

## *Closing Coal Plants*

We may wake up one morning in the not-too-distant future and realize that the world has reached a tipping point on coal. Use of this fuel will be declining worldwide, as it already is in many countries. Coal accounts for some 40 percent of global electricity generation. Natural gas accounts for 22 percent, hydroelectric power provides 16 percent, nuclear power some 11 percent, and oil just 5 percent. Wind, biomass, and solar make up the remainder. No one knows exactly when coal will lose its top ranking as a source of electricity, but with world solar generating capacity growing in recent years at a phenomenal 60 percent annually and wind by more than 20 percent, use of the black rock that led the world into the industrial age may decline even faster than many in the energy field expect.

Coal takes a heavy toll in each phase of its journey from the ground to the smokestacks of power plants and beyond. For coal miners themselves, the price is all too often black lung disease. Official data show that 76,000 coal miners have died in the United States since 1968 from black lung disease, a preventable affliction caused

by breathing coal dust—a disease for which there is no cure. In China, with many more mines and less safety oversight, 10 times as many people are thought to be living with black lung disease today, though because of underreporting, the number could be far greater. More directly, accidents in Chinese mines have claimed over a thousand lives in each of the past several years.

Miners' deaths are only the beginning of coal's health burden. Coal burning is a major source of mercury—a potent neurotoxin—in the environment. In the world's water bodies, mercury travels up the aquatic food chain and endangers human health via fish consumption. Coal also contains lead, cadmium, arsenic, and other carcinogens that can enter the environment where coal is mined, washed, or burned. Breathing the sulfur dioxide, nitrogen dioxide, and particulate matter released to the air from burning coal increases a person's risk of cardiovascular and respiratory diseases, including heart attacks and lung cancer.

In the United States, air pollution from coal-fired power plants is estimated to cause more than 13,000 premature deaths each year, mostly in the coal-dependent eastern swath of the country. Coal pollution is implicated in triggering over 20,000 heart attacks and 217,000 asthma attacks annually. These figures are actually improvements over years ago, before regulations like the federal Clean Air Act and state laws reduced air pollution from coal plants, mostly by requiring scrubbers on smokestacks. The Clean Air Task Force estimates that such rules saved some 11,000 lives each year between 2004 and 2010. But there is still work to be done.

The death toll from bad air is famously high in China, where rates of cancer and cardiovascular diseases in severely polluted areas are soaring. *New York Times* Beijing correspondent Edward Wong writes: "Residents

of its boom cities and a growing number of rural regions question the safety of the air they breathe, the water they drink and the food they eat. It is as if they were living in the Chinese equivalent of the Chernobyl or Fukushima nuclear disaster areas.” A recent study by Teng Fei at Tsinghua University estimated that coal burning led to 670,000 early deaths in China in 2012 from strokes, coronary heart disease, lung cancer, and chronic obstructive pulmonary disease.

A Chinese government policy that gave communities north of the Huai River free coal to burn in boilers for heating created an unintentional experiment, allowing researchers to compare the longevity of people in areas with and without heavy coal use. Controlling for other factors, they found that the 500 million people living north of the river were paying a disturbingly high price for the free coal: their life spans were cut by an average of five years.

Until recently, conventional wisdom held that coal burning was at least an economic source of electricity. But a 2011 study led by Harvard Medical School professor Paul Epstein concluded that from the ground to the power plant, coal indirectly costs the U.S. economy an astounding \$345 billion per year, largely because of the associated health care burden from air pollution and because of the climate change impacts. This massive figure exceeds the market value of the coal itself. In other words, the indirect costs to society of coal use are greater than the direct costs. Incorporating these indirect costs would easily double or triple the price of coal-generated electricity, making lower-cost wind and solar electricity clear winners.

In late 2013, U.N. Secretary-General Ban Ki-moon urged the world to take much stronger measures to stabilize climate, describing it as “the greatest single threat to peace, prosperity, and sustainable development.” Hardly

a week goes by without another dramatic example somewhere in the world of how the changing climate is altering lives. Instead of discussing climate change in the future tense, now the discussion is all too often in the present tense. Any effort to stabilize the earth's climate starts with closing coal plants simply because they are the leading source of carbon emissions worldwide.

Countries are taking different approaches to wean themselves from coal. Europe has been on a downward trend for coal use since the mid-1980s. Since 1965, Germany—Europe's heaviest coal user—has cut its coal consumption in half. Meanwhile, in the United Kingdom and France coal use fell by 70 percent. France plans to close 15 coal plants with a collective generating capacity of 3,900 megawatts between 2012 and 2016 while at the same time expanding wind farms to 25,000 megawatts.

