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The Arctic Challenge for Australia

Transcript

Fact 1: The earth is about to lose, during summer times, one of its two polar ice caps, likely within 5 years.

Fact 2: The Victorian Government just approved the building of 2 power stations fuelled by fossil energy (one using coal and the other gas) and the New South Wales Government wants a new coal-fired power station too.

This juxtaposition illustrates the wild disconnect between the rapidly developing climate change disaster and our society's response.

Let me explain.

Since 1988 the UN Intergovernmental Panel on Climate Change has issued four reports drawing together the work of thousands of climate scientists. The reports prove that humans are causing the world to warm significantly, posing a very serious threat to human wellbeing and security and to the survival of a great many other species. The warming is largely caused by emissions of carbon dioxide from fossil fuel burning - of gas, oil, and coal.

Why does the pursuit of new fossil-fuelled power stations by Australian Government's matter so much?

In the summer of 2007 the area of sea-ice in the Arctic shrank 22% compared to the previous record low. Something very serious was underway. For some time scientists had expected the Arctic ice, which used to cover an area as large as Australia, to take another 100 years to disappear. But recent scientific modelling work has revised the estimate down sharply to 30 years.

Even so, the scale of the big melt in 2007 shocked scientists, driving them to intensify work on the Arctic to find out why the computer models were so far behind real-world events. They found the thickness of the ice had declined steeply in recent decades. As a result more than 80% of the mass of Arctic ice had already been lost. And Wieslaw Maslowski from the US Naval Postgraduate College projects the full loss of all Arctic sea-ice by about 2013. So within five years, we are likely to have only one polar icecap in summer, a condition unknown in the whole period of human civilisation.

To lose one of the earth's two ice caps, almost without noticing until the last moment, is, well, startling!

And it matters for two crucial reasons.

Firstly, while a white, ice-covered Arctic Ocean **reflects** about 90% of incoming sunlight back into space, a blue Ocean, without ice, **absorbs** about 90% of the sunlight. This change will cause the average temperature of the Arctic in summer to

rise around 5 degrees. This regional warming will subject most of Greenland's very large glaciers and ice sheet to rapid melting, contributing to metres of sea rise in the second half of this century.

Not good for the children's real estate!

Secondly, elevated Arctic temperatures each summer will dramatically accelerate the melting of the sub-Arctic permafrost. Dead plant matter, accumulated over hundreds of thousands of years in the frozen soils, will rot, releasing carbon dioxide and methane, which is another potent greenhouse gas. There are 500 billion tonnes of carbon in the permafrost that could be released rapidly under the influence of strong Arctic warming, more than the total quantity of carbon emitted by all human activity so far. So global warming will get a huge boost just because we lose the Arctic sea-ice.

Is the total loss of the arctic sea-ice inevitable? Regrettably: Yes - given the inertia in our fossil fuel economy and the likelihood that the ice will be fully gone within five years.

Is the loss irreversible? No..... Thank goodness.

If we cool the earth by about a third of degree and the Arctic by about 5 degrees, in a couple of decades we can get the sea-ice back to its normal area and to an adequate thickness.

So, how do we cool the earth?

Clearly we mustn't emit any more greenhouse gases that will add to warming. And we must remove the overload of carbon dioxide from the air - 200 billion tonnes of carbon in fact - and store it safely - for example by growing plant matter and converting it to agrichar for very long term storage in the soil). And for some decades we may have to actively cool the earth by boosting its reflectivity.

The Arctic melt has rewritten the rule book. Even Garnaut seems unaware of this. The bottom line is that we can no longer afford to have *any* fossil fuel emissions from *any* source, whether from coal or gas, new or old. We must act with emergency speed over the next 10 years to build a new energy economy based on efficiency and renewable energy.

Fossil-fuelled power stations, of any sort, no longer fit into a safe-climate future.

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