas,” she [wrote](#). “170 new coal plants representing \$450 billion in capital investment have been [canceled](#). Few utility companies are taking a gamble on new coal generation; those who have are in [financial trouble](#).”

If you don't believe Greenpeace, how about Deutsche Bank. In 2011, one of the company's executives, Kevin Parker, [wrote](#) that "Coal is a dead man walkin.'" When it comes to coal plants, "Banks won't finance them. Insurance companies won't insure them. The EPA is coming after them.... And the economics to make it clean don't work," he elaborated. Deutsche Bank isn't the only big finance company with concerns about the economic future of coal. Research by Goldman Sachs [concluded](#), "Earning a return on incremental investment in thermal coal mining and infrastructure capacity is becoming increasingly difficult." Last summer Goldman Sachs downgraded its price forecasts for coal by 13 percent for 2014 and 11 percent for 2015. "We believe that thermal coal's current position atop the fuel mix for global power generation will be gradually eroded," its [report](#) for investors stated citing three reasons: environmental regulation, competition from natural gas and renewable energy, and gains made in energy efficiency.

Regulatory Hurdles

The biggest indicators of how steep the slide will be for coal is likely regulation. So far the climate legislation that the fossil fuel industry feared would come to fruition under Obama's reign never made meaningful strides in Congress.

But Obama did announce upcoming regulations last year from the Environmental Protection Agency that would limit pollution coming from power plants. Expect to see more details of this in June — and Republicans (and perhaps some coal state Dems) fighting tooth and nail against it. So far the EPA has proposed limiting coal plants to 1,100 pounds of carbon dioxide per megawatt hour and 1,000 pounds per megawatt hour for gas plants.

If these regulations do see the light of day, it will make it almost impossible to build large, new coal-burning power plants (which now crank out about 1,700 pounds of carbon dioxide per megawatt hour) unless they use some technology to capture and store carbon (more on this below).

Already we are seeing a transition away from old, coal-burning plants, thanks in part to new regulations set to limit mercury and other toxic emissions. The [EIA reports](#) that at least 60 gigawatts of capacity will be retired by 2020 (and 90 percent of that by 2016). For perspective, the total generating capacity of all 1,308 coal plants functioning in 2012 was 310 gigawatts. For the past several years, the [EIA reports](#), most of the retirements were smaller, inefficient plants (an average size of 97 megawatts), but the planned upcoming retirement of plants will be much larger, with the average size being 145 megawatts.

Greener Pastures Overseas?

With dimming prospects in the U.S., coal companies are increasingly looking overseas where they can fetch higher prices for their product to balance the rising costs of production. In the last decade, coal exports have nearly tripled — we're now sending around 100 million short tons abroad each year according to the [EIA](#). (By the way, we still also import coal from Colombia, Indonesia and Canada.)

Half of the coal ships to Europe, a quarter to Asia and the rest to South and North America, much of that passing through ports in Virginia, Maryland and Louisiana. But Asia, particularly China, is viewed as one of the biggest markets for growth. And, since the late 1990s, the

biggest mines in the U.S. have been out west in Wyoming and Montana's Powder River Basin. That has made ports on the West Coast a prime target for coal exports.

A few years ago the export market through the Pacific Northwest looked hot. There were six proposals in the works, but changing market conditions sent coal prices falling and suddenly three plans were scrapped. Environmental and community health groups have teamed up with other concerned residents to block plans for the remaining three terminals.

"Communities along the rail lines are recognizing that they will get all the impacts, but none of the benefits," said the Sierra Club's Cesia Kearns. "The mining, transport, and burning of coal hurts communities every step of the way." Communities are concerned about traffic delays (particularly for emergency response vehicles) from mile-long coal trains, health impacts from coal dust, increased particulate matter from diesel engines, and the possibility of derailment. The coalition opposing coal exports in the Pacific Northwest is getting a boost from the market. "Asia was supposed to be the next frontier for U.S. coal producers, a glimmer of hope for a sinking industry," [wrote](#) Rob Davis for the *Oregonian*. "But the market is shifting underfoot, calling the terminals' profitability into question. For investors, they've become bets that markets will bounce back."

It's a steep bet.

Technology, the Savior

One of the only things that can save coal will be new and improved technology. However, there is no technology on the horizon that will improve mining yields, said Post Carbon Institute's Heinberg. The only way to get more value from hard to reach coal seams would be underground coal gasification. "It involves burning coal underground in situ and siphoning off gases that contain combustibles like methane," he explained. "That can be applied to seams too thin or too deeply buried or underneath oceans that would never be mined commercially." It hasn't been done to any significant scale yet and if it was, "It would be a horrendous thing from a climate standpoint," said Heinberg.

