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INDIA'S QUANDARY: CLIMATE CHANGE AND COAL

Conjuring images of a dystopia, the shroud of bad air blanketing New Delhi in recent weeks has intensified global pressure on India to curb its greenhouse gas emissions. India will arrive at the climate change summit in Paris next week as the third biggest generator of fossil fuel pollution blamed for warming the planet, after China and the U.S.

Half of India's emissions come from burning coal. A visit to the coal-rich northeastern Indian state of Jharkhand reveals how this stands to get even worse. Exposure of underground coal to atmospheric oxygen causes spontaneous combustion. And Indian coal, with its high ash content, ignites at a relatively low temperature, 122 degrees Fahrenheit. Coal seams burning at night in the state's Jharia coal region set off a ghostly, vermilion glow, releasing toxins including carbon dioxide, nitrogen oxides and volatile metals such as mercury.

And yet India intends to triple its production of coal by 2030, extracting rich seams of "black gold" from cavernous open-cast pits. Coal-burning power plants supply 65 percent of India's energy today. The country has only limited reserves of natural gas, a cleaner fossil fuel. A ramped-up reliance on the most carbon-intensive fossil fuel presents the country with a profound dilemma. A third of the world's poor live in India, and the country needs massive energy to fuel new industries and jobs to pull millions out of poverty. India also needs to extend electricity to 300 million of its citizens living without it.

But coal and its byproducts are hazardous to public health. Even a brief stay in the cities of the Jharia coal mining area takes a toll. Smoke from its many coal fires burns the eyes and stings the throat. Soot covers homes and clings to forlorn-looking cows grazing on land that backs up to the coal fields. But to meet the power need, India is opening a new mine on average every month.

Fields Of Coal: Coal India Limited, a government behemoth, mined 500 million tons of coal nationwide last year. We watch as operators at one of its open-pit coal projects dynamite the side of a terraced canyon that's so deep, the trucks below look like Tonka toys. We crunch over row upon row of neatly piled deposits of coal that stretch across the land like a farm at harvest. Charan Singh, the general manager of this Central Coalfields, Ltd., project, steps over the ridges and proclaims, "We're cropping coal here. This is a coal field." Singh explains how machines cut away surface rock to expose the coal seam that is then pummeled into compact chips. He says the crushing directly at the source saves steps, is more energy efficient and shrinks the operation's carbon footprint. In one year, Singh proudly says, he has reduced the footprint of two mines by 5 percent and 7 percent.

But is that progress too modest? "World," says Singh, "be patient, because you have progressed but we still require time. We're increasing the production and reducing the footprint. You cannot say we are not taking action. We are taking action." He says the next 15 to 20 years will tell the story. One big test will be reforestation: By law, Indian mining companies, the bulk of which are state-owned, must replant twice the amount of land that is exploited for open-pit operations. Coal India says it is reforesting 2 1/2 times the acreage it has diverted for mining and planted more than 73 million trees.

The 'Only Alternative' ? Anil Swarup, Secretary of India's Coal Ministry, says the country is committed to switching to cleaner energy as part of its pledge to the U.N. Climate Convention. India set an ambitious target of 100 gigawatts of solar energy by 2022, a nearly 25-fold increase from its current solar capacity. Not even Germany, the world leader in solar energy, has built up its capacity that swiftly. Swarup says by 2030, coal will make up just 45 percent of India's power generation. But until renewables are more widely available, coal will remain king, says Swarup. "No one would want coal to happen," he concedes. "Coal is happening because that is the only alternative available with us at this point in time. Until there is an answer available, how do you suddenly stop mining coal? You can't." Meanwhile, aging, inefficient thermal power plants only deepen India's predicament.

*Cover liquids and wrap
foods stored in the
refrigerator.*

*Uncovered foods release
moisture and make the
compressor work harder.*

Kameswara Rao, the lead energy, utilities and mining analyst with PricewaterhouseCoopers India, says in the last estimate, from three years ago, almost 25 percent to 30 percent of the plants "were of a vintage that needed to be shut and entirely retrofitted." But, he says, there is "an active push to have all the new power plants [be] super-critical," meaning they'll produce more power with less coal and with lower emissions. India says funds and technology from the rich, developed countries would speed that transition.

The affirmed goal for negotiators in Paris is to keep global temperatures from rising 2 degrees Celsius (3.6 degrees Fahrenheit) through the end of the century. But India opposes efforts to obligate countries, especially developing economies, to reduce their greenhouse gas emissions. Coal Secretary Swarup says that per capita, India releases 1/12 the heat-trapping gases the United States does, and forcing Indians to cut emissions would unfairly penalize them. "Per capita consumption of energy of this country is [at] the levels of 19th century U.S.," Swarup argues. "And yet everyone is looking at India as if India is trying to not accept their responsibility. We are indeed accepting our responsibility. But what has to be understood very clearly is the requirement for the development of this country."

