



An Eskom coal-fired power station belches smoke as the sun rises.

PICTURE: EPA

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A TOTAL OF R33 billion a year. That's the staggering monetised cost of death and disease each year from air pollution emitted by Eskom's fleet of 14 coal-fired power stations.

This is according to a first estimate of the health impacts and related social costs of emissions from existing coal-fired power stations by Dr Mike Holland, a UK researcher.

His assessment, commissioned by groundWork, an environmental lobby group, for its submissions on the Integrated Resource Plan Base Case and the draft Integrated Energy Plan by the Department of Energy, finds that Eskom's coal fleet results in 2 239 attributable deaths a year.

"The fact remains that a large number of epidemiological studies have found links between mortality and air pollution, and reducing pollution would benefit the health of the population substantially," says Holland, in his report.

"It's estimated that the total quantifiable economic cost of air pollution from coal-fired generation in South Africa is in the region of \$2.37bn (R33bn) annually.

"This is made up of impacts in terms of early death, chronic bronchitis, hospital admissions for respiratory and cardiovascular disease and a variety of minor conditions leading to

# High cost of polluting foul air from Eskom's coal-fired power stations

restrictions on daily activity, including lost productivity."

These costs accumulate year on year, "which is clearly of great concern for plants that have lifetimes in the region of several decades".

Both groundWork and the CER believe the health costs could be far higher as Holland's study does not include the impact of the coal mines that feed Eskom's power station, or several other leading pollutants.

The CER says that Holland's study shows how "air pollution most affects those whose underlying health condition is worst, and hence that any improvement in air quality will most benefit those who are most disadvantaged. This is a prime example of the environmental injustice which is prevalent in many parts of South Africa".

"The critical thing is that the figures are alarming, but it's the tip of the iceberg," says Bobby Peek, who heads groundWork.

"We haven't considered HIV/Aids, TB, malnutrition,

people who have other illnesses and how it will relate to the health impacts of air pollution.

"If we do, we're sure we'll get more much drastic and alarming figures in the population. That's the big concern."

A previous 2014 report on the health impacts and social costs of Eskom's coal-fired power stations concluded that atmospheric emissions from those stations "are currently causing an estimated 2 200 premature deaths per year, because of exposure to fine particulate matter (PM2.5) pegging the economic cost to society at around R30bn a year".

This included premature deaths from PM2.5 exposure and costs from the neurotoxic effects of mercury on children.

Holland has been quantifying the impacts of air pollution from power systems since 1990 for the European Commission as well as governments in the UK, France and China.

"Results demonstrate that air pollution has a broad spectrum of effects on health, including mortality and cardio-

vascular and respiratory illness."

His analysis, he points out, is "intended to inform the current debate on energy policy in South Africa by providing a means of accounting for the external costs of power generation from coal".

Evidence that "air pollution at levels found in South Africa" has a serious adverse impact on health is substantial "with the epidemiological literature on the subject running to many thousands of papers".

Holland writes how air pollution acts alongside a number of other agents to bring forward the time of death.

"An individual whose cause of death is given as cardiovascular disease would be likely to have developed this disease from exposure to a number of stressors, including air pollution, smoking, diet, lack of proper exercise and so on."

Air pollution most affects those whose underlying health condition is worst, and hence any improvement in air quality will most benefit those who are

most disadvantaged, he says.

"The view that the impacts of coal are significant is matched by observations elsewhere. These results demonstrate the importance of factoring in these external costs of coal on health into future energy planning for SA."

Without assessing the "external costs" of energy technologies, planning decisions can be biased towards technologies that are not optimal for society, through the burdens placed on for example health, agriculture and water supplies.

"These decisions are critical to future development, as they will affect the country for 40 or more years into the future."

Experience in Europe, North America, and other places around the world demonstrates that the health impacts of these pollutants per unit emission are substantial, "with the total burden on society being equal to many thousands of deaths and billions of dollars".

Rico Euripidou, of groundWork, says: "If we start adding all the other pollutants, and

start accounting for all the other big emitters like Sasol, for example, I think we'll be in for a very big surprise. The numbers will increase exponentially... as to how much this is costing society to produce energy the way we do. People who were sick would understand why they were sick."

Holland points out how in Europe, North America, and increasingly in developing countries, such as China, quantification of the health impacts of air pollution linked to energy use is common in the planning process.

Holland tells the Saturday Star he is confident the government will take this into account.

"The importance of air pollution effects on health are recognised globally, for example, through the Global Burden of Disease work that the SA government will be aware of.

"To omit consideration of the effects of major sources of air pollution in the country would clearly be a major omission.

"The government, like any other, needs to be forward looking, and think what path it wants to follow. I'm sure it does not want to follow in the footsteps of countries like the UK and China, where development has ignored the problems of pollution until they become so bad."