Dr. Nick Higginbotham, 8 March, 2013

SENATE SUBMISSION REGARDING ADVERSE COAL INDUSTRY IMPACTS ON AIR QUALITY AND POPULATION HEALTH

Newcastle Air Quality

- Newcastle region already has poor air quality and continued expansion of the coal industry, such as the proposed fourth coal loader will make already **poor air quality**[1] even worse: The Fourth Coal Terminal (T4) site will emit .8 tonne daily dust (TSP) best case scenario, 2t daily worst case[2].

- Long-term monitoring sites close to Hunter River have annual averages higher than WHO standard of 20ug/m3 (K3 Fern Bay, HDC Mayfield, NCC Stockton) [2].

- In October 2012 alone, 36 air quality exceedances for particulates in Newcastle & Upper Hunter (98 during past 12 months). Five daily exceedences in Stockton from 13 Oct to 8 Nov 2012.[3]

- Trains from Rutherford to port (31km) releasing 8.57 g per km per wagon[2] (half is PM10) will emit 212.5 t of PM10 annually. Railway dust plus T4 site dust equals 363 t of PM10 per year (not including empty trains). [4]

Additional Health Cost Burden

- G. Morgan et al.[5] calculations of health cost burden of PM10 in Hunter applied to this figure gives conservative estimate of an **additional $29 million per year** in 2011 dollars .[4]

- People generally not aware of community wide burden from air pollution. Need to strive to reduce air pollution from current levels rather than increase it with new pollution generating activities.

Health Damages to Vulnerable People

- NEPM standards **do not** protect health of people with chronic heart or lung disease, with active respiratory infection, asthmatics, infants/children and the elderly who are susceptible to adverse health impacts at lower levels. [4]

- Even a few hours exposure to particulates can trigger CVD-related mortality and nonfatal events including MI, heart failure, strokes and adverse respiratory events. [6] There is no discernable 'safe' threshold. Expect 4 deaths per million pop during 3-day episode at 50 ug/m3 (i.e., daily NEPM standard). [7]

- Demographic profile of 22,600 living in 8 suburbs closest to Kooragang shows lower household income, higher rate of unemployed, 1/3rd children and elderly, and 21 nursing homes/schools/preschools. Pollution health effects are magnified through such vulnerable populations and raise issues of social inequity of exposure (i.e., environmental injustice). [8]

- Comprehensive **Health Impact Assessment** is essential prior to approval of T4 to fully understand the potential harms to vulnerable residents; i.e., who will be most affected, in what ways, and how to avoid inequitable health impacts. [9]

Diesel Exposures

- Diesel engine exhaust (e.g., from coal train locomotives) is a World Health Organization declared human carcinogen. Even background levels as little as 1-2 ug/m3 are likely to carry small excess risk of cancer. [11, 12] Rail line exposure from Port to Rutherford affect 32,000 residents and approximately 23,000 students attending schools within 500m of coal corridor.

Cost Benefit Analysis and Externalities

- A full costing to the taxpayers of the pollution damages from and subsidies given to the coal industry suggests a net liability for society. Public health cost of treating disease caused by coal-fired electricity in Australia is $2.6 billion per year. [13] Costs in USA are between 0.8 and 5.6 times the value of electricity produced. [14]

Coal Burning and Global Warming

- Single largest contributor to GHG emissions. Burning 120mt coal produces 300mt CO2 or 55% of Australia's current CO2 emissions (550mt). Port exported 122mt in 2012 and aspires to nearly triple this amount (331mt).

- Best science now predicts 4-6 degree warming by end of century [19]. IEA's *World Energy Outlook 2012* states that to avoid 4 degrees by 2050, two thirds of coal must remain in the ground. What will be the economic cost of 4-6 degrees warming of the planet?

- Policy that gives future generations a fighting chance is to accelerate a 'just transition' from coal to non-fossil fuel economy in the Hunter. We have a critical mass of energy expertise; let's apply it to renewable sources of energy.

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