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Thursday, 14 September 2006

The Secretary  
The House of Representatives Science & Innovation Committee  
Parliament House  
Canberra ACT 2600

Dear secretary,

Submission to:

Inquiry into Geosequestration of Carbon Dioxide

I did not see the notice calling for submissions to this inquiry, but I did see a report in the Canberra Times, by Roslyn Beeby: "Carbon capture costs earth: scientists" (Canberra Times, page 3, 13 September 2006.)

I enclose for information my recent letter to the producer of the ABC "Four Corners" program shown on 28 August 2006 on Global Warming. That letter refers to the use of solvents to capture carbon dioxide - also described in the 13 September 2006 Canberra Times report - a submission by CSIRO chemical engineer, Greg Duffy.

Two of the enclosures listed with my letter to the ABC (Numbers 3 & 7; my letter of 05/07/2004 on "Desalination" to the Premier of NSW, and my submission of 10/02/2005 to the Energy Directions Statement Coordinator, New South Wales) are also copied for your information.

Please note the following strategy for making geosequestration a technically and economically feasible option:

- a. Coal-fired power stations produce about 1,000 kg of carbon dioxide for each megawatt hour of electricity produced.
  - This contains about 270 kg of carbon.
    - This represents about \$20- for coal, to produce each megawatt hour.
    - Another \$30- of the wholesale price of each megawatt hour seemingly represents the return on capital and operation of power stations.
    - The balance of the retail price - an additional \$50- for each megawatt hour - seemingly represents the cost of the electricity distribution grid, and retail services, such as metering and customer billing.
- b. The heat-energy available from the combustion of this 270 kg of carbon is about  $2\frac{1}{2}$  times greater than the 1 megawatt hour of electrical energy produced. That is, the thermal efficiency of coal-fired power stations is only about 40%. Suppose I could explain how to increase thermal efficiency of coal-fired power stations to 70%. This change would have 3 significant effects -
  - Carbon dioxide produced with each megawatt hour would be reduced to about 570 kg (from 1,000 kg).
  - Cost of coal to produce each megawatt hour would be reduced to about \$11.50 (from \$20-).
  - If it was still thought to be worthwhile to geosequester this reduced carbon dioxide

output, the cost of doing so could be offset against the benefit of increased thermal efficiency - ideally designed to keep the aggregate cost of energy unchanged.

The methods for increasing thermal efficiency of coal-fired powerstations from 40% to 70% are fairly straight-forward. In support of this opinion, see the enclosed material, and the "Psychological Assessment" of psychologists Mr S. Maude and Mr J. Clifford, NSW Department of Corrective Services, 22 March 2004:

"...assessment using the Wechsler Adult Intelligence Scale - Third Edition (WAIS-III) indicates that Mr Dunstan scored in the Very Superior range of intelligence, which reflects an intelligence that is in the top 0.1% of the general population."

Notwithstanding the gift of unusual intelligence, I am not sure how to obtain some financial benefit for people I care for, and I would not like to simply provide the advice for solving the problem of global climate change without some assurance of equitable participation.

Yours faithfully,  
Glen Dunstan