

Submission to the Garnaut Review re Emissions Trading Scheme Discussion Paper by Dr Gideon Polya 15 April 2008

A discussion paper was released on 20 March 2008, putting forward for community discussion a set of principles and design features for the delivery of an efficient and effective Emissions Trading Scheme (ETS).

However there are 2 “boundary conditions” for cost recovery in relation to fossil fuel-derived CO₂ and other pollution: (A) do nothing (the situation for several centuries of major coal burning) and (B) full cost recovery for the environmental and human impact, past, present and future. Unfortunately ETS proposals are merely diplomatic, commercial, political constructs that fail to meet the moral and legal imperatives of Scenario (B).

Top climate scientists are saying that we have already reached a tipping point for massive ecosystem and biosphere damage at 385 ppm CO₂. Top US climate scientist Dr James Hansen (NASA Goddard Space Studies Center, New York and Columbia University) stated at the December 2007 meeting of the American Geophysical Union that at 385 ppm we are already past a key tipping point affecting accelerating polar ice melting and polar warming due to the resultant “albedo flip”: **"The evidence indicates we've aimed too high -- that the safe upper limit for atmospheric CO₂ is no more than 350 ppm"** (see: <http://www.washingtonpost.com/wp-dyn/content/article/2007/12/27/AR2007122701942.html> ; <http://blog.wired.com/wiredscience/2007/12/nasas-james-han.html>) .

Of particular important is Dr Hansen’s paper in the prestigious Bulletin of the Atomic Scientists (see: <http://www.thebulletin.org/columns/james-hansen/20080124.html>) in which he calls for a moratorium (i.e. cessation) of coal power. Dr Hansen argues not for mere cessation of CO₂ pollution (zero emissions) but NEGATIVE CO₂ emissions to reduce atmospheric CO₂ to a safe and sustainable level of 300-350 ppm. Hansen’s scenario is achieved by cessation of CO₂ pollution, re-forestation, return of carbon as biochar to soils and, if necessary global dimming SO₂ aerosol generation (for detailed review of the current climate emergency and sustainability emergency see the recent book “Climate Code Red- the case for a sustainability emergency” by David Spratt and Philip Sutton: <http://www.climatecodered.net/> ; for book review see: <http://green-blog.org/2008/03/07/book-review-climate-code-red-the-case-for-a-sustainability-emergency/>).

However top UK climate scientist Professor James Lovelock FRS at a lecture to the Royal Society is much less sanguine than Dr Hansen and says that billions of people (notably in the Third World) are threatened by the failure to address CO₂ pollution and the amplifying positive feedback effects (see: <http://royalsociety.org/news.asp?id=7226> ; see also his book “The Revenge of Gaia”). Professor Lovelock has estimated that over 6 billion will perish this century due to unaddressed climate change (see: <http://www.businessandmedia.org/printer/2007/20071022221333.aspx>) .

However Professor Lovelock’s scenario is rapidly upon us. Already 16 million people die avoidably each year from deprivation and deprivation-exacerbated disease (see: “Body Count. Global avoidable mortality since 1950” , G.M. Polya, Melbourne, 2007:

<http://mwcnews.net/content/view/1375/247/> and <http://globalbodycount.blogspot.com/>) and this is increasingly climate change impacted as perceived by the IPCC and others (see: <http://www.ipcc.ch/> and <http://green-blog.org/2007/11/21/summary-of-the-summary-of-the-2007-ipcc-ar4-synthesis-report/>).

In January I took part in a BBC broadcast together with 1998 Economics Nobel Laureate Professor Amartya Sen (Harvard University) and other scholars about the World War 2 man-made Bengal Famine. In 1943-1945 6-7 million Indians perished in Bengal and adjoining provinces under a merciless British régime when the PRICE of rice doubled and then finally quadrupled (see: http://www.open2.net/thingsweforgot/bengalfamine_programme.html ; <http://janeaustenand.blogspot.com/> ; <http://globalavoidablemortality.blogspot.com/2005/07/forgotten-holocaust-194344-bengal.html>).

NOW we are seeing the beginnings of a similar catastrophe but potentially on a 100-fold greater scale than the WW2 Bengali Holocaust. Wheat, soybean and rice prices have doubled in the last year driven by the US, UK and EU biofuel perversion (noting that overwhelmingly current biofuel production – now mandated in the US, UK and EU - is a net CO2 POLLUTER); oil price rises; climate change (notably drought in Australia and the CIS); demand for grain-fed meat production (especially in Asia); and a globalized food market (this now being addressed by Third World export bans, but this is in turn driving up prices). The global food crisis will see an acceleration of what can be legitimately described as man-made famine and climate genocide (see: <http://mwcnews.net/content/view/21277/42/> ; <http://www.countercurrents.org/polya310308.htm> ; <http://green-blog.org/2008/04/04/world-food-price-crisis-and-global-famine-from-biofuel-perversion-climate-change-and-globalization/> ; <http://climateemergency.blogspot.com/2008/02/formal-complaint-to-international.html> ; http://climateemergency.blogspot.com/2008_01_01_archive.html).