Where coal has its greatest chance of market resurgence is with technology that comes during the burning. Carbon capture and sequestration (CCS) has been the holy grail of the coal industry for years. If you've ever heard someone mention "clean coal," that's likely what they were referring to. In a recent [article](#) for National Geographic Michelle Nijhuis captures our current conundrum: Coal is "the dirtiest, most lethal energy source we have. But by most measures it is also the cheapest, and we depend on it."

She admits that coal can never be clean, but perhaps, she wonders if it can be "clean enough." By this she means to "prevent not only local disasters but also a radical change in global climate." Her story appeared just after a feature in [Wired](#) declaring that "clean coal" is the future.

But there's a few problems. CCS technology relies on capturing carbon dioxide and piping it to someplace where it can be injected underground — the goal being to cut the greenhouse gas impacts associated with coal.

The first problem is that coal is not just dirty when it's burned; mining coal is dirty and deadly. Mining communities have been [found](#) to have higher rates of cancer, heart disease, respiratory

and kidney problems. They suffer from air and water pollution. Areas of Appalachia are subjected to bombardment from explosives as mountains are leveled, streams buried, and some of the most diverse temperate forests in the world are obliterated. Coal dust also threatens communities along rail lines and near processing plants. Remember the chemical spill from a coal-related company that contaminated the drinking water for 300,000 people in West Virginia in January? These are all local disasters, and none of them would have been prevented by CCS. The other problem with CCS is that technology still has serious doubters — and serious costs. The first such plant in the U.S. is expected to come online this year in Mississippi. But the Kemper County Energy Facility has been fraught with problems, especially when it comes to cost overruns.

Suzanne Goldenberg [writes](#) for the Guardian that Kemper is expected to remove about two-thirds of its carbon dioxide emissions — this puts it on par with natural gas power plants (which are cleaner but not clean). However, she writes, “the economics are still not in favour of carbon capture, even with Kemper's example, because of the high capital costs, industry analysts said.” The cost of building Kemper has now reached \$5 billion.

With coal already having trouble competing in the market, the added costs that will be associated may make widespread deployment of CCS untenable. “Given the direction of the trends, even a 10 percent cost increase for electricity for coal with CCS is a deal killer,” said Heinberg.

Of course, there is always the possibility that we’ll continue to subsidize the coal industry, even when it is not cost-effective and goes against the best environmental health and science we know.

What About the Climate?

Even if the U.S. and other countries manage to significantly cut the amount of coal they burn, China remains the big X factor when it comes to the climate.

“Recently, the Intergovernmental Panel on Climate Change released its estimate of the allowable total cumulative global CO₂ emissions between 2012 and 2100 to prevent the global average temperature from rising more than 2 degrees Celsius...If China’s coal use continues to increase as predicted, by 2040 China will have consumed more than a third of that global budget,” [wrote](#) Eric Larson for Climate Central. “Combined with the U.S. and the rest of the world, China’s emissions have the planet on a path to surpass the global budget by 2040.” If we head beyond the “global budget,” expect to see the effects of catastrophic climate changes.

Of course, China has had some help getting to where it is. “We are largely responsible for it,” said Heinberg. “We get to reduce our carbon emissions or keep them steady in the wealthy industrial world by outsourcing manufacturing to China, which makes all our cheap plastic stuff by burning coal.”

But China is trying. It has to. “Pollution levels are becoming economy threatening,” said Heinberg. China is trying everything in the book: CCS, nuclear, renewables, and shale gas. The country just announced it would close 1,700 small and inefficient coal plants. It’s a step in the right direction, but a small one.

“One way or another they have got to get off their reliance on coal, but frankly they don’t know how to do it,” added Heinberg.

In the U.S. he believes it can be done with a combination of public pressure and market forces. And when it comes to the public pressure, he believes opposing export terminals and demanding full cost accounting for coal production (no more ignoring the environment and health impacts).

“I think we have to keep the pressure up from the standpoint of public policy. If we just wait for the market to take care of it the market will do it in a savage way,” said Heinberg. “We’ve waited too long already for a gentle transition to a post carbon future. The longer we wait, the longer we rely on market forces to make the transitions, the worse it gets.”

One thing is certain, we don’t have any longer to weigh the options. Coal burning is our biggest contributor to climate change. Scientist Michael E. Mann [wrote](#) in Scientific American, “If the world keeps burning fossil fuels at the current rate, it will cross a threshold into environmental ruin by 2036.”

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