Denmark banned new coal-fired power plants in 1997 and is looking to phase out coal power entirely by 2025. In late 2010, Hungary announced it would close its one remaining coal plant. Some coal facility shut-downs have come about in creative ways. In March 2014 police closed a coal plant in the Savona district in northern Italy. A judge had ruled in favor of Savona's chief prosecutor, who cited a study that found emissions from the plant between 2000 and 2007 led to 400 premature deaths and 2,000 cases of heart and lung disease. The 660-megawatt coal facility will not be polluting the area any longer.

Outside of Europe, South Africa—the world's sixth largest coal user—has reduced coal use 9 percent since its peak in 2008. A carbon tax set to begin in 2016 will likely bring coal use down even further. In New Zealand, releasing carbon into the atmosphere became more expensive following the introduction of an emissions trading scheme in 2008. Since then, coal use there has dropped by 30 percent.

Canada's Ontario Province, home to 39 percent of the country's population, had closed 16 of its 19 coal-fired plants by the end of 2012. Already the benefits are visible. In 2005, the province had 53 smog days. In 2013, there were only 2. Closing the province's huge Nanticoke Generating Station brought a reduction in carbon dioxide emissions that was equal to taking 3.7 million cars off the road. By April 2014, the three remaining coal plants were closed, making Ontario coal-free. At the same time, more than 25,000 homes, farms, schools, churches, and businesses either installed or started making plans to install small-scale, grid-connected photovoltaic arrays. The development of locally abundant wind resources is also playing a key role in Ontario's transition to renewable energy. For Canada as a whole, coal use has dropped more than a third since 2007.

In the United States, the number two coal user after China, coal use dropped 18 percent from 2007 to 2013. Of the 523 coal-fired power plants in the country, 180 either have recently closed or are scheduled to do so. One collateral benefit of this—in effect, a carbon reduction bonus—is the decline in the diesel fuel used by trains that carry the coal from mines to power plants across the country. The American Association of Railroads reports that the amount of coal moving by rail has been declining since 2008.

News headlines tell the story of coal's worsening prospects. In November 2013, the *Washington Post* ran an article entitled "Tennessee Valley Authority to Close 8 Coal Fired Power Units." When one of the leading institutions in developing coal-fired power in the United States turns its back on this energy source so dramatically, coal plant investors and owners throughout the country pay close attention.

An April 2013 *Washington Post* on-line headline read "Study: The Coal Industry Is in Far More Trouble Than

Anyone Realizes.” The story covered a peer-reviewed study by three researchers at the Nicholas School of the Environment at Duke University. Among other things, the Duke team noted that if the U.S. coal industry were forced to comply with stricter regulations on controlling pollutants, costs would be prohibitive. Considering prevailing low natural gas prices, many operating plants would be forced to close.

This is starting to happen. For example, dozens of aging U.S. coal plants are likely to be retired in the near future due to a 2015 deadline requiring compliance with mercury and toxic air emissions standards set by the U.S. Environmental Protection Agency (EPA). The EPA has also started a process leading to regulations on carbon dioxide emissions, signaling to power producers that they should consider carbon in their long-term plans.

In many cases, closing the coal plants and replacing them with low-cost solar or wind energy or energy efficiency improvements is cheaper than retrofitting the plants.

In the northeastern United States, support for closing coal plants is mounting, and it cuts across many segments of society. In New Hampshire, for example, some 90 businesses are urging Public Service of New Hampshire, the local utility, to close both of its remaining coal power plants. Vermont and Rhode Island are both coal-free already.

At the start of 2013, seven utility-scale coal plants were still operating in New England. To feed these facilities, located in Connecticut, Massachusetts, Maine, and New Hampshire, the region spent \$95 million in 2012 on coal imports, some from other states and some from other countries. Beyond this, the cost to operate and upgrade the aging fleet of coal plants to meet regulations is soaring. This is not just a matter of environmental acceptability but also of financial viability. Shifting from coal

to solar and wind would benefit the local economies not only because of lower-cost electricity but also because the dollars spent would remain within the area.

Massachusetts, the most populous New England state, is planning the end of its coal era. Of the state's three remaining utility-scale coal plants that were operational in early 2014, one—Salem Harbor Power Station—closed on June 1, 2014. A second, Mt. Tom, ceased operation on the following day. The third, Brayton Point, is scheduled to close in 2017. At that point, Massachusetts will be coal-free. Closing coal plants has helped Massachusetts cut its carbon emissions by 21 percent since 2005, making it an example for the world to follow.

