

**Submission
No 59**

**INQUIRY INTO COSTS FOR REMEDIATION OF SITES
CONTAINING COAL ASH REPOSITORIES**

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Date Received: 16 February 2020

PARLIAMENTARY INQUIRY INTO THE COSTS FOR REMEDIATION
OF SITES CONTAINING COAL ASH REPOSITORIES

Submission (Howard Dick, Prof.)

Standing

I make this submission as an economist concerned with the environmental impact of pollution. In the early 1980s I researched the economics of coal-fired power supply to aluminium smelters in the Hunter Valley and predicted the power blackouts that duly hit NSW. Since 2001 I have been a resident at Toronto on Lake Macquarie, living with particulate and leaching pollution from Eraring and Vales Point power stations. Last year made a brief objection to the proposal to expand the Eraring ash dam and was dismayed by both the rushed and superficial process and the outcome in such obvious conflict with the sudden and simultaneous closure of the much-used and much-loved Myuna Bay Sport & Recreation Camp. I believe we should trust the science and heed fundamental economics.

A. Summary

Closure of Sydney's dirty inner-city power stations (Bunnerong, Pyrmont and White Bay) in the early 1980s did not resolve the toxic pollution of air and water by power station wastes but just moved the problem north to the Central Coast/Hunter Valley, out of sight and out of mind as far as government was concerned.

Environmental controls were weak when the 'new' Vales Point B and Eraring stations were commissioned in the late 1970s and early 1980s and they have been only marginally improved since that time. Ash is still stored on site as slurry. Technological strides in best practice waste disposal (including USEPA Rule 2014) have been ignored while bad precedent has been allowed to justify continuing laxness, as seen in 2019 for approval of a 14% expansion of the slurry ash-dam at Eraring.

It is reported that around 60mt of slurry ash are now stored at Vales Point and Eraring. It would be more of a public scandal if these dams were in plain sight instead of being hidden on private land. One has to fly over them to see how big they are.

There is no scientific, risk management, social or ethical justification for any further expansion of slurry-ash storage as an accumulating toxic hazard that threatens the environmental and recreational value of Lake Macquarie and the health and welfare of its communities.

The NSW Government along with Lake Macquarie and Wyong Councils have long been encouraging population and employment growth in this affected region and planning policies now factor in further acceleration because of constraints in the Sydney Basin.

*Accordingly, the NSW Government has an undeniable and over-riding **duty of care** to Central Coast/Lake Macquarie communities.*

It is unconscionable and completely unnecessary that almost sixty years since the commissioning of Munmorah station on then pristine Lake Munmorah, the growing populations of Central Coast/Lake Macquarie communities are still breathing polluted air and subject to the threat of seepage and potentially catastrophic failure of slurry ash dams.

This Parliamentary Inquiry is timely and a powerful instrument to bring about long overdue transparency and policy change, in particular:

1. Immediate halt to slurry ash storage in favour of lined dry-ash storage
2. Accelerated recycling of ash and prompt remediation of the slurry ash.

I hope that this Inquiry will be an important step towards an integrated whole-of-government response that for the first time prioritises the health and welfare of Lake Macquarie and Wyong communities instead of treating them as a cheap and convenient dumping ground for power station waste.

Hunter-Central Coast communities are rightly frustrated at being treated as second-class citizens. They have been left with a toxic legacy and the sooner the clean-up begins the better for everyone, including the NSW Government which is ultimately responsible for this accumulating hazard and liability.

My focus in this submission is upon the **economics of pollution** (see C. below) and the implications for how the Inquiry might best analyse the causes of the problem and the allocation of costs.

While the parameters of the problem are technical/engineering ones, the vital distributional aspect of policy is primarily economic and political.

B. Background

When Vales Point A&B and Eraring power stations were designed and commissioned by the NSW Government through the agency of the Electricity Commission (Elcom), the power plants themselves (turbines, boilers, electrical equipment, etc.) were *state of the art*. In the late 1970s, that meant 2 x 660 (1320MW) at Vales Point B and 4 x 660MW (2640) at Eraring.

In regard to cooling water, stack emissions, fly ash and boiler ash disposal, however, the guiding principle was one of cost minimisation subject to weak EPA standards. Elcom was an extraordinarily powerful and secretive statutory authority that was not at all transparent or accountable to surrounding communities for the environmental impacts and hazards.

The commissioning of the two 660-MW units at **Vale Point B** piggy-backed on the existing ash disposal system for Vales Point A (Total 875 MW). There was no transparent assessment of this 'disposal' system (unlined slurry ash dams) according to updated best practice.

Driving the commissioning of the 2460-MW **Eraring** station was the determination of the Wran Government to facilitate the expansion of the Alcan aluminium smelter at Kurri Kurri and the construction of two large new smelters, Pechiney at Tomago and Alumax near the vineyards. In the face of vigorous community opposition the Alumax plant did not proceed, but this did not delay commissioning of the power units between 1982 and 1984. The 7-year construction phase was tight and subject to political and commercial pressure. Corners were cut. Environmental controls were not best practice even at that time. Monitoring was token and public reporting minimal.

Forty (40) years have passed since the baseline environmental assessments and control guidelines for Vales Point B and Eraring were set. Over that time Vales Point A has closed and been demolished, while Eraring has been expanded by around 10% to 2700MW.

Over the same 40 years, there has been a dramatic increase in the population living or planned to be living with exposure to the toxic hazards of these two power stations. Besides small-particle particulate emissions, residents and lake users are exposed to the risks of toxic seepage and, in the worst case, uncontrolled discharge from the ash dams.

Because of the constraints on population expansion and density in the Sydney Basin, the NSW Government has been and is ever more actively encouraging this urban expansion through its planning processes (Dept of Planning).