There is a principle now well established in a succession of major legal actions of responsibility for international impacts (e.g. the cyanide poisoning of the Danube, the Java mud catastrophe and the poisoning of the Fly River by various major Australian companies). The principle of full cost recovery is well established empirically and theoretically in International Law. Indeed British legal group has been formed called Bring Climate Criminals to Justice (see: <http://www.climatecriminals.co.uk/>).

Accordingly anything LESS than scenario (B) i.e. **full cost recovery** is unacceptable unless Australia intends to continue being an international, climate criminal, climate genocidal pariah at the risk of crippling litigation, Sanctions, Boycotts, Reparations and Green Tariffs . While the US, UK and the EU can get away with it, relatively small and vulnerable Australia does not have the same de facto licence.

One of the world's leading bioethicists Professor Peter Singer (Princeton University and University of Melbourne) is unequivocal in his expert judgment that "We are responsible not only for what we do but also for what we could have prevented... We should consider the consequences both of what we do and what we decide not to do." (Singer, P. (2000), "Writings on an Ethical Life", Ecco Press, New York; pp xv-xvi).

According to the 2007 IPCC Synthesis report, unaddressed CO2 pollution and global warming – with Australia a major climate criminal country - will have a devastating effect on global malnutrition and poverty (see: <http://green-blog.org/2007/11/21/summary-of-the-summary-of-the-2007-ipcc-ar4-synthesis-report/>). According to Professor David Pimentel (2004), global malnutrition and poverty will be an “unimaginable” problem by 2054 (see: <http://www.news.cornell.edu/releases/Feb04/AAAS.pimentel.hrs.html>), already pollution of the soil, water and air kills about 40% of the world’s population and 57% of the world’s population of 6.5 billion is already malnourished (see: <http://www.news.cornell.edu/stories/Aug07/moreDiseases.sl.html>).

Already 16 million people die avoidably each year (9.6 million being under-5 year old infants) on a Spaceship Earth dominated by a profligate and unresponsive First World (see “Body Count. Global avoidable mortality since 1950”, G.M. Polya, Melbourne, 2007:

<http://globalbodycount.blogspot.com/>) – and Australia is on a per capita basis is one of the world’s worst CO2 pollution offenders. As indicated above, according to Professor James Lovelock FRS unaddressed global warming will kill over 6 billion people this century – Climate Genocide (“intent to destroy in whole or in part” according to Article 2 of the UN Genocide Convention: <http://www.edwebproject.org/sideshow/genocide/convention.html>)

According to a Ministry of Energy Report from Ontario, Canada, coal plants kill 668 people per year in Ontario (population 12.7 million), and cause 1,100 emergency room visits, and more than 300,000 minor illnesses per year. These and previous findings by the Ontario Medical Association were behind bi-partisan will to close Ontario’s coal-fired electricity plants. This Report estimated that a “market” cost of about 4 cents/kWh increases to a “true cost” of about 16 cents/kWh (see:

<http://www.evworld.com/news.cfm?newsid=8836>): “The study estimated that the total net present value of coal-fired generation is costing Ontario \$0.164 CAD/kWh. Environmental and health costs accounted for 77% to total generation costs”.

While the “true cost” of coal-based electricity can be over 4 times the “market” cost, this will be ignored in corporate, government and diplomatic “horse-trading” to set carbon price and a “political” ETS – just as society in practice ignores the “annual death rate” due to cigarette smoking (about 1,000 per million) or due to cars (about 100 per million) in assessing the “true cost” of tobacco or cars.

Extrapolating from Ontario, the annual death rate from coal-fired power generation is about 50 per million – Australia may have to pay its share of the bill just as asbestos producers have had to meet their obligations.

If the true environmental and human cost of fossil fuel-derived power were taken into account then (a) economics would dictate “keep fossil fuels in the ground” (as advocated by the Australian Greens and by George Monbiot:

<http://www.guardian.co.uk/commentisfree/story/0,2225387,00.html>), (b) subsidies would be immediately removed and (c) compensation would be ordered by the courts for the victims of this technological perversion (as has happened already in relation to victims of industrial use of asbestos).

Here are some estimates of the cost in Australian cents per kilowatt-hour (Ac/kWh) of various sources of electricity (for a detailed discussion see “Renewables: how the numbers stack up” in New Matilda, 2007:

<http://www.newmatilda.com/home/articledetailmagazine.asp?ArticleID=2398&CategoryID=213>):

3-4 — [coal, Australia](#);

18 — [the real cost of coal](#), taking into account the environmental and health impact; according to a conservative Canadian Ontario Ministry of Energy Report (CAN\$0.164);

15 — nuclear via the UK’s newest Sizewell B plant;

7.5-8.5 — [wind power, Australia](#);

15 — concentrated [solar power or CSP](#);

25-45 — standard silicon-based photovoltaics (PVs).