Further south, the large 480-megawatt GenOn coal plant in Alexandria, Virginia, across the Potomac River from Washington, D.C., closed in late September 2012. U.S. Representative Jim Moran called the plant “one of 200 dinosaurs built before 1960 and exempt from the Clean Air Act.” The facility emitted copious amounts of nitrogen and sulfur dioxide and 72 pounds of mercury each year. Moran noted that “one seventh of a teaspoon of mercury dropped in a lake can poison that lake.”

Across the country, California—which burns little coal within its borders—reduced the amount of coal-fired electricity that it imports from other states by 18 percent from 2007 to 2012. The state utility of Nevada plans to be coal-free by 2025. It has announced that it will shutter its coal-fired power plants, replacing them with wind farms, solar installations, and natural gas power plants.

Indeed, natural gas is the energy source that some utilities have been choosing to cut their power plant pollution. With the growing use of horizontal drilling and hydraulic fracturing (“fracking”), U.S. natural gas production has boomed in recent years. The increase in production has led to a drop in prices for the fuel, which

in turn lures utilities away from coal. But natural gas is only a short-term stopgap. Like coal, gas is a depletable resource, one whose full environmental damage is slowly being uncovered.

In areas with heavy natural gas development, air quality has deteriorated from the drilling and the concomitant boost in heavy machinery and trucking. The fracking process requires large quantities of water. Injecting fracking fluids that contain chemicals into the ground to create fissures in shale rock formations to free up natural gas puts valuable groundwater at risk of contamination. Complaints of health problems associated with the bad air and water have increased. Fracking and injection of wastewater, which sometimes contains radioactive elements, back into the ground have caused earthquakes in unlikely places, like Ohio and Oklahoma. On top of these problems, recent research suggests that methane leaks all along the supply chain can make natural gas even more climate-disrupting than coal. Over 400 U.S. municipalities have passed anti-fracking measures because of environmental, health, and seismic concerns. Yet the boom continues.

In February 2009, in her State of the State address, Governor Jennifer Granholm of Michigan drove home the benefits of moving away from both coal and natural gas: “Instead of spending nearly \$2 billion a year importing coal or natural gas from other states we’ll be spending our energy dollars on Michigan wind turbines, Michigan solar panels, Michigan energy-efficiency devices, all designed, manufactured and installed by... Michigan workers.” In a state where half of the electricity comes from coal plants, this would be a big transition.

In some areas, the high water demands of coal-fired power plants may lead to their demise. This is a particularly lively issue in Texas, a water-stressed state that has nearly 30 coal plants either operating or in the permitting



stage. Key water users in Texas have banded together to oppose coal plant construction. The unusual coalition includes farmers, thirsty cities, and environmentalists. As Ryan Rittenhouse, who works with Public Citizen's anti-coal campaign in Texas, points out: "Water is where [coal plants] are most vulnerable."

Matthew Tresaugue, writing in the *Houston Chronicle*, noted that "the clash is the result of rising demand for both water and energy in Texas. With the state's population expected to double by 2060, there will be more neighborhoods, more businesses, more lights, and more air conditioners. Meanwhile, the water supply is projected to decrease by 18 percent because of aquifer depletion and sediment accumulation in reservoirs, according to state forecasts."

Even with the tight water situation in Texas, planning for a new coal plant in Matagorda County, wittily called the White Stallion Energy Center, was moving ahead until growing opposition from a variety of local constituencies led the developer to abandon its proposal in February 2013. Rice farmers, who depend heavily on water, had worried that the power plant would squeeze them out of business. Environmentalists and fishers were concerned because of the additional mercury burden. Local people also feared the loss of water sustaining the estuaries that support nurseries for fish and shrimp and that provide a vital habitat for wintering birds. On its cancellation, the Sierra Club noted that "since the plant was proposed in 2008, the Texas electricity market has shifted substantially, with wind power and natural gas driving electricity prices so low that huge, capital-intensive new coal plants could not compete."

The Sierra Club—with its 2.4 million members and supporters—has become a leader in the effort to eradicate coal use in the United States. Spurred to action by the call

for a coal rush in the Bush Administration's 2001 energy plan, the Sierra Club has coordinated a fight to prevent construction of new plants through its Beyond Coal campaign. As of late 2014, the organization, working with more than 100 other groups, had defeated proposals for 183 new coal plants and helped drive the announced retirement of 180 coal-powered plants.