'Frightening Developments': For now, the imperative to develop appears to have eclipsed the need to protect India's environment. The air in many places is foul; the water undrinkable. The World Health Organization says air pollution is now the world's single largest environmental health risk, responsible for 7 million premature deaths a year. Thirteen of the world's 20 most polluted cities are in India.

New Delhi's air is the worst in the world today, WHO says, with cars and trucks the heaviest polluters. In recent weeks, the potentially lethal "small particulate" air pollution that lodges deep in the lungs reached levels beyond anything seen in the city previously. Meanwhile, rising temperatures mean India's Himalayan glaciers are melting and its farmland is becoming arid — all in the midst of unpredictable, often extreme weather.

"We're getting unseasonal rain, we're getting hailstorms, we're getting frightening developments which are impacting our farmers," says Sunita Narain of New Delhi's Centre for Science and Environment. "This is happening not even at [a temperature increase of] 2 degrees [Celsius]. It should scare us!" In other words, climate change has already arrived in India and needs urgent attention. As Rao says, "It's not a question for 2030, it's a real and present question for today." ([NPR](#), November 27, 2015)

NOTICE TO CENTRE, STATES OVER HYDEL PROJECTS

As environmentalists continue to protest against hydroelectric projects on rivers across India, the National Green Tribunal (NGT) on Tuesday asked the Centre and all States about their stand on maintaining the minimum necessary downstream flow in the rivers to ensure there is no damage to the aquatic ecology.

A Bench headed by NGT chairperson Justice Swatanter Kumar sought a response from the Union and State governments on a plea moved by advocate Pushp Jain, which sought to maintain a minimum of 15 per cent river flow downstream by hydroelectric projects across India. The Bench has now issued notices to the Ministry of Environment, Forest and Climate Change, the Central Pollution Control Board (CPCB) and pollution control boards of all States.

They have been asked to submit replies.

"The most recent example of the imbalances created by such hydro-power projects and their long term environmental impacts were seen in the Uttarakhand tragedy in 2013 and thereafter. During the lean season, the flow in the river decreases causing scarcity of water to drink and for agriculture. Due to lack of water, there is unnatural death of water bodies," the plea said.

It sought that States be directed to exercise power under the Environment Protection Act to release and maintain throughout the year a minimum downstream flow of not less than 15 per cent in rivers with hydroelectric projects.

The counsel contended that the Himachal Pradesh government,

through a 2005 notification, had directed that all hydel projects will have to release and maintain a minimum flow of water in the river downstream in lean seasons and submit regular reports.

Other states should also do the same, it was said. It also sought that the States and the Centre take immediate action to control pollution caused in water bodies through hydroelectric projects.

The plea also cited a CAG audit report of a hydro project in Uttarakhand, saying it suggested that in order to maintain and sustain aquatic ecosystem in the downstream stretch of a river, sufficient amount of discharge during the lean period has to be ensured.

([The Hindu](#), November 18, 2015)

BRITAIN CALLS FOR CLOSING OF COAL-FIRED POWER PLANTS BY 2025

The British government called for the closing of all coal-fired power plants in the country by 2025, and proposed that use of the plants be restricted two years before that.

The move, announced in advance of the United Nations conference on climate change set to open in Paris on Nov. 30, appeared aimed at showing Britain as a leader in reducing carbon dioxide emissions. The push came as the European Commission, the executive arm of the European Union, said in a report that the bloc would probably achieve its goal of reducing emissions by 20 percent by 2020, compared with levels that existed in 1990.

The commission also forecast that by 2020, Europe would be able to increase to 20 percent from roughly 12 percent the share of energy it consumes from renewable sources like the sun and wind. But the report cautioned that some countries, including Britain, “need to assess whether their policies and tools are efficient and effective” in raising the use of renewable forms of energy.

Analysts say the proposal to close coal-fired power stations could also put pressure on Britain’s electricity providers and on its electricity grid, which has recently shown signs of strain.

“It cannot be satisfactory for an advanced economy like the U.K. to be relying on polluting, carbon-intensive 50-year-old coal-fired power stations,” Amber Rudd, the minister for energy and climate change, said in a statement.

The government will publish its detailed proposals in the spring, she said. Britain would only close the coal plants if the government believed that a shift to other methods of creating energy could be achieved. “If we take this step,” she said, “we will be one of the first devel-

oped countries to deliver on a commitment to take coal off the system.”

Since becoming Britain’s energy and climate change minister this year, Ms. Rudd has shaken up energy policy, cutting back subsidies for renewable forms of energy like wind and solar, arguing that these technologies needed to be more cost-effective.

Coal use in Britain is in decline as utilities close aging plants, but more than 20 percent of the country’s electricity was still being generated from the fuel in the second quarter of this year. By comparison, just over 30 percent of British electricity came from natural gas, 25.3 percent from renewables and 21.5 percent from nuclear plants.