However recent advances means we must add the following to the list:

4 – the price of solar PV is set to fall dramatically to compete directly with the current “market price” of coal due to balloon, sliver and non-silicon PV technology advances. The non-silicon organic thin film technology [developed by](#) US Nobel Laureate Alan Heeger and his South Korean colleagues will reduce the cost of installing photovoltaic (PV) capacity by a factor of 20; the [Swiss ETH CIGS](#) non-silicon thin film system may be competitive with coal within 5 years (a related US Nanosolar technology is in mass production: http://www.investorideas.com/Articles/050707a_page1.asp); [Australian sliver silicon PV technology](#) will drop silicon solar panel costs threefold. In particular, the Californian balloon solar capture technology is predicted to make PV solar competitive with “market price” coal by 2010 (see “Solar energy & the end of war. US balloon technology to slash solar energy cost 90% by 2010”: <http://mwcnews.net/content/view/18667/42/>).

4 – Australian geothermal. According to Professor John Veevers (“The Innamincka hot fractured rock project” in “Lies, Deep Fries & Statistics”, editor Robyn Williams, ABC Books, Sydney, 2007; also see energy cost-related related chapters by Dr Gideon Polya “Australian complicity in Iraq mass mortality”, Dr Mark Diesendorf “A sustainable energy future for Australia”, and Martin Mahy “Hydrogen Minibuses”): “Modelled costs are 4 cents per kilowatt hour, plus half to 1 cent for transmission to grid. This compares with 3.5 cents for black coal, 4 cents for brown coal, 4.2 cents for gas, but all with uncoded emissions. Clean coal, the futuristic technology of coal gasification combined with CO2 sequestration or burial, yet to be demonstrated, comes in at 6.5 cents, and solar and wind power at 8 cents.”

Further, wave, tidal, biomass and biofuel energy technologies are renewable technologies competitive with the “true cost” of fossil fuels. Australia’s huge reserves of economic geothermal power are expertly assessed to have the capacity to provide most of Australia’s energy needs for the best part of a millennium and Australia is blessed with huge solar, tidal, wave and wind resources.

Nuclear is not an option – it is dangerous; carries security risks; there are limited economic uranium oxide supplies; it is more expensive than wind power; and there can be a very high CO2 pollution associated with the full nuclear cycle from mining to de-commissioning of a plant.

In my understanding, Carbon Capture and Sequestration (CCS) is not emplaced on a major scale anywhere yet associated with a coal-based electricity plant; will only be 80-90% effective in removing CO2 anyway (inconsistent with the demands of Dr Hansen for zero emissions); leakage is a major concern and inadequately assessed (and a very real concern for off-shore geologies); will require massive Government subsidies that are better spent on existing renewable technologies; it will take a long time to install existing CCS technology on a requisitely large scale; the climate sceptic and climate criminal Bush Administration has recently canned a major CCS project in the US; the major problems of non-CO2 coal-burning pollutants (notably heavy metal, radioactivity and SO2) that kill 50 people out of every million every year in coal-based electricity states (notably India, North America, Australia, South Africa) is not addressed by CCS (for a recent science, technology and economics review of CCS see:

http://www.climateactionprogramme.org/features/article/carbon_dioxide_capture_and_storage_a_future_for_coal/).

In summary, an ETS per se by definition FAILS to meet the urgent current requirements of (1) reducing atmospheric CO₂ NOW to 300-350 ppm; and (2) meeting full cost recovery for the environmental and human impact, past, present and future of coal burning (i.e. the “true cost” of fossil fuel burning).

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Dr Gideon Polya published some 130 works in a 4 decade scientific career, most recently a huge pharmacological reference text "Biochemical Targets of Plant Bioactive Compounds" (CRC Press/Taylor & Francis, New York & London, 2003). He has just published "Body Count. Global avoidable mortality since 1950" (G.M. Polya, Melbourne, 2007: <http://mwcnews.net/content/view/1375/247/> and <http://globalbodycount.blogspot.com/>); see also his contribution "Australian complicity in Iraq mass mortality" in "Lies, Deep Fries & Statistics" (edited by Robyn Williams, ABC Books, Sydney, 2007): <http://www.abc.net.au/rn/science/ockham/stories/s1445960.htm>). He is currently preparing a revised and updated version of his 1998 book "Jane Austen and the Black Hole of British History" (see: <http://janeaustenand.blogspot.com/>) as biofuel-, globalization- and climate-driven global food price increases threaten a possibly 100-fold greater famine catastrophe (see: <http://www.countercurrents.org/polya310308.htm>) than the man-made famine in British-ruled India that killed 6-7 million Indians in the "forgotten" World War 2 Bengal Famine (see recent BBC broadcast involving me, Economics Nobel Laureate Professor Amartya Sen and others: http://www.open2.net/thingsweforgot/bengalfamine_programme.html).