With each extreme weather event—mega-storm, flood, or heat wave—that is associated in the public mind with climate change, the pressure to close coal plants intensifies. In response to a lawsuit brought by the Sierra Club and other organizations, Portland General Electric agreed to close Oregon's only remaining coal plant by the end of 2020. When this plant closes, Oregon will be coal-free. After negotiations with the Sierra Club, other environmental groups, union leaders, religious groups, public health advocates, and state officials, Washington State Governor Christine Gregoire announced that the local utility would close part of its huge power plant in Centralia in 2020 and the remainder in 2025. Bruce Nilles of the Sierra Club says, "This agreement is sending a message that states are getting serious about combating global warming pollution and are taking steps to open up markets for home-grown clean energy."

New York City Mayor Michael Bloomberg announced in July 2011 that he was contributing \$50 million to the Beyond Coal campaign. Sierra Club head Michael Brune called this a "game changer." When Bloomberg, one of the most successful entrepreneurs of his generation, said coal has to go, it reverberated not only across the country but around the world.

One reason for the success of the Beyond Coal campaign is that Americans by and large simply do not like coal. A 2013 Gallup poll found that coal is Americans' least-favored energy source, far behind cleaner sources

like wind and solar.

Although Beyond Coal is a national campaign, closures actually occur at the community level with the grassroots involvement of local groups, including health organizations alarmed by the effects of breathing coal plant emissions. Civil rights groups, concerned about the disproportionate impact of coal pollution on communities of color, also are involved. This combination of environmentalists, health advocates, and civil rights groups has created a formidable force in favor of replacing coal.

When the Sierra Club succeeds in closing a coal-fired power plant, it does not simply walk away from the site. Even while its members are working to close the plant, they also work with local communities to replace the coal-fired electricity with efficiency gains and clean electricity from wind, solar, or geothermal. In Los Angeles, for example, the local utility, the Sierra Club, and other organizations developed a plan to move off coal while protecting the pocketbooks of low-income residents. They celebrated a major victory in March 2013 when Mayor Antonio Villaraigosa announced that Los Angeles would go coal-free by 2025. The city will replace the dirty energy with energy efficiency and a massive urban rooftop solar initiative.

The Sierra Club has also launched a major challenge to coal on college and university campuses, and a broad cross-section of U.S. higher education institutions has become involved. The University of Illinois and Cornell University were among the first schools making coal-free commitments. At the University of North Carolina, another early adopter, Chancellor Holden Thorp announced in 2010 that the university was phasing out coal use. He remarked that “coal cars pulling up... to the plant is not particularly good symbolism for a university that teaches people about climate change and the fron-

tiers of energy research.” Even coal-state schools such as the University of Tennessee, Western Kentucky University, and the University of Louisville have pledged to end coal use on campus.

By late 2014, a third of all on-campus coal plants in the United States had been retired or were slated to retire. These successes have encouraged the Sierra Student Coalition to broaden its campaign on fossil fuels and join forces with groups such as 350.org that are working to encourage schools to divest from coal, oil, and natural gas companies.

Investment banks are also taking a dim view of coal. Analysts at Goldman Sachs write: “We believe that thermal coal’s current position atop the fuel mix for global power generation will be gradually eroded.” They note that “most thermal coal growth projects will struggle to earn a positive return.” There are three reasons for this. One, environmental regulations on coal use are becoming more stringent. Two, the competition from natural gas, solar, and wind is intensifying. And three, investment in energy efficiency gains will lead to less coal use. Kevin Parker, while serving as the global head of asset management at Germany’s Deutsche Bank, put it this way: “Coal is a dead man walkin’.... Banks won’t finance [coal-fired power plants]. Insurance companies won’t insure them. The EPA is coming after them.... And the economics to make it clean don’t work.”

The mounting opposition to coal has led to shrinking or even disappearing profit margins, resulting in precipitous drops in the stock values of many coal-related companies. The Stowe Global Coal Index—a composite index of companies from around the world whose principal business involves coal—dropped 70 percent between April 2011 and September 2014, whereas the S&P 500 grew almost 50 percent during the same time.

Peabody Energy, the largest U.S. coal producer, is having a difficult time. Its market value dropped from roughly \$10 billion in November 2006 to \$3.9 billion in mid-September 2014, a decline of 61 percent. During the first half of 2014, Peabody's market value fell 17 percent even as the Dow Jones global energy index climbed 12 percent. Because of its lower market value, Peabody was removed from the S&P 500.