The NSW Government is responsible at law and to Parliament for the education, health, safety and well-being of these growing communities and this calls for a consistent, whole-of-government approach.

In this context, the rushed and non-transparent process in December 2019 that allowed Origin Energy to expand the capacity of its un-lined, slurry-type ash dam at Eraring from 35mt to 40mt was unconscionable. It responded to the timing and vested interest of the commercial stakeholder, not to the long-term welfare of the community.

Ironically, approval of the ash dam expansion was almost simultaneous with the completely unexpected and overnight closure of the adjacent Myuna Bay Recreation Camp on grounds of earthquake risk from the same ash dam.

Not brought to public notice was the enormous damage that would be done to Lake Macquarie and all its adjacent communities by an uncontrolled flood of slurry from a breached ash dam.

Slurry ash dams are intrinsically unstable when subject to large shocks. US experience shows that the damage from a breach is likely to be immediately catastrophic and cause environmental damage, in this case to the huge saltwater system of Lake Macquarie, that would persist for generations.

Shocks may occur from earthquake, substrata collapse (from coal workings) or flood.

The obvious implication is that coal ash should not be mixed with water. The engineering logic of doing so is to facilitate transport away from the power plant. However, as at Mt Piper, dry ash can be moved to storage by trucks and/or enclosed conveyors.

The basic point is that slurry ash is not 'disposed of', it is just dumped in a chemically unstable state (=leaching) in insecure (=un-lined) temporary storage that by regulatory default has been allowed to become a hazard in perpetuity.

As far as surrounding communities are concerned, the hazardous material remains on site subject to leaching into the water table and subject to risk of catastrophic failure.

Unlined slurry waste dams are an especial hazard because of toxic seepage into groundwater and ultimately into the Lake system and the marine food chain. I leave it to other submissions to go into detail on this aspect.

C. Externalities = market and regulatory failure

The economists awkwardly named concept of ‘externalities’ addresses failures of markets and regulation. Externalities are those costs (and/or benefits) that are not captured and reflected in market prices, in this case wholesale power prices to large businesses and retailers. Producers can increase profits by shifting costs, typically the costs of pollution and wastes, onto communities in the vicinity of power plants.

In an *ideal* world, state regulators would carefully monitor pollution and wastes, levy producers in proportion, and allocate the revenues to remediate the damage and/or to compensate affected communities.

The levy would be a price incentive to power plant owners to invest in best-practice pollution controls and therefore *minimise* the levy payable.

Such proportionate regulatory intervention would not only protect communities and the environment but also ensure that power plant owners do not enjoy an **unfair competitive advantage** vis-à-vis other power suppliers.

This issue of unfair competitive advantage becomes all the more important in the accelerating transition to clean energy because the purchasing decisions of consumers and the investment decisions of producers respond to these price signals. *Distorted wholesale power prices lead to distorted investment decisions.*

In the *real* world of NSW, however, the EPA has been highly sensitive to political pressure from power plant owners/party donors, highly insensitive to communities exposed to toxic pollution, and very reluctant to properly monitor or intervene.

Licence standards have been set well below and not adjusted to international best practice, monitoring is inadequate, public reporting is lax, and fines for identified breaches have been miniscule in relation to the ongoing benefits to power plant owners (who used to be the NSW Government itself).

In Economics the phenomenon is known as **‘regulatory capture’**, in other words, the taming of regulators by the regulated and the marginalisation of

community stakeholders. Egregious pollution thereby becomes the 'business as usual' norm in a masquerade of licensing and 'compliance'.

A local example (Toronto). *Residents in the suburb where I live are accustomed to wiping a layer of fine coal dust from outside (and inside) surfaces. Obviously this deposited particulate is in the air we breathe. Health studies confirm that fine particulate is harmful to health. Very likely much of Toronto's particulate pollution comes from Eraring power station just 10km south. Yet apart from the environs of Eraring power station itself (from where the two tall stacks spread the particulate), the nearest monitoring station is at Wallsend, about 25km north of Eraring and 17km north of us. On several occasions our local MP, Mr Greg Piper, has sought a monitoring station to be installed in Toronto but each time has encountered a brick wall. This status quo is very convenient to the EPA and Origin Energy because, from their perspective, no monitoring in Toronto means no pollution in Toronto. Nothing to see! This externality is not priced into the price of power, nor is it regulated by the EPA. The community bears the cost of polluted air as a subsidy to the power plant owner.*

The NSW Government benefits from these lopsided arrangements only in the short-term. Commercial interests take their profits and move on. Communities, governments and ultimately taxpayers (also the community) foot the bill, whether from the burden of the pollution itself or the eventual costs of compensation and remediation when no longer deferrable. Heavy metal contamination of groundwater and lakes is usually permanent.

While power plant owners are reluctant to incur of the costs of best practice treatment of ash wastes, the Inquiry should bear in mind that inaction by regulators means that pollution costs and accumulating risks continue to be borne, most unfairly, by the community and ultimately the NSW Government.

The **onus** should be on regulators to oblige power plant owners to clean up their own mess, not upon communities to go on putting up with it.

There is a better way and I hope this Inquiry will lead the way.

D. Conclusions

The NSW Government and the voters of Sydney would surely not allow 60 million tonnes of toxic slurry to be stored beside Sydney Harbour.

This Inquiry should therefore consider why it has been deemed acceptable to create and licence such an accumulating legacy just 100 km north on the shores of Lake Macquarie.

The 60mt of wet ash stored in dams constitute and accumulating toxic legacy and potentially an acute hazard to Lake Macquarie and public health.

The NSW Government is responsible to the public/taxpayers as the original power station owner/operator, for the generous conditions of sale to their