Analysts say that most British coal plants are likely to be shut by the mid-2020s anyway, but they add that forcing the closing of all coal plants within a decade could be too hasty. Earlier, Britain announced plans to build new nuclear plants, but the first is not scheduled to begin operating until 2025. Utilities are also no longer investing in natural gas-fired power plants because of their expense.

“This is a lot of posturing ahead of Paris,” said Deepa Venkateswaran, an analyst at Sanford C. Bernstein in London, referring to the climate conference. “Given that new nuclear is delayed, no one is building new gas,” and the urgency to get rid of the rest of Britain’s coal plants “appears premature,” she said. Utility executives say that coal remains a reliable, flexible source of power at a time when the electric grid is moving toward greater reliance on sources like wind and solar, which at present are much less reliable than coal. The contributions from wind and solar energy still vary with wind speeds

and the amount of sunlight available.

In a sign that the British electrical grid is under some strain, electricity prices spiked briefly this month. National Grid, which operates the system, asked electricity generators to provide more power while requesting industrial users to cut back on consumption. Speaking in London on Wednesday to an organization of civil engineers, Ms. Rudd said that Britain should be using natural gas instead of coal to generate electricity because gas burns cleaner than coal.

With the decline in production of oil from the North Sea, she added, Britain may need to get 75 percent of its natural gas from other countries by 2030, compared with the roughly half that it now imports.

Britain, she said, should be encouraging the building of gas-fired power plants and the exploitation of shale gas, which has been largely stymied by environmental activists and local opposition. She also said that the coal plants would be closed only when the government was convinced that the country could shift effectively to generating gas.

Dieter Helm, a professor of energy politics at the University of Oxford, said that Ms. Rudd was correct to be targeting coal. “If you are serious about climate change, the first thing to do is get out of coal,” he said in an interview. From this perspective, Britain appears to be more serious about tackling climate change than is Germany. Germany has invested heavily in wind and solar in recent years, but it still gets about 25 percent of its energy from coal and other solid fuels, according to the European Commission.

([New York Times](#), November 18, 2015)

“If you are serious about climate change, the first thing to do is get out of coal”

Dieter Helm, Professor of Energy Politics, University of Oxford

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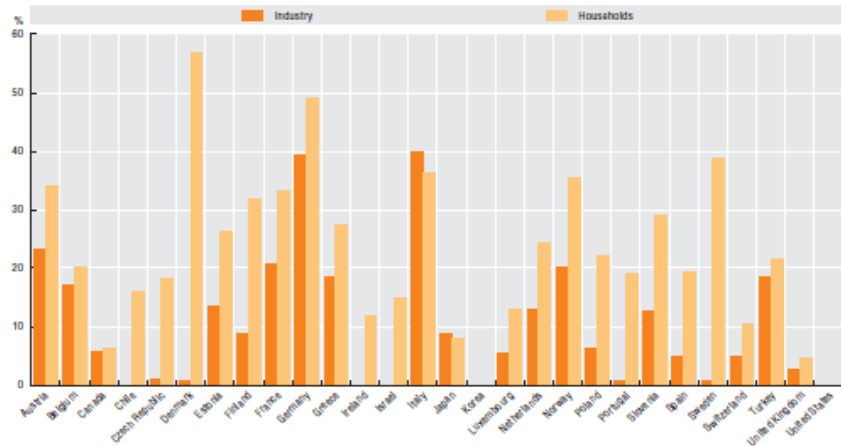


Citizen consumer and civic Action Group (CAG) is a non-profit, non-political and professional organization that works towards protecting citizens' rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision making.

ENERGY PRICES AND TAXES 2015- OECD INDICATORS

Energy end-use prices influence overall energy demand and the fuel mix, which in turn determine environmental pressures caused by energy activities. They also help internalize environmental costs. Though price elasticity varies considerably by end-use sector, historical and cross-country experience suggests that the overall price effect on energy demand is strong and that increases in energy prices have reduced energy use and hence its environmental impact.

Figure 2.7. Tax component of electricity prices for industry and households, 2014 or latest available year
Percentage of total price



Source: IEA (2015), IEA Energy Prices and Taxes Statistics (database).

Statistik <http://dx.doi.org/10.1787/888933262080>

REGULATIONS AND CASES

- MoEF& CC, Draft Notifications For public comments including Draft Waste Management Rules,2015. click [here](#)
- Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2015. click [here](#)

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- Commonwealth of Australia, National Clean Air Agreement , 2015. click [here](#)
- UNDP, Green Energy Choices: The Benefits, Risks and Trade-Offs of Low-Carbon Technologies for Electricity Production; Summary for Policy Makers, 2015. click [here](#)

MISCELLANEOUS

- Elsevier, Journal of Environmental Pollution, click [here](#)
- 6th International Conference on Environmental Pollution and Remediation (ICEPR'16) , Budapest, Hungary on August 18 - 19, 2016. click [here](#)