Arch Coal, the other leading U.S. coal company, saw its market value drop a stunning 94 percent from April 2011 to September 2014. It suffered heavily from the shrinking U.S. coal market and dwindling demand from China for steel-making coal.

While coal use is dropping fast in the United States, it is growing in the developing world. But this could slow down somewhat as financing becomes more difficult. In June 2013 President Obama announced that the United States would no longer use public money to finance coal plants internationally except in special circumstances. The World Bank followed suit the next month and announced that it too would no longer fund coal plants. And in July 2013 the European Investment Bank placed strict limits on lending for new or renovated coal plants. Only facilities with carbon emissions below a certain threshold will be eligible for funding. Ingrid Holmes of the U.K.-based environmental think tank E3G said this move "puts the bankers ahead of politicians in terms of tangible action."

Still, coal use worldwide is expanding. A number of countries are planning to build hundreds of new coal plants, including, importantly, India. But India is running into problems at the local level. Developing India's coal reserves threatens some of its remaining forests, ones that are protected because they are home to the country's surviving tiger population. Local communities are fighting back against planned coal plants that displace

thousands of people. In one example, residents of coastal Sompeta teamed up with fishers, farmers, shepherds, doctors, women's groups, and labor groups to combat the construction of a massive 1,980-megawatt plant. Their peaceful opposition was met with violence, resulting in the deaths of two fishermen. The battle, which was also waged in Indian courts, ended when the coal plant lost its land allotment, effectively blocking its construction.

India's coal sector is also suffering from the recent "Coalgate" scandal, which brought to light some \$33 billion in coal leases that were not sold by open bidding but were practically given away to large, politically connected companies and wealthy individuals. Newspapers jumped on this issue with scathing editorials. In late 2014 the Indian Supreme Court canceled over 200 coal leases granted between 1993 and 2010 that now must go through new auctions.

Coal India, a semi-government agency that is the world's largest coal miner, was expected to prosper or at least achieve a certain level of efficiency. But although it effectively has a monopoly, it frequently misses production goals. In late 2014 the government took the first steps toward opening up coal mining to private companies. The end of Coal India's monopoly may be in sight.

Taxes on coal mined in or imported to India have recently doubled, with the extra revenue going toward renewable energy, namely solar. Shortly after taking office in 2014, Prime Minister Narendra Modi announced that he would be pushing hard for solar expansion at the national level just as he had at the state level when he was chief minister of Gujarat. And even Coal India is installing solar panels on some of its facilities to cut costs.

At the same time, however, the Modi administration is calling for a doubling of domestic coal use by 2020 as it tries to bring electricity to those who do not yet have

it. The potential for this much growth from the world's third largest coal user—and the third largest emitter of carbon dioxide—is worrisome. Indian cities already rival their Chinese counterparts for the world's worst air pollution. More coal plants would only make this situation worse, pushing India's estimated annual death toll from coal-related pollution to over 150,000.

China consumes more coal than the rest of the world combined. It gets some 80 percent of its electricity from the fossil fuel. However, China's annual growth in coal use has dropped from more than 10 percent in some years over the last decade to less than 4 percent in 2013. And in the first 11 months of 2014, coal use in China dropped for the first time in decades, which may mean that peak coal is here.

Several factors are behind China's coal slowdown. For one, rising public anger over pollutants from coal-fired power plants is damaging the coal prospect. The effect of pollution on the Chinese people has become such a pressing concern that the government can no longer ignore it. Another factor is water. Coal plants use large amounts of water for cooling. In the agriculturally productive North China Plain, where water tables are falling rapidly, the construction of more coal plants and their associated water needs will simply accelerate the drop in the water table until the aquifer is depleted. As water scarcity worsens, China will be facing a choice between using water to cool coal plants or using it for irrigation to produce rice and wheat. If it opts for the former, China will need to import even more grain than it does today, putting additional pressures on the world's exportable supplies and quite likely driving the world price of grain higher while at the same time raising the global thermostat.

In September 2013 Citi Research released a report entitled "The Unimaginable: Peak Coal in China." Look-

ing at China's massive and unprecedented push to develop its abundance of wind resources and its recent catapult into a leading position in global solar panel installations, peak coal may no longer be so unimaginable. Besides the increased use of other energy sources and the challenges of air pollution, the report counts China's slowing economy and its energy efficiency improvements as reasons for a peak coming earlier than anticipated.

