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'We should not become the dust bin of the rest of the world'



U.S. oil refineries that are unable to sell a dirty fuel waste product at home are exporting vast quantities of it to India instead.(AP Photo/Charlie Riedel, File) (The Associated Press)

U.S. oil refineries that are unable to sell a dirty fuel waste product at home are exporting vast quantities of it to India instead.

Petroleum coke, the bottom-of-the-barrel leftover from refining Canadian oilsands crude and other heavy oils, is cheaper and burns hotter than coal. But it also contains more planet-warming carbon and far more heart- and lung-damaging sulfur — a key reason few American companies use it.

Refineries instead are sending it around the world, especially to energy-hungry India, which last year got almost a fourth of all the fuel-grade "petcoke" the U.S. shipped out, an Associated Press investigation found. In 2016, the U.S. sent more than 8 million metric tons of petcoke to India. That's about 20 times more than in 2010, and enough to fill the Empire State Building eight times.

The petcoke being burned in countless factories and plants is contributing to dangerously filthy air in India, which already has many of the world's most polluted cities.

'My lungs are finished'

Delhi resident Satye Bir does not know all the reasons Delhi's air is so dirty, but he says he feels both fury and resignation.

Alberta oilsands waste exported by American refineries to pollution-choked India

Posted by Joan Russow

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"My life is finished....My lungs are finished," said the 63-year-old Bir, wheezing as he pulls an asthma inhaler out of his pocket. "This is how I survive. Otherwise, I can't breathe."

Laboratory tests on imported petcoke used near New Delhi found it contained 17 times more sulfur than the limit set for coal, and a staggering 1,380 times more than for diesel, according to India's court-appointed Environmental Pollution Control Authority. India's own petcoke, produced domestically, adds to the pollution.

"We should not become the dust bin of the rest of the world."

- Sunita Narain, Center for Science and the Environment

Industry officials say petcoke has been an important and valuable fuel for decades, and its use recycles a waste product. Health and environmental advocates, though, say the U.S. is simply exporting an environmental problem. The U.S. is the world's largest producer and exporter of petcoke, federal and international data show.

"We should not become the dust bin of the rest of the world," said Sunita Narain, a member of the pollution authority who also heads the Delhi-based Center for Science and the Environment. "We certainly can't afford it; we're choking to death already."

Oil refining is a lifeline

For more than a century, oil refining has served as a lifeline in America's industrial heartland, where thousands of manufacturing jobs have been lost in recent decades.

Pollution causing more deaths worldwide than war or smoking: Lancet

In gritty northwest Indiana, a sprawling oil refinery and steel mills dominate the Lake Michigan shoreline. Freight trains chug through working-class neighbourhoods. And smokestacks and distillation towers still symbolize opportunity.

Local officials and workers cheered when the BP Whiting refinery invested \$4.2 billion so it could process crude extracted from oilsands in the boreal forest of Alberta, Canada.

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U.S. refineries embrace oilsands oil and other heavy crudes, when domestic oil production was stagnant before the hydraulic fracturing boom. Some of the biggest built expensive units called cokers to process the gunky crude into gasoline, diesel, ship fuel and asphalt, which leaves huge amounts of petroleum coke as waste. When BP Whiting's coker in Whiting, Indiana was finished in 2013, its petcoke output tripled, to 2.2 million tons a year.

Petcoke traditionally was used in the U.S. to make aluminum and steel after its impurities were removed. But when those mills closed or moved to other countries, the need for petcoke waned, although some power plants still use it. Other industries that had burned petcoke in the past did not want to invest in costly upgrades to control emissions of sulfur dioxide and nitrogen oxides, so they shifted to cleaner natural gas.

'It's a commodity that defies explanation'

The American Fuel and Petrochemical Manufacturers, a petroleum industry trade group, released a statement to the AP saying that cokers "allow the United States to export petroleum coke to more than 30 countries to meet growing market demand."

"Petroleum coke is used globally as a cost-effective fuel, as well as an integral component in manufacturing," AFPM said.

But experts say it's not market forces that are driving U.S. refiners to make this waste product from heavy oil refining.

New Delhi's toxic smog poses serious health threat, warns doctor

The refineries just need to get rid of it, and are willing to discount it steeply — or even take a loss — which helps drive the demand in developing countries, experts said.

