An addiction that fouls the air

Ben McNeil
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Australia is addicted to coal for power generation.
With all the concern about climate change one would think that coal power, the highest emitter of greenhouse gases, would be on the ropes. In fact the mood on coal power is buoyant due to a hyped technology known as "geosequestration" which captures carbon dioxide emitted at power station smokestacks, liquefies it and pumps it deep underground.

Yet at this stage of its development geosequestration has little hope of reducing greenhouse emissions from coal power in the coming decades.

Coal provides nearly 80 per cent of Australia's electricity needs. Not the US, Russia or even China has a bigger coal addiction, despite having vastly more coal reserves than Australia. The Australian Greenhouse Office says emissions from coal-dominated electricity generation rose 50 per cent between 1990 and 2004.

In embracing a climate-sensitive power sector, geosequestration is a particularly alluring technology since we could potentially continue to use our plentiful coal reserves without problematic CO 2 emissions. The Minister for the Environment, Senator Ian Campbell, likes to point this out, declaring consistently "about 25 per cent of all of the carbon dioxide emissions in Australia could be stored this way, so it is a vital technology if we're to address climate change".

Unfortunately, not one gram of today's carbon dioxide emissions from coal power will be stored underground. Why? Because geosequestration technology cannot be fitted to existing coal power stations, only new ones. This technology does, however, have considerable benefits for existing natural gas production. Since 1996, the Norwegian petroleum company Statoil has been capturing and storing carbon dioxide under the North Sea during natural gas production, instead of releasing it into the atmosphere. The US company Chevron is planning to capture and store 3 million tonnes of carbon dioxide a year from the Gorgon gas field off the coast of Western Australia.

Although geosequestration has been proven for natural gas production, it is yet to be proven when applied to coal-fired power stations. Globally, there are only two planned demonstration projects for coal (in Queensland and the US), which are five to 10 times smaller than a typical coal-fired power plant and won't be ready until 2010, at best. As indicated by a special geosequestration report published by the international Intergovernmental Panel on Climate Change last year "there are knowledge gaps relating to large coal-based power plants".

Even if the technology becomes commercially proven, it would need to be fitted to existing coal power stations to have any hope of reducing Australia's greenhouse gas emissions from today's levels. Projecting the Federal Government's energy policies, the Australian Bureau of Agricultural and Resource Economics estimates that coal will still provide 72 per cent of our electricity needs by 2020, helping to raise greenhouse gas emissions by 33 per cent along the way.

Instead of focusing on geosequestration alone, there are other more proactive and proven energy

policy options that will reduce our emissions. In the early 1990s Britain was heavily dependent on coal, which supplied two-thirds of its electricity needs. It broke its coal habit by switching to natural gas power, which is far less polluting than coal, leading to a 15 per cent drop in greenhouse gas emissions in just over 10 years.

Natural gas plants are cheap, quick to build, can be used for baseload electricity capacity and emit up to 60 per cent less greenhouse gas than equivalent coal plants. Australia has more than 100 years of proven natural gas reserves and will produce nearly 3 per cent of the world's gas by 2030, helping to secure our energy independence. Gas fields such as those in Western Australia will also benefit from emission-free extraction using proven geosequestration technology. New gas power plants could use geosequestration technology when it does becomes proven.

Targeted policy to increase the proportion of natural gas power will be important, as well as breaking the Government's moratorium on increasing renewable energy sources. Based on existing policy, the Bureau of Agricultural and Resource Economics projects renewable power (such as biomass, wind and solar) will make up just 3.2 per cent of all power in 2020. Even China is to invest $US200 billion ($255 billion) in renewable power, increasing its proportion of all power to 15 per cent by 2020.

Although geosequestration technology for coal power should be pursued in the longer term, without generating more power from natural gas and renewable sources there is no hope of reducing greenhouse gas emissions in the coming decades. Instead of being addicted to coal power, let's diversify with cleaner energy options while maintaining our energy security.

Dr Ben McNeil is a research fellow at the Climate and Environmental Dynamics Laboratory at the University of NSW.

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