

Clean Energy Finance Corporation Expert Review

**Submission from
Doctors for the Environment Australia Inc.
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Submission

Doctors for the Environment Australia (DEA) is a voluntary organisation of medical doctors in all Australian states and territories. We work to address the diseases – local, national and global - caused by damage to the earth's environment. In effect we are an independent public health organisation.

We note "The CEFC will act as a catalyst to private investment which is currently not available and thereby contribute to reducing carbon emissions and cleaner energy".

We are a stakeholder in the issues before the CEFC because fossil fuels have large adverse health impacts both in Australia and internationally through the mining and combustion of coal and its waste products.

We therefore propose to address Questions 2 and 6.

Question 2

Are there principles beyond financial viability that could be used to prioritise investments, such as emissions impact or demonstration affect?

Yes, "Full cost" accounting and therefore health impacts

This entire issue of transition to renewable energy would be revolutionised by cost accounting of externalities the most important of which are the impacts on human health and social costs; the CEFC would not be needed, because industry would rush to invest in renewable energy.

Thus in addressing Question 2 we ask the CEFC to make a statement that they will make decisions based upon full cost analysis. By sowing the seed of reform in this debate the CEFC will have a huge impact on national and international health and provide an impetus for a fast transition to renewable energy.

Coal is the most expensive fuel

In a complex world in which every endeavour interdigitates with many others, cost accounting exists in silos. The price of coal is conveniently related only to the cost of mining and transport to the power station.

We draw your attention to the comprehensive peer reviewed study from the prestigious Harvard medical school on the full cost accounting of coal in the US. The study concluded that the damage caused by coal should double or triple the costs of coal-generated electricity.

Epstein PR, Buonocore JJ, Eckerle K, et al. Full cost accounting for the life cycle of coal. *Ann NY Acad Sci* 2011; 1219: 73-98.

In Australia we would not expect the externalities to be as great, for the US study included the externalities of mountain-top mining which are greater than for underground or open cast mining.

We have recently undertaken a study of the health impacts and costs of coal mining and combustion in Australia and published these findings in a peer reviewed article in the Medical Journal of Australia.

(Castleden W, Finch P, Shearman D, Crisp G. The mining and burning of coal: its effects on health and the environment, MJA September 18 2011)

http://www.mja.com.au/public/issues/195_06_190911/cas10169_fm.html

We quote from this study

“The most recent and comprehensive study on the negative effects of power generation was released by the Australian Academy of Technological Sciences and Engineering (ATSE) in March 2009. ATSE calculated the greenhouse impacts and health damage costs of different power generation technologies including coal, gas, wind, solar photovoltaic, solar thermal, geothermal, carbon capture and storage, and nuclear energy. The health costs of burning coal are equivalent to a national health burden of around \$A2.6 billion per annum.”

We point out that this figure is likely to be an underestimate for in Australia public health surveillance of coal communities has been poor and few studies of disease incidence have been carried out. However studies in similar communities in the USA show increased morbidity and mortality from bronchitis, asthma, obstructive pulmonary disease, and ischemic heart disease problems. (See the Harvard study quoted below)

“Coal-fired power stations also produce more greenhouse gases (such as CO₂) per unit of energy than any other type of power station. Combining greenhouse and health damage costs for Australia gives representative total external costs of \$A52/MWh for brown coal, \$A42/MWh for black coal and \$A19/MWh for natural gas”.

Australian Academy of Technological Sciences and Engineering. The hidden costs of electricity: externalities of power generation in Australia. Melbourne: ATSE, 2009.

http://www.apo.org.au/sites/default/files/ATSE_Report_Hidden_Costs_Electricity_2009.pdf

“On the ATSE analysis, carried out before the costs of the 2011 Fukushima nuclear meltdown could begin to be calculated (ATSE specifically excluded nuclear disaster costs), the external costs of nuclear power would have been around \$A7/MWh. The external costs of genuinely renewable sources of power generation, such as wind and solar power, are even less. If the external costs of burning coal were recovered by a coal tax, coal would be the most expensive of all energy-generating fuels”.

Coal is a health hazard

Mining

A comprehensive review of surface (opencast) mining operations in the USA by the Physicians for Social Responsibility, "Coals Assault on Human Health" <http://www.psr.org/resources/coals-assault-on-human-health.html> shows that communities proximate to these coal mines may be adversely affected. In West Virginia it was found that people living in high coal producing counties had higher rates of cardiopulmonary disease, chronic obstructive pulmonary disease, hypertension and kidney disease compared to people in non-coal producing counties. As we learn more about air borne particulates it becomes increasingly likely that particulates generated by the operation cause these diseases. Ill health is also caused in local communities by heavy metals, hydrocarbons, carcinogens and other toxic compounds liberated from the exposed coal seams and this ill health may occur even after the mine is closed because impurities continue to be leached and drained into aquifers.

The question therefore arises whether these health impacts reported in the USA occur in all coal communities; other studies would suggest that they do. In the coal health study in Douglasdale Scotland there were significant increases in disease and mortality, including from cancer, in opencast mining areas in contrast to adjacent areas with no mines http://coalhealthstudy.files.wordpress.com/2009/09/douglasdale_v42.pdf. No confounding factors were found for these differences and the conclusion was that they were due to coal mining.

The authors of this study then reviewed 12 other studies each of which were peer reviewed and which assessed the health of communities in opencast mining areas in the UK, Europe, USA and India. Ten of these studies found significant ill health in coal mining areas.

Combustion

As quoted in our MJA paper.

"In the US, the Physicians for Social Responsibility examined the evidence for health damage caused by coal. The risk of premature death for people living within 30 miles of coal-burning power plants has been quoted to be three to four times that of people living at a distance. Fifty thousand deaths each year have been attributed to air pollution, and in Canada, it is estimated to cause more than 5000 deaths each year. In Australia 2.5 % of deaths in are attributed to air pollution. In the US, air pollution from combustion of coal, diesel fuel and wood was estimated to account for 5% of male and 3% of female cancer deaths between 1970 and 1994".

(Lockwood AH, Welker-Hood K, Rauch M, Gottlieb B. Coal's assault on human health: a report from Physicians for Social Responsibility. Washington DC: PSR, 2009) <http://www.psr.org/assets/pdfs/psr-coal-fullreport.pdf>

Urgent replacement of the Port Augusta and Hazelwood power stations

The communities in these regions suffer significant health burdens from coal mining and combustion. Admittedly the health data is limited because Australia has paid little attention to the issue, an indictment on health policy indeed. However we do know that there is a statistically significant increase in lung cancer in Port Augusta and an increase in respiratory disorders in the Latrobe valley. It is inconceivable that the impacts of this industry would be any less from those reported from many countries.

In each state these power stations have been indispensable for they produce a large proportion of state electricity. They had to continue. However there are now alternatives and it becomes an issue of a right to clean air and water. They must be replaced urgently.

DEA is not expert in the appropriate technology but from taking advice from colleagues regarding Port Augusta, we believe that solar thermal, with molten salt storage technology, has reached the point internationally of being the instrument of choice.

The decision to support financing for this change is not difficult, the power stations are old and need replacing; the coal supply from Leigh Creek is diminishing and is increasingly dirty. The financial outlay may seem large but is not large when the externalities of coal are considered.

Question 6

What non-financial factors inhibit clean energy projects?

We have not touched on the issue of green house emissions which indeed is a bigger health issue in the longer term than the local impacts of air pollution detailed above, for it has been described by the World Health Organisation's Director Dr Margaret Chan as "the defining issue for public health during this century".

Looking at the debate from a public health perspective, the certainty of climate change is greater than the certainty of success of most of the medical interventions we use as a profession. We are therefore distressed by sections of government and powerful press interests who hold back reform. Further the self interest of many sectors of industry in the face of human suffering has been unacceptable to doctors.

We mention these points because the CETC with its financial and industry expertise can do much to point the way forward in the ways we have suggested.

Doctors for the Environment Australia will be happy to appear before your committee to enlarge on these issues.