Some recent policy decisions will further decrease coal's prominence in China. Three provinces and three major cities have pledged to cut their coal use substantially by 2017. This includes major industrial centers such as Beijing, Heibei, and Shandong. Shandong, the leading provincial energy consumer, currently burns as much coal as Germany and Japan combined do. The use and sale of coal are banned in Beijing starting in 2020. And in November 2014 China and the United States announced a groundbreaking agreement to limit carbon dioxide emissions, which of course means limiting coal use. Soon after, China announced it would cap its coal use by 2020.

The Chinese government also recently imposed import tariffs of up to 6 percent on coal. Although China has large coal reserves of its own, it is also the world's leading importer, so its moves have a global effect. Indonesia and Australia, the two leading sources of China's coal imports, will both get tariff exemptions under free trade agreements. All countries sending coal to China need to meet stricter quality controls starting in 2015, as China is banning the use of high-sulfur coal in populous areas to help improve air quality.

China's coal imports from Australia have been on the rise. Australia's relationship with coal is an uneasy one. The country decreased its own coal use 20 percent since peaking in 2006, but its exports to countries including China, Japan, and South Korea are increasing. Despite



coal's dimming future and its general unpopularity among citizens, Australian decisionmakers are doubling down on last century's fuel, moving forward with new mines and port expansions. Shortly after repealing the country's carbon tax in 2014, Australia's Prime Minister Tony Abbott opened a new coal mine with the declaration that "coal is good for humanity." Even though it is already operating below capacity, the major port at Newcastle is scheduled to expand to increase its ability to export coal. Whether the port will ever use the new capacity remains to be seen.

U.S. coal companies are also looking for markets abroad to replace shrinking domestic demand. Exports of coal to China, almost non-existent in 2007, have grown to 7.5 million tons of coal. The U.S. coal industry hopes that this grows quickly. Over much of the past decade, total U.S. coal exports climbed, reaching an all-time high of 114 million tons in 2012. Exports then fell in 2013 and 2014. The question now facing the U.S. coal industry is not just whether exports can grow but whether the current level can be sustained.

One of the world's largest coal reserves is located in the Powder River Basin of Wyoming and Montana. Until recently, U.S. coal companies had few options other than to use ports in Seattle and British Columbia to export that coal. But as the interest in moving coal through the Pacific Northwest grows, this region could find itself serving as the jumping-off point for close to 100 million tons of Asia-bound coal every year if proposed new terminals are built. Needless to say, handling this much coal in northwestern coastal ports, with all the associated coal dust, is of great concern to those who live there. In addition, the growing number of ships on the Columbia River and the added rail traffic could interfere with the local flow of transported goods.

Lined up in opposition to more coal exports are the Sierra Club, the Natural Resources Defense Council, and a number of other national and regional environmental and local citizens' groups. Also aligned with the environmental groups is the Lummi Nation, a Native American tribe that once inhabited much of the Pacific Northwest region, who are concerned about the threats to health and fisheries, as well as about preserving culturally important sites. Cesia Kearns, a Beyond Coal campaigner in the region, says: "Coal exports threaten our health and public safety. This has been garnering public outcry like I have not seen before. People are up in arms about it."

Governor John Kitzhaber of Oregon and almost 90 other elected officials have joined the EPA in asking for a comprehensive analysis of the effect of the proposed wholesale increase in coal shipments through the region. The situation is ironic. Oregon and Washington are being asked to serve as a conduit for global warming pollution in Asia, while at the same time they are closing their own coal-fired power plants to help prevent climate change from spiraling out of control.

In early January 2014, Oregon Public Broadcasting reported that Goldman Sachs was backing away from one of the proposed terminals. In pulling out of the project, Goldman Sachs drove another nail into the coal coffin. As the options for exporting through the Pacific Northwest close, companies are looking south to the Gulf of Mexico. But there they are finding local opposition for many of the same reasons, plus concerns over coastal restoration. Residents want a healthy coast to help protect them from the next hurricane. It is hard to find a community eager to support such a dirty fuel.

The world is waking up to the true casualties of burning coal: clean air, safe water for drinking and irrigating crops, and a relatively stable climate. These costs unmask

“cheap coal.” Many countries—including the United States and China, the world’s two largest economies—have realized this and are beginning to move away from coal. As the transition to renewable energy accelerates, more coal will stay in the safest place for it: underground.

*Data, endnotes, and additional resources can be found at Earth Policy Institute, [www.earth-policy.org](http://www.earth-policy.org).*