

How EPA Helps Coal-Fired Utilities and Other Industries Claim Greenhouse Gas Reduction Credits for Adding Toxic Fly Ash to Buildings

Coal-burning utilities must be pretty excited about all the buzz they're getting these days from the most unlikely of sources: green building enthusiasts. Somehow, with a lot of promotion and a little help from the government, coal-fired power plants are able to avoid costly disposal and waste management of their toxic byproduct, fly ash, by increasing the use of coal fly ash in cement admixes and concrete construction projects. Incredibly, after extracting the coal from the earth, processing it, burning it, and then hauling the captured solid leftovers from the coal smoke to cement and concrete suppliers, coal-burning industries are getting an environmental credit for reducing greenhouse gases and recycling a waste product. Let's review how this happened....

Activities like coal mining and coal burning emit tons of greenhouse gases into the atmosphere. So does the process of making cement for concrete. Coal fly ash, a waste byproduct from burning coal, has certain cementitious properties (in addition to multiple toxic elements like mercury) that mean that in some applications, it can be used as a partial replacement for energy-intensive Portland cement used in concrete. The American Coal Ash Association estimates that over 71 million tons of coal fly ash were produced in the U.S. in 2005 (1), making this toxic industrial waste an expensive waste management liability, unless someone else can be convinced to buy or use the waste (2). This is where EPA and DOE weigh in. EPA conducted a skewed "comparison" of the greenhouse gas emissions from Portland cement raw material mining and manufacture, and the greenhouse gas emissions from using the coal burning byproduct fly ash (while specifically not including emissions from burning the coal to make the fly ash or from mining activities to obtain the coal in the first place)(3). EPA omitted greenhouse gas emissions from hauling, burning, or mining coal in their skewed comparison between coal burning and virgin cement manufacture emissions, resulting in a popular false claim that replacing Portland cement with coal fly ash reduces greenhouse gas emissions by one ton for every ton of Portland cement replaced (4).

While this analysis on its own is inherently flawed (see related page on the calculations), it also avoids discussion of the risk involved in adding a toxic industrial waste material to infrastructure and consumer products. Buildings and other projects constructed with coal fly ash cement are not labeled. People may not know what toxics could be volatilizing into the air from within the cement walls of their school or workplace, nor will demolition or construction crews be advised during building tear-down or construction that the dust coming up from the work site may contain fine particles laced with mercury, selenium, radium, chromium, lead, etc. There are no plans to label or treat infrastructure projects that handle drinking water sources differently, just as there are no health-based testing standards for these materials (current ASTM standards only address engineering properties of fly ash cement projects).

In addition, the entire process is built upon the continued burning of the dirtiest fossil fuel - coal. Increasing fly ash use and promoting fly ash cement as a "green" product ignores (greenwashes) enormous quantities of greenhouse gas emissions from burning coal, as well as the health of people who live near coal burning power plants, the people who will handle the fly ash cement, and the people who will be exposed to these fly ash cement construction projects. Giving environmental credit to these industries promotes polluting practices at the expense of the global climate and human and ecological health.

Coal fly ash is not a green construction material.

Sources:

1. http://www.acaa-usa.org/PDF/2005_CCP_Production_and_Use_Figures_Released_by_ACAA.pdf
2. The U.S. Department of Energy and EPA are funding projects to increase or promote utilization of coal combustion waste in many applications, including building, road construction, carpet backing, agricultural soil application, FGD gypsum wallboard, etc. DOE's website cites a goal of increasing coal utilization byproduct use by 50% by 2010, in order to realize potential economic benefits in the range of \$500 million to \$1 billion <http://www.fossil.energy.gov/programs/powersystems/pollutioncontrols/overview_coalbyproducts.html>.
3. http://www.epa.gov/climatechange/wycd/waste/downloads/FlyAsh_11_07.pdf
4. Actually, EPA's claims on ghg savings vary... see EPA Office of Solid Waste Director's speech to American Coal Ash Association 2003 Annual Conference citing ton-for-ton savings <<http://www.epa.gov/epaoswer/osw/conservation/speeches/c2p2.pdf>> and C2P2 factsheet citing .8 tons CO2 saved per ton Portland cement replaced with fly ash <<http://www.epa.gov/epaoswer/osw/conservation/c2p2/cases/burnout.pdf>>, while the Department of Energy cites savings of .8 tons of CO2 for every ton of fly ash used in concrete <http://www.fossil.energy.gov/programs/powersystems/pollutioncontrols/overview_coalbyproducts.html>.