"It's a commodity that defies explanation (because) there's not a financial market," said Stuart Ehrenreich, an oil industry analyst who once managed petcoke export terminals for Koch

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Industries. "But at the end of the day, the coke has got to move."

So it's usually priced cheaper than even coal, sold around the world through a network of businesses — from boat captains and stevedores to buyers, brokers and middlemen — and sent on an epic, weeks-long journey by rail, barge and ship.

'It's like the Wild West'

There are fewer than a dozen big traders globally. Among the largest are Oxbow Energy Solutions and Koch Carbon, both led by members of the politically conservative and climate-skeptical Koch family. Neither they nor a dozen U.S. oil companies and traders contacted by the AP would talk about petcoke. They cited past controversies over the mountains of the waste stored at Midwest refineries, or said they wanted to avoid angering business partners.

In India, no factory managers would allow AP access, and federal officials did not respond to repeated requests for interviews.

With the petcoke market volatile and competitive, industry holds information close, hoping to maintain an edge and make a profit.

"It's like the Wild West," said Ehrenreich.

Dirty air

Petcoke, critics say, is making a bad situation worse across India. About 1.1 million Indians die prematurely as a result of outdoor air pollution every year, according to the Health Effects Institute, a non-profit funded by the U.S. Environmental Protection Agency and industry.

In the capital of New Delhi, pollution has sharply increased over the past decade with more cars, a construction boom, seasonal crop burning and small factories on the outskirts that burn dirty fossil fuels with little oversight. In October and November, for the second year in a row, city

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air pollution levels were so high they couldn't be measured by the city's monitoring equipment. People wore masks to venture out into grey air, and newspaper headlines warned of an "Airpocalypse."

Humans have produced 8.3 billion tonnes of plastic, researchers say

"Fifty per cent of children in Delhi have abnormalities in their lung function — asthma, bronchitis, a recurring spasmodic cough. That's 2.2 million children, just in Delhi," said Dr. Sai Kiran Chaudhuri, head of the pulmonary department at the Delhi Heart & Lung Institute.

The country has seen a dramatic increase in sulfur dioxide and nitrogen dioxide emissions in recent years, concentrated in areas where power plants and steel factories are clustered. Those pollutants are converted into microscopic particles that lodge deep in the lungs and enter the bloodstream, causing breathing and heart problems.

It's impossible to gauge precisely how much is from petcoke versus coal, fuel oil, vehicles and other sources. But experts say it certainly is contributing.

'It is definitely alarming'

Indian purchases of U.S. fuel-grade petcoke skyrocketed two years ago after China threatened to ban the import of high-sulfur fuels. Although Indian factories and plants buy some petcoke from Saudi Arabia and other countries, 65 per cent of imports in 2016 were from the U.S., according to trade data provider Export Genius.

"It is definitely alarming," Chaudhari said. "The government should know what they're getting, what they're using and what are its harmful effects."

Fort McMurray fires cause air pollution spike on other side of continent

In the north Indian industrial district of Moradabad, several hours' drive from the capital, villagers see the skies getting dingier but have little information about what happens behind factory gates.

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Only four factories are on record as using petcoke. But dozens buy it from middlemen running open-air fuel depots, according to Sarvesh Bansal, a natural gas distributor in the north Indian city who leads the ad-hoc local environmental group called WatAir.

"We want the factories moved very far away from here," said a 25-year-old rice farmer named Mohammad Sarfaraz, who lives in nearby Farid Nagar. He and others aren't sure what pollutants are being spewed, but they nevertheless protested at nearby factories a few years ago until shooed away by guards.

Scientists invent more accurate way to measure oilsands pollution

"Many illnesses occur because of the factories. Small kids and old people fall sick very easily. There is breathlessness, heart disease, pain in the hands and legs."

India's cement companies were first to bring in petcoke, and still import the most, though cement experts say some sulfur is absorbed during manufacturing.

As word spread of the cheap, high-heat fuel, other industries began using it in their furnaces — producing everything from paper and textiles to brakes, batteries and glass, according to import records compiled by Export Genius. The government was caught off guard by the shift, and there are scant records of how much petcoke is being burned.

Petcoke's use was further encouraged by low import tariffs and a lack of regulations on its most potent pollutants.

