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Coal is the future and Alberta is the laboratory

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comments

Eminent climatologist, noted NASA physicist and celebrated science adviser to Al Gore in the production of *The Inconvenient Truth*, James Hansen has equated coal trains with the freight cars of the Holocaust – "no less gruesome," he has asserted, "than if they were boxcars headed to crematoria, loaded with uncountable, irreplaceable species." He has described coal-fired power plants as "factories of death." He has called coal "the single greatest threat to civilization." He has proposed that coal company CEOs be put on trial for "high crimes against humanity." Along with Mr. Gore, he has rallied environmentalists to civil disobedience, beseeching them to throw their bodies before the bulldozers wherever coal-fired power plants are built.

There was a moment a couple of years ago when Dr. Hansen could say things like this and be applauded for his keen conscience and his extraordinary perception. But that was then. Now, people seek a more pragmatic solution to global warming than turning off all the lights. A definitive example hit newsstands in December: liberal journalist James Fallow's cover story in The Atlantic magazine, historically a publication that reflects the progressive conscience of Boston. "Why the future of clean energy," the headline asserts, "is dirty coal." The subtitle elaborates: "It's the only way to stop global warming." Curiously, Mr. Fallows has comfortably survived this appalling act of apostasy.

Mr. Fallows advances a novel argument. China has already determined, he says, the global destiny of coal. Although it has invested heavily in alternative energy, it has invested far more heavily in coal – which will remain China's dominant source of primary energy, by far, for decades to come. All the rest is math. Without coal, he says, "there is no plausible other way to meet what will be, absent economic or social cataclysm, the world's unavoidable energy demands."

Coal will remain the dominant source of primary energy, Mr. Fallows observes, because it is abundant and because it is cheap. (Using coal, China can produce electricity at a cost of 2 cents per kilowatt-hour; using wind, 20 cents per kilowatt-hour.) For purely competitive reasons, other countries – principally Russia, India and the U.S. – will be obliged to rely heavily on coal, too. No other country, however, will build as many coal-fired power plants as China. In the U.S., it can take decades to build a power plant; in China, months.

The single factor that limits China's reliance on coal, Mr. Fallows says, is the fact that the country's rail lines are already filled to capacity with it. China has committed $80-billion (U.S.) to built light-rail lines in the next decade – simply to get people off trains and make way for more coal. A Chinese government bureaucrat told Mr. Fallows that China's very survival depends on its ability to move more coal. Can China meet this challenge? For China, this bureaucrat said, "it's an existential question."

In these circumstances, what's an environmentalist to do? Mr. Fallows says the only rational response for the U.S. is to use China as "a huge laboratory for deploying technology." He cites the potentially game-changing technology known as underground coal gasification as an example of what a Sino-American technology partnership could achieve.

With this technology, jets of pure oxygen would be blasted, deep underground, into seams of coal. Under intense pressure, a controlled burn would take place. The heat would boil the saline water that occurs naturally far below groundwater. The resulting steam would set off the chemical reactions that turn coal into gas – which would be used (such as "natural" gas) to fuel "coal-fired power plants." Yet no coal would ever be "mined." The residual char and ash would remain put, along with the sulphur and nitrogen associated with dirty coal. Above ground, the C02 would be separated from the synthetic gas and recycled for use in the enhanced recovery of crude oil.

This is all marvellous science, but Mr. Fallows errs in thinking that China offers the only laboratory, or the best laboratory, to test it. The technology he describes in futuristic terms is already well advanced in the Swan Hills Synfuels development in Alberta – the largest coal gasification project in North America and the deepest underground coal-to-gas operation in the world. Beginning in 2015, Swan Hills will deliver synthetic gas from 1,400 metres underground – and, quite possibly, lead the entire world in clean coal technology.