Submission by Dr Colin Hunt, Honorary fellow in Economics, University of Queensland, on the Technical Discussion Paper of the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education

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- The Department and the Commonwealth government should give serious consideration to the adoption of higher values for the global warming potential of methane, the main constituent of coal seam gas.

- The adoption of such higher values would have enormous consequences for the difficulty of achieving greenhouse gas targets as well as the level of tax or cost of permits in national and international carbon reduction or trading schemes. These impacts should be addressed by the Department and Australian government in the Australian context

Background

The Department's Technical Discussion Paper (Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, 2013) says, on page 6:

> Methane is a potent greenhouse gas, with a global warming potential more than 20 times that of carbon dioxide. In 2010-11, fugitive emissions from the Australian natural gas sector, which includes CSG as well as conventional gas, were estimated to be 10.5 million tonnes of CO_2e, or around 1.9% of Australia's National Greenhouse Gas Accounts.

The 4th Assessment report of the IPCC (IPCC, 2007) uses a value of 25 for the 100-years global warming potential of methane , revised up from their previous estimate of 21. This value is most relevant when looking at the long-term relative benefits of eliminating a temporary source of methane emissions versus a CO_2 source.

However, averaged over 20 years, the GWP, estimated by the IPCC, is 72. This figure can be argued to be more relevant to the evaluation of the significance of methane emissions in the next two or three decades, which will be the most critical to determine whether the world can still reach the objective of limiting the long-term increase in average surface temperatures to 2 degrees Celsius (°C) (IEA, 2012: 39).

Moreover, some scientists have argued that interactions of methane with aerosols reinforce the GWP of methane, possibly bringing it to 33 over 100 years and 105 over 20 years (Shindell, 2009): these recent analyses are under review by the IPCC. Such higher values would, of course, have implications not only for methane emissions from the gas chain but also for all other methane emissions, from livestock, landfills, rice paddies and other agricultural sources, as well as from natural sources (IEA, 2012: 39).

References

Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, 2013. Technical Discussion Paper, April, Australian Government, Canberra.

IEA (International Energy Agency), 2012. Golden rules for golden age of gas, World Energy Outlook Special Report on Unconventional Gas, IEA, Paris.

IPCC (Intergovernmental Panel on Climate Change), 2007. Climate Change 2007: The physical science basis , contribution of Working Group I to the Fourth Assessment Report of the IPCC, S. Solomon *et al.* (eds.), Cambridge University Press, Cambridge and New York.

Shindell, D. et al. 2009. Improved attribution of climate forcing to emissions, Science, 326 (5953), pp. 716-718.