

US castoffs resuming dirty career

Old plants, buses are sold to poorer nations



VIDEO: http://www.boston.com/news/specials/climate_change/exporting_pollution/

Buses considered too old, too polluting, or too unsafe for schoolchildren in the United States are not scrapped. Through auctions like the one at 422 Sales in Pennsylvania, and a network of dealers, drivers, and shippers, thousands of vehicles each year resurface in other countries, repainted bright colors, sporting religious phrases and, often, spewing clouds of pollution. (Globe Staff)

By Beth Daley
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TURNERS FALLS -- Some townspeople in this 19th-century mill village on the Connecticut River celebrated when workers began tearing down a shuttered coal-fired power plant this year. First, they dismantled the towering boiler. In June, the smokestack that belched hundreds of thousands of tons of heat-trapping gases into the air came down. Last month, workers hauled away the five-story steel skeleton, leaving just a concrete silo as a reminder of this local icon of global warming.

But the demolition is hardly a victory in the battle against manmade climate change.

Virtually every piece of the 2,600-ton plant is being shipped to Guatemala to be rebuilt, girder by girder, to power a textile mill that sells pants, shirts, and sportswear to the United States. It could last, and continue to pollute, for another 50 years.

From 4-ton trucks to 40-ton boilers, US vehicles and equipment are finding a second life in developing countries -- postponing meaningful reductions in greenhouse gas emissions by inefficiently using energy or directly emitting carbon dioxide.

A 1950s-era paper-making machine from the Curtis Paper mill in Adams is operating in Egypt. A 1992 school bus from Vermont's tiny North Hero Island is chugging along the roads of Costa Rica. A rock-crushing machine used to make talcum powder in West Windsor, Vt., has been dismantled and reassembled in Colombia.

"This clearly isn't what we want to happen," said Armond Cohen, executive director of the Boston-based Clean Air Task Force, a national advocacy group. "It's troubling that we'd be handing down the remnants of our industrial-era technology rather than helping these places with cleaner options."

When a factory closes or a school bus fleet is retired in the United States, its components often enter an international marketplace. Through online auctions and a series of middlemen, the vehicles and machines are sold and shipped around the world, usually to countries that cannot afford cleaner technology. There, the used equipment can have a second act that lasts longer than the first.

This international trade in retired equipment and vehicles, which a German research group in 2003 estimated at \$150 billion annually, is rarely discussed as scientists call for immediate measures to avoid the worst consequences of global warming. Yet as New Englanders trade in sport utility vehicles for hybrid cars and move toward more climate-friendly technologies, the exporting of old equipment represents a significant leak in the expanding worldwide effort to plug emissions of gases that trap the sun's heat.

Often, technology considered obsolete in the United States reduces certain types of pollution compared with what it replaces in developing countries. But the equipment still results in the emission of far more greenhouse gases than newer technologies or alternative energy sources.

A generation ago, economists and scientists envisioned a different future. Rich, developed countries were going to invest in cutting-edge technology to demonstrate its effectiveness. Then, developing countries would use that climate-friendly technology to leapfrog over wealthy nations' cast-offs.

"It just hasn't happened and we need a return to that vision," said Dale Jamieson, director of environmental studies at New York University. "We are living with emissions that are occurring everywhere. It's in our best interest to have technology everywhere that emits less."

The story of the Turners Falls power plant demonstrates, however, just how complex it will be to find a solution.



A new home in Guatemala

About 10 miles southwest of Guatemala City earlier this month, dozens of workers in hard hats poured a concrete foundation on two muddy acres behind a sprawling textile mill. Thousands of rusty tubes and pipes from the Turners Falls power plant were piled nearby like enormous jigsaw-puzzle pieces. A 50-foot section of the smokestack rested next to a curved piece of the boiler wall.

Shipped to Guatemala in cargo containers over the last nine months, the pieces are spray-painted with numbers and arrows to guide construction workers where to weld them together to reassemble the plant. Next year, the plant will be powering the textile mill and selling surplus electricity to the region's power grid.

Guillermo Zimeri M., owner of the cavernous Textisur textile mill, is buying the power plant to reduce his energy bills and better compete with mills in other countries.



A new power plant would cost more and take almost three times longer to complete. Largely because of China's and India's explosive growth, waits for specialized industrial equipment like boilers and furnaces can stretch two years or more, and steel and metal prices are spiking.

The Turners Falls plant cost about \$44 million when it was erected in the late 1980s to power a paper mill. It is being dismantled, shipped, and rebuilt for about \$22 million.

Founded in 1981, the Villa Nueva textile mill employs about 900 workers who use a mix of high-tech and

home-taught sewing to produce close to 2 million yards of towels, fabrics, shirts, pants, and mattress covers every month. Row upon row of automated machines transform raw cotton into long threads in a warehouse-sized room where tiny puffs of cotton float in the air. Nearby, dozens of clicking machines weave filaments into giant white rolls of spandex. Women and men in another room hunch over sewing machines, hemming cotton towels.

Trade restrictions have recently eased between the United States and Guatemala, and as a result, Zimeri is investing heavily in new looms and spinning machines. But to compete with the cheap labor in Chinese textile mills, he needs an inexpensive energy source.

Textisur now gets about 40 percent of its electricity from independently owned power plants that burn heavy oil. Zimeri also has two boilers that use oil to produce steam for the textile mill. As the price of oil has soared, Textisur's operating costs have skyrocketed.

The Turners Falls plant, with enough juice to power about 20,000 homes, represents survival for Textisur.

"It is our future," Zimeri said.

Coal plant equals progress

In Villa Nueva, where a fine layer of soot can coat the skin, the hand-me-down coal plant in many ways represents environmental progress.

The oil-burning facilities from which the textile mill gets energy have few emission controls, so the Turners Falls plant will pollute less. The coal plant is fitted with millions of dollars in filters and other equipment required in the United States to capture much of the air pollution that can cause respiratory problems and contribute to other illnesses. Those environmental controls will remain in place in Guatemala even though they far exceed standard practice there.

"It sounds strange, but having a coal plant in Guatemala is actually cleaning up emissions," said Michael Crippen of Calpwr/PSC, a US consulting firm that is overseeing the complicated task of dismantling, reassembling, and restarting the power plant.

Edgar Figueroa, a Guatemalan businessman who conceived and brokered the deal with his energy consulting company Sims, is proud that the coal plant met strict US Environmental Protection Agency standards. If it had not closed in the mid-1990s after the paper mill it powered shut down, the plant probably would still be legally operating in Massachusetts, according to state officials.

In Villa Nueva, the power plant will also provide excess steam to the mill. This will increase energy efficiency and allow Zimeri to shut down the mill's two oil-burning boilers, which have few emission controls.

But the coal plant will not reduce the discharge of carbon dioxide, though precise calculations are not available. First, burning coal typically releases more carbon dioxide into the atmosphere than burning oil. Second, the oil-burning power plants will probably continue to operate to supply Guatemala's growing energy demands.

Facing economic realities

When the coal plant goes online, Zimeri probably won't scrap the two oil-burning boilers. He will probably sell them to be used elsewhere -- further evidence of the economic realities undermining the drive to blunt global warming.

Such secondhand trade in capital equipment is worldwide in scope and growing, according to Adelphi Research, a German think tank that published the 2003 report, one of the few to focus on the phenomenon. For example, in Thailand, 90 percent of textile machines were secondhand, the report noted, while in Morocco 35 percent of all imported machines were used.

The report estimates that secondhand machinery, often built with older technology, consumes an average of 20 percent more energy than modern equipment -- often resulting in more greenhouse gas emissions. In 2006, a Belgian research group said the market for used machinery was booming, with a growth rate in the double digits.

Economists and even environmentalists are loath to condemn developing countries for buying secondhand equipment and vehicles to support their growing economies.

But they suggest some solutions. Nations could adopt stricter trade restrictions, foreign investment policies or environmental laws that would ban the trade of secondhand machinery or vehicles that don't meet certain efficiency standards. Industrialized countries should also assist developing countries to buy newer and better technologies to leapfrog over older equipment.

"This leapfrogging process is not automatic," said Kelly Sims Gallagher, director of the Energy Technology Innovation Project at Harvard University's Belfer Center. For example, three US auto manufacturers recently introduced automobile emission-control technology to China that would not have met US air pollution standards, she said.



Guatemala City

The United States has refused to sign an international treaty to reduce greenhouse gases because it does not include similar commitments from developing countries.

"Clearly our position and policy in terms of trade doesn't match up," said Danilo Pelletiere, a senior fellow in the school of public policy at George Mason University who studies the secondhand vehicle trade. "That is the irony. If we want to require [developing countries] to meet higher standards, we should be responsible for giving them the capacity to do so."

Village moves forward

All that is left of the Turners Falls plant is a pile of bricks and the approximately 100-foot-tall concrete silo where coal was stored. A recently built bike path winds along a canal across from the former power plant, and there is talk of creating a film production school and studio in the adjacent mill. The village off Route 2, part of the larger town of Montague, is trying hard to transform into a quaint tourist village.

Early on, some residents had discussed the possibility of creating a public art piece on the coal silo.

"Something that said this used to be a coal plant . . . or a monument to a new form of environmentalism," said Frank Abbondanzio, Montague town administrator. "But of course, we know it leaves here and just goes somewhere else."

Maria Cramer of the Globe staff contributed to this story.

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