Submission No 9

INQUIRY INTO PROTECTION OF THE ENVIRONMENT OPERATIONS AMENDMENT (CLEAN AIR) BILL 2021

Name: Mr Christopher James

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Submission to Parliament of New South Wales
Regarding Clean Air Bill 2021

Thank you for this opportunity to submit comments on the proposed Clean Air Bill 2021, now being heard in the New South Wales Parliament. By way of background, I was an air quality regulator from 1984-2007, working for the US EPA Regional Office in Seattle, Washington, and then as Director for the state of Connecticut's air quality program. From 2007-2019, I was a senior official at a US-based non-governmental organization, and worked with municipal, provincial, regional and national governments in China on all aspects of air quality management. I helped Chinese officials to draft their new Air Law (2014) and also helped them to develop and enforce a permit system (modeled after that in US and EU). For the effort to draft the new Chinese Air Law, I worked directly with legislative staff from the National Development and Reform Commission (NDRC), the China authority responsible for planning across all disciplines, as well as with staff from the Ministry of Environmental Protection (MEP, now MEE). Through several closed-door sessions, where Chatham House rules applied, I worked with these officials to apply best legal and technical practices from the EU and US laws and how these would best work in a Chinese context.

I was also involved in helping to develop the first greenhouse gas emissions reduction program in the United States, and served on the Board of the State of Connecticut Energy Efficiency Program (which oversaw the expenditure of over $100 million per year in ratepayer funds to improve energy consumption and reduce air pollution). I also worked with the Mayor of Krakow, Poland, and the regional Malapolska government to pass legislation that banned the burning of solid fuels (the legislation also helped to direct EU funds to upgrade apartment buildings so that they would consume less energy). I currently live in Tacoma, Washington, USA.

As I was preparing this submission, I was struck by the fact that Sydney has once again locked down due to COVID, with the appearance of 49 new cases.[1] These measures restrict freedom of movement, require masks and limit gatherings to no more than five people. These measures are being implemented to protect public health. As of 24 June 2021, Australia as a whole has documented 30,404 COVID cases, with 910 deaths.[2]

On the other hand, the New South Wales (NSW) government has been unwilling to implement measures upon a few companies that would save many lives annually, and improve the public health of all citizens. In just the last five years, air pollution from coal fired power stations has been attributed to 2,385 deaths just from NSW alone, more than twice the number of people killed from COVID in all of Australia.

In addition, tens of thousands of people have suffered from asthma and other pulmonary effects caused by pollution from the uncontrolled coal-fired power stations in the state. These health effects increase burdens on hospitals and emergency rooms and impose significant economic costs. One of the best studies that evaluated the health care costs imposed by coal-fired power stations calculated that, in the US state of Kentucky (which also used to have a number of uncontrolled coal-fired power stations), each tonne of sulfur dioxide removed from a stack produced $5,800 of health care

[1] The New York Times, "An Outbreak in Sydney Prompts a Travel Ban and a Return to Mask Rules", 24 June 2021, retrieved from: https://www.nytimes.com/live/2021/06/24/world/covid-vaccine-coronavirus-mask#an-outbreak-in-sydney-prompts-a-travel-ban-and-a-return-to-mask-rules

[2] Worldometers data for COVID as of 24 June 2021. Retrieved from: https://www.worldometers.info/coronavirus/ (scroll down or search under "Australia" to see Australia specific data

benefits (in 2008 USD).[3] This research also found that the best estimate of the monetized environmental and health costs imposed by coal-fired power stations was 9.31 US cents per kWh (2008 USD), which was greater than the cost of electricity paid by consumers in many states.

Air pollution control equipment is highly effective, features mature technologies, and has a proven long-term reliability record. The first flue gas desulphurization (FGD) controls were installed on the Battersea power plant in London, England, in 1937. Selective catalytic reduction (SCR) for control of oxides of nitrogen emissions were first installed in Japan around 1990, and in the Northeastern US in the early 1990s. FGD consistently reduces SO_2 emissions by 95-98%. SCR consistently reduces NO_X emissions by greater than 90%. Both FGD and SCR will also work on Australia's coals. There is nothing special about them. SCR has been installed on high ash coals in Texas and the Dakotas. This is effectively an engineering question, where the equipment manufacturers will design the system to achieve whatever level of control is required, and will warranty the performance.

While power companies will claim that the equipment is "too expensive", in reality, they are likely to recover all their costs through electricity rates, and such costs, when monetized over the equipment life, are just a few pennies per day per person. In areas with liberalised electricity markets, the owners of the power stations bid their operating costs to the appropriate electricity grid operator, and they are dispatched based on economics, with the least expensive stations dispatched first. In areas operating under traditional monopoly regulations, where the same company is responsible for generation and transmission, the costs of the emission control equipment are submitted to the local utility regulatory authority. That authority opens a proceeding to review the emission control costs. Any approved costs are then recovered through electricity rates.

An effective air pollution control system for NO_X, SO_2, and PM also permits the addition of efficient mercury controls at very modest costs. Mercury emissions can be reduced by 90% or more.

While the proposed standards of 200 ug/m^3 for NO_X and SO_2 are an improvement over NSW's lax standards today, in reality, with modern emission controls, the power stations could easily achieve levels below 100 ug/m^3. If we assume the current power stations are meeting limits of 1000 ug/m^3 today for NO_X and SO_2, respectively, installation of SCR for NO_X could achieve concentrations in the 70-100 ug/m^3 range, and FGD for SO_2 could achieve concentrations below 50 yg/m^3.

As part of an overall plan to improve the environmental footprint of these coal-fired power stations, the NSW parliament should further require all operatorsto implement engineering techniques to improve the heat rate (i.e., the thermal efficiency) of each boiler system. Studies completed by Sargent and Lundy, a large engineering firm, for the US EPA, showed that coal plants could reduce the heat rate by 6-12% through highly cost-effective measures.[4] And, since improved heat rates

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[3] Paul R. Epstein, Jonathan J. Buonocore, Kevin Eckerle, Michael Hendryx, Benjamin M. Stout III, Richard Heinberg, Richard W. Clapp, Beverly May, Nancy L. Reinhart, Melissa M. Ahern, Samir K. Doshi, and Leslie Glustrom. 2011. Full cost accounting for the life cycle of coal in "Ecological Economics Reviews." Robert Costanza, Karin Limburg & Ida Kubiszewski, Eds. *Ann. N.Y. Acad. Sci*. 1219: 73–98.

[4] United States Environmental Protection Agency, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Coal-Fired Electric Generating Units", October 2010. Retrieved from: https://www.epa.gov/sites/production/files/2015-12/documents/electricgeneration.pdf

mean that less coal is required to produce a MWh of electricity, the operating company is also saving money by buying less coal.

Finally, as noted in the second reading of this bill, the NSW ambient air monitoring network is inadequate. Low-cost portable monitors (i.e., Purple Air) could be installed to obtain a more granular assessment of NSW air quality. These monitors have good relative accuracy when compared to the more expensive regulatory grade monitors, and cost about US$200 each.

I would be happy to answer any questions legislators and their staff may have, whether via email or through a video conference.