Nearly a million hectares of oilsands exploration leases abandoned

Industries also like that petcoke, which is around 90 per cent carbon, burns hot. So they can use less of it to produce the same heat as coal — though coal still overshadows petcoke in factory furnaces.

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Within a decade, India's petcoke appetite grew so voracious that it began producing and selling its own, and Indian refineries today are making about as much as the country is importing. One of the biggest refiners — Mumbai-based Reliance Industries Ltd., owned by India's wealthiest businessman, Mukesh Ambani — has ramped up petcoke production.

Still, U.S. petcoke remains popular.

Indians typically buy petcoke with about 6-7 per cent sulfur — more than double than with most coal — because it's the least expensive, said Vedanth Vasanth, director of Viva Carbon Pvt. Ltd., a supplier based in the southern city of Chennai that helps broker petcoke contracts between Indian buyers and sellers abroad.

'We rejected the imports'

J.P. Gupta, whose factory in Moradabad district makes acrylic fibers used in clothing, said his factory burns through some 4,000 metric tons of Indian-made petcoke every month.

The factory spent about \$300,000 on equipment to control sulfur, he said, but would have spent 50 per cent more on pollution control if it had opted for U.S. petcoke, which he says is dirtier.

"We rejected the imports...", he said. "But there are some who are not bothering about the pollution."

At an open-air brick kiln just 10 kilometres (six miles) down the road, workers shovelled a mix of petcoke and coal into a fiery furnace. Other than thick wooden sandals to protect their feet from the heat, they wore no safety gear or breathing masks. And there was no equipment to control the gases or soot billowing from the chimney.

India to spray capital from on high amid deepening smog emergency

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Such small factories operating off the electricity grid in India's vast informal sector account for 25 to 30 per cent of the country's total energy generation. Often crammed into city outskirts, these outfits manufacturing everything from plastic bangles to metal screws rely on fossil fuels to keep their furnaces afire — the cheaper, the better.

Few adhere to pollution standards, said Ajay Mathur, head of The Energy Research Institute, a non-profit policy research organization in New Delhi. "This is an area where we need to have regulations sooner rather than later," he said

An uncertain future

Although petcoke has been an industrial resource since the 1930s, the high sulfur content and sheer petcoke volume — and growing concern about climate change, as well as particle pollution — could restrict or halt its production, experts said.

Governments could decide to tax high-carbon fuels such as petcoke. They could ban high-sulfur or high-carbon fuels. Or they could set pollution limits that make petcoke use impractical.

In India, judges of the National Green Tribunal demanded in May that the government investigate the environmental and health impacts of petcoke.

This is a completely disgusting state of affairs.

- Legal ruling, environment ministry

"The government was not doing anything," said the WatAir leader Bansal, whose environmental group launched the lawsuit. "There is no law in India, no control. So the whole world's petcoke is coming to India, and it's getting consumed here."

The government's environment ministry has dismissed the idea that petcoke threatens public health in the nation's capital. But the country's Supreme Court, which has consistently demanded or enacted tougher pollution control measures, recently banned petcoke use by some industries as of Nov. 1 in the three states surrounding pollution-choked New Delhi. It also

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demanded tighter pollution standards that — if enforced — could further limit its use nationwide.

"This is a completely disgusting state of affairs," the judges said in their (Oct. 24) ruling, "and this is hardly the way in which the Ministry ought to function if it is expected to perform its duties sincerely, honestly and with dedication."

The court last month also urged all states across India to pass similar bans.

The ministry refused months of requests for interviews, both before and after the court's ruling. But analysts say that, short of a nationwide ban, petcoke use could be mostly unaffected.

It's a classic case of environmental dumping.

- Lorne Stockman, Oil Change International

"The petcoke markets grew so fast across the country that a ban around New Delhi isn't going to put a huge dent in the overall demand for petcoke," said Jeffrey McDonald, an analyst at S&P Global Platts.

Refineries could choose to stop producing petcoke, by using more expensive refining methods that would essentially convert all the heavy oil to other products.

But it's more likely that if new pollution limits do affect its use, U.S. refiners will just find new petcoke customers in other developing nations, especially in Asia and Africa, experts and environmentalists said.

"It's a classic case of environmental dumping," said Lorne Stockman, director of the environmental group Oil Change International. "They need to get rid of it, so it's dumped into a poor, developing country."