

Case 15: Development with Coal

Coal is one of the cheapest and dirtiest scalable methods of producing power. On leading accounts, “coal emits around 1.7 times as much carbon per unit of energy when burned as does natural gas and 1.25 times as much as oil.”¹ The CDC estimates that 12,000 coal miners died from black lung in the decade between 1993 and 2002.² However, coal use was the driving force in the West’s industrial revolution. Coal was the main fuel for the steam engine, without which the mechanization of production would have been seriously hindered. Today the steam engines used to drive turbines produce 42% of the world’s electricity, a number which is growing as more nations develop coal-fired electrical plants.³

America is a leading producer and consumer of coal, but in the last 50 years the US has begun to move away from coal.⁴ The EU has imposed serious limits on coal-fired plants and uses very little. Coal is abundant in the US and remains the least expensive form of large scale energy production, costing roughly \$1.72 per million BTU, compared with over \$7 per million BTU for petroleum and natural gas.⁵ The reason that many Western nations have moved toward more expensive energy is the widespread belief that the commodity price of coal conceals long-term environmental costs.⁶ According to the Union of Concerned Scientists, in an average year, a typical coal plant generates: 3,700,000 tons of carbon dioxide (CO₂), the primary human cause of global warming—as much carbon dioxide as cutting down 161 million trees, as well as 10,000 tons of sulfur dioxide (SO₂), which causes acid rain that damages forests, lakes, and buildings, and forms small airborne particles that can penetrate deep into lungs.⁷

Now that China, India, South Africa and other nations are seeking to industrialize, they find competition for fuel resources with the West prohibitive and often turn to coal.⁸ In one way this is very good for the US, since we have the world’s largest reserve of coal and one of the largest natural deposits. However, the environmental impact of widespread Western coal use for hundreds of years means that more coal use poses an especially serious problem to the global ecosystem. The United

¹ Energy Information Administration, “World Energy Use and Carbon Dioxide Emissions: 1980-2001,” May 2004, <http://www.eia.doe.gov/emeu/cabs/carbonemiss/energycarbon2004.pdf>.

² National Institute for Occupational Safety and Health, “Work Related Lung Disease (WoRLD) Surveillance System,” Centers for Disease Control, <http://www2a.cdc.gov/drds/worldreportdata/FigureTableDetails.asp?FigureTableID=24> (last updated June 23, 2008).

³ World Coal Institute, “Where is Coal Found?” <http://www.worldcoal.org/coal/where-is-coal-found/> (last accessed Aug. 1, 2010).

⁴ Andrew Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1999).

⁵ Energy Information Administration, “Coal Prices,” <http://www.eia.doe.gov/neic/infosheets/coalprice.html#foot1> (last updated Feb. 2009); “British thermal unit,” Wikipedia (article), http://en.wikipedia.org/wiki/British_thermal_unit (last modified Aug. 13, 2010).

⁶ Mao Yushi, Sheng Hong, Yang Fuqiang, “The True Cost of Coal,” Greenpeace, 2007, <http://act.greenpeace.org.cn/coal/report/TCOC-Final-EN.pdf> (last accessed Aug. 1, 2010).

⁷ Union of Concerned Scientists, “Environmental Impacts of Coal Power: Air Pollution,” 2009, http://www.ucsusa.org/clean_energy/coalvswind/c02c.html.

⁸ U.S. Energy Information Administration, “International Energy Outlook 2010,” July 2010, [http://www.eia.doe.gov/oiaf/ieo/pdf/0484\(2010\).pdf](http://www.eia.doe.gov/oiaf/ieo/pdf/0484(2010).pdf) ; UNEP Regional Office for Africa, “Briefing Notes on South Africa,” pg.11, Nov. 2008, gridnairobi.unep.org/chm/roa/Country%20Profiles/South%20Africa.doc.

Nations Environment Programme (UNEP) has suggested strong limitations on coal use, but such limits reduce the capacity of many nations to purchase the power needed for industry.⁹

Developing nations argue that the West got rich using dirty coal and other countries have a right to do so as well. Some try to bridge this divide, arguing that the West owes the developing world assistance in financing clean energy because it used more than its share of acceptable environmental pollutants. Developing clean coal technologies would be expensive, perhaps beyond the reach of developing nations. It can be argued that the West owes the developing world financial and technical assistance in finding sustainable, clean sources of energy, given that it has generated the lion's share of existing environmental pollution.

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⁹ United Nations Environment Programme, "Mitigation: Responding to Opportunity," <http://www.unep.org/climatechange/UNEPsWork/Mitigation/tabid/242/language/en-US/Default.aspx> (last accessed Aug. 1, 2010).