
Innovative preventive measures are needed

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It is like insuring a house against fire. We are not sure it will happen, but it is prudent to insure against such a loss.

CLIMATE change mesmerises public opinion. More than 90% of Australians believe climate change is already occurring due to human action, and are concerned about its consequences. Scientists are uncertain about global weather trends, but the risk of climate change is real, and potentially catastrophic.

The risks include melting polar caps and a rising sea level, potentially obliterating nations such as the Maldives and Bangladesh; desertification with huge agricultural impact in Australia and Africa; extinction of coral reefs and plankton that are the basis of the world's food pyramid, and frequent droughts, fires, storms and cyclones.

This year, the Organisation for Economic Co-operation and Development estimated the economic damage that climate change could cause to major cities, starting from Miami with \$US3.7 trillion (\$A3.87 trillion) in real estate losses, and Shanghai with \$US2.3 trillion. Alaska is already sinking as its permafrost soil is melting, and all its towns are being relocated at a cost of \$US140,000 per person.

Public policy must find preventive measures. It is like insuring a house against fire. We are not sure it will happen, but it is prudent to insure against such a loss.

Prudence indicates we should be willing to pay 1-2% of the world's gross domestic product to decrease the carbon dioxide emissions that industrial society has caused in the past 60 years — about 25-30 gigatonnes a year. There is general agreement about the fairness of such an insurance "premium", and that 1-2% of the world's GDP would be reasonable to avert the worst scenarios of climate change.

My proposal is to extend the reach of the Kyoto Protocol after 2012, the first global agreement that limits the world's carbon emissions, in two ways:

- Create financial mechanisms that will bring the developing nations to limit emissions appropriately.
- Introduce existing technologies that capture and store carbon in a way that decreases carbon in the atmosphere and are thus called "negative carbon". The protocol became international law in 2005, and we need to extend it beyond its 2012 limit.

Today the Kyoto Protocol does not provide emission limits for developing nations, which will become the world's largest emitters.

The most prominent feature of the Kyoto Protocol is its "carbon market" that I introduced and wrote into the protocol, which trades now \$US50 billion a year and could become the world's largest commodity market.

Through the "clean development mechanism", this market invests in clean technology projects in developing nations, helping them productively while insuring against climate change.

I proposed the carbon market because it is a market solution to a market problem. Globalisation intensified the trade and use of fossil fuels that were exported by developing nations to fuel with coal, gas and oil the rapid industrialisation of the OECD nations since World War II. Fossil fuels generate 89% of the energy used in the world, and energy is needed for economic development.

I propose another financial mechanism, one that is based on the carbon market and that will provide economic incentives for developing nations to accept the equivalent of emissions limits, in a way that conforms to Article IV of the 1992 Climate Convention and is thus acceptable for developing nations.

Article IV establishes that developing nations will not have emissions limits imposed unless they are appropriately compensated.

The mechanism I propose precisely achieves this purpose, through financial engineering, and is based on the protocol's carbon market. This will be acceptable for developing nations and will reach the goal that Australia's Opposition insists should be reached before the creation of Australia's own internal carbon market: bringing developing nations such as China and India to accept appropriate emissions limits.

Australia can make an international proposal in the direction I propose and in doing so help the world — Prime Minister Kevin Rudd is now the representative of the OECD nations in the climate negotiations and therefore this would be its natural role. After all, Australia emits only 1% of global emissions — but the developing nations emit about 40% of the total, so the impact could be enormous.

The second proposal involves Australian technology, which could play a fundamental role in the global negotiations. Developing nations such as China want new clean technology. It is the only way to ensure development and a safe environment.

The key is to produce energy safely. Most carbon emissions originate in power plants. Australia is already considering "clean-coal" power plants — it is negotiating a \$US3. 1 billion plant with General Electric, to be built in NSW or Queensland.

My proposal is to move further into newer technologies that not only make coal "clean" but involve "negative carbon". With existing technologies that extract carbon dioxide from air, carbon-negative coal plants can be built that reduce carbon dioxide in the atmosphere — twice as much as the plant emits itself. The more electricity is produced, the more carbon is reduced. This could be called "green coal" because it uses coal to clean the atmosphere at the same time it produces electricity.

Australia emits only 1% of global emissions, but with "negative carbon technologies" it could reduce, for example, 20% of the global emissions — and can be compensated through the Kyoto Protocol's carbon market at about \$30 a tonne of carbon reduced.

Making a profit while doing good would give a major boost to Australian business, and would involve using economic incentives that an Australian carbon market can induce. Australian business could react very positively to such a market-based scheme.

Professor Graciela Chichilnisky is the originator of the carbon market of the Kyoto Protocol that was voted on by 163 nations in 1997 and became international law in 2006. She is a professor at Columbia University in New York and Sir Louis Matheson Distinguished Visiting Professor at Monash University.

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