

FASTS Statement on Climate Change

4 September 2008

Global climate change is real and measurable. Since the start of the 20th century, the global mean surface temperature of the Earth has increased by more than 0.7°C and the rate of warming has been largest in the last 30 years. This warming has been accompanied by a decrease in the number of frosts, a rapid contraction of almost all alpine glaciers, a reduction in global sea ice, warming of permafrost, a reduction in global snow cover, and a rise in sea level. Rates of sea level rise and Arctic sea ice loss over the past few decades are exceeding upper-level predictions of the science community.

Key vulnerabilities arising from climate change include water resources, food supply, health, coastal settlements, biodiversity and some key ecosystems such as coral reefs and alpine regions. As the atmospheric concentration of greenhouse gases increases, impacts become more severe and widespread. To reduce the global net economic, environmental and social losses in the face of these impacts, the policy objective must remain squarely focused on returning greenhouse gas concentrations to near pre-industrial levels through the reduction of emissions.

The physical principles of the greenhouse effect are well-understood. Without greenhouse gases, clouds or aerosols, the surface of the Earth would have a mean temperature of about 18°C below zero. While the natural atmospheric composition varies over time, the observed warming in the late 20th century can be attributed with a very high degree of confidence to additional human emissions of greenhouse gases.

The spatial and temporal fingerprint of warming can be traced to increasing greenhouse gas concentrations in the atmosphere, which are a direct result of burning fossil fuels, broad-scale deforestation and other human activity. Current indications are that these concentrations are increasing at a greater rate than the highest scenario adopted by the Intergovernmental Panel on Climate Change for the 2007 Fourth Assessment Report, and more research is needed into the consequences of these increases on global and regional climate.

FASTS urges decisive policy actions, informed by evidence and thorough debate, to ensure Australia exhibits global leadership by reversing our upward trend of total and per capita emissions of greenhouse gases. Australia must become a low carbon emissions economy; an Emissions Trading Scheme is one means of achieving this, but is not an end in itself. There are other measures that should be implemented including diversification of stationary and transportable energy supply, improving energy efficiencies and changing consumption behaviours. High quality scientific research is essential to support and lead the technological, social and cultural changes necessary to transform Australia to a low carbon economy.

Finally, the current momentum of the global carbon-based economy and the inertia in the Earth's climate system is such that we will experience serious climate change this century. Science and technology will also play a central role in effective and strategic adaptation to regional climate impacts in Australia.

FASTS supports the "Joint Academies' Statement: Climate Change Adaption and the Transition to Low Carbon Society" released by the national academies of science of 13 countries on 10th June, 2008.