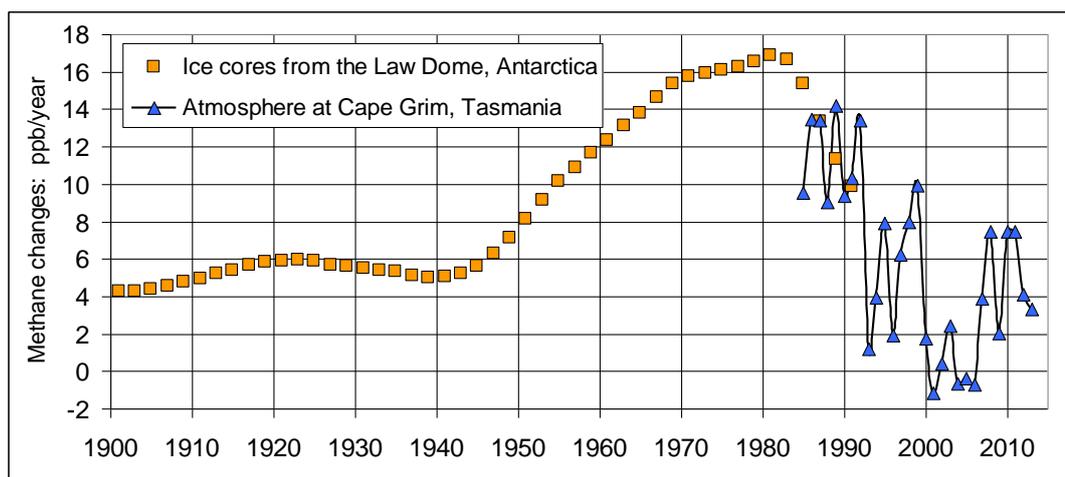


Submission on Australia's Post-2020 Emissions Reduction Target

Tom Quirk, Visiting Fellow, Deakin University

For the last twenty years atmospheric methane concentrations have been subject to natural variability that is a consequence of El Nino events. Thus there is no reason to regulate methane emissions when changes in atmospheric methane appear subject to natural variability. Also there is no need to fund R & D programmes to reduce emissions.

Present global and national schemes for carbon regulation often include methane alongside carbon dioxide. It is therefore important to understand the sources, sinks and control of methane in the atmosphere and then consider if methane should be part of any carbon regulation scheme. Atmospheric measurements over the last 50 years show substantial changes in methane concentration. Natural gas leakage from pipelines has been the major contributor up to 1990. For the last 20 years there has been little increase in concentration and natural climate variability has been the dominant control in changing methane concentrations¹.



Ice core and direct measurements of atmospheric methane from 1900. The peaks in the direct measurements correspond to El Ninos with the exception of 1992 which is an indirect result of the Mt Pinatubo eruption. Data source CSIRO

Conclusions

- Natural gas leakage from gas pipelines was largely responsible for increased atmospheric methane concentrations in the twentieth century.
- Through better pipeline management and maintenance, the leakage was greatly reduced in the late 1980s and early 1990s.
- In 1991 volcanic emissions of SO₂ from Mount Pinatubo reduced methane removal giving an apparent spike in methane emissions.
- The main determinant of variations in atmospheric methane from 1992 on is variations of the sink not the sources of methane.
- Variations of the sink are controlled by humidity and subject to El Nino and La Nina events and
- There are also source methane emissions from bush, brush and swamp fires triggered by El Ninos.

There is no reason to regulate methane emissions when changes in atmospheric methane appear subject to natural variability alone. Further, there is no reason to fund an R & D programme to reduce methane emissions.

ⁱ Tom Quirk, *Twentieth Century Sources of Methane in the Atmosphere* ENERGY & ENVIRONMENT VOL 21 p 251-266, 2010 and 43rd Seminar on Planetary Emergencies, World Federation of Scientists (Erice, Sicily) pp 365-374 19-24 August 2010 World Scientific