



United States Affiliate of International Physicians for the Prevention of Nuclear War

March 14, 2011

Mr. Fred Hochberg, Chairman
Export-Import Bank of the United States
811 Vermont Avenue, N.W.
Washington, DC 20571

Dear Chairman Hochberg,

Physicians for Social Responsibility is an organization of U.S. health professionals. Founded by physicians in 1961, PSR shared in the 1985 Nobel Peace Prize with International Physicians for the Prevention of Nuclear War for building public pressure to end the nuclear arms race. In 1991, PSR formally expanded its mission to address health issues related to the environment. Today, PSR's 50,000 members, 14 national staff, 31 state and local chapters, and 41 medical student chapters address issues that include the health implications of energy production and climate change.

These concerns have led us to examine the health impacts of coal combustion. Our findings, presented in our November 2009 report *Coal's Assault on Human Health* (<http://www.psr.org/assets/pdfs/psr-coal-fullreport.pdf>), lead us to the position that, due to the anticipated impacts on human health, the Export-Import Bank of the United States ought not to support the proposed Kusile coal-fired power project in South Africa.

Electricity provides many health benefits worldwide and is a significant contributor to economic development, a higher standard of living, and an increased life expectancy. However, it does so at the cost of harming human health and compounding many of the major public health problems facing the industrialized world. Construction of the Kusile power plant would impose severe negative health effects on the population of South Africa.

Detrimental health effects are associated with every aspect of coal's life cycle, including mining, hauling, preparation at the power plant, combustion, and the disposal of post-combustion wastes. I would like to focus on the egregious harms caused by coal combustion.

Coal combustion emissions damage the respiratory, cardiovascular, and nervous systems. In the United States, they contribute to four of the top five leading causes of death: heart disease, cancer, stroke, and chronic lower respiratory diseases. While other causes of mortality may prevail in South Africa, it is reasonable to project that a coal-fired project of the scale of the Kusile proposal would significantly increase morbidity, mortality and social burden.

Pollutants produced by coal combustion act on the respiratory system, where they cause a variety of adverse health effects. Coal pollutants play a role in the development of chronic obstructive pulmonary disease (COPD), a lung disease characterized by permanent narrowing of airways; adversely affect lung development; and trigger attacks of asthma, a respiratory disease that particularly affects children.

Asthma exacerbations have been linked to exposure to ozone, a gas produced when nitrogen oxide, a coal pollutant, reacts in the atmosphere with volatile organic compounds (also emitted by coal combustion) in the presence of sunlight and heat. Ozone is a widespread and dangerous air pollutant in the United States, where its formation is often a summertime phenomenon. Given South Africa's climatic conditions, the formation of ozone could easily become a year-round health menace.

Coal-derived pollutants also lead to cardiovascular disease, such as arterial occlusion (artery blockages, leading to heart attacks) and infarct formation (tissue death due to oxygen deprivation, leading to permanent heart damage). Recent research suggests that nitrogen oxides and fine particulate matter (PM_{2.5}) from coal, along with other pollutants, are associated with hospital admissions for potentially fatal cardiac rhythm disturbances. The concentration of PM_{2.5} in ambient air also increases the probability of hospital admission for acute myocardial infarction, ischemic heart diseases, disturbances of heart rhythm, and congestive heart failure.

In addition to respiratory and cardiovascular systems, coal pollution also affects the nervous system. Numerous correlations exist between coal-related air pollutants and nervous system effects, including correlations between ambient levels of PM_{2.5} and hospital admission rates for cerebrovascular disease, and between levels of coarse particulate matter and hospital admission for ischemic stroke. Coal pollutants also act on the nervous system to cause loss of intellectual capacity, primarily through mercury. Coal-fired power plants are responsible for approximately one-third of all mercury emissions attributable to human activity. Mercury exposure is known to impair performance on neurodevelopmental tests and cause lifelong loss of intelligence. This lost intelligence is a social cost that a developing country is in no condition to absorb.

Finally, we would note that the discharge of carbon dioxide into the atmosphere associated with burning coal is a major contributor to global warming and its adverse effects on health worldwide. Global warming is already negatively impacting public health and is predicted to have widespread and severe health consequences in the future. The World Health Organization estimated global warming to be responsible for 166,000 deaths in 2000, due to additional mortality from malaria, malnutrition, diarrhea, and drowning. It would be unconscionable to contribute to these health burdens in South Africa.

Based on our studies, it is the considered opinion of Physicians for Social Responsibility that the US Export-Import Bank ought to reject funding for the Kusile project.

Sincerely,

Kristen Welker-Hood, ScD MSN RN
Director, Environment & Health

Cc: Diane Farrell, Director
Cc: Bijan Kian, Director



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Export-Import Bank of the United States
811 Vermont Avenue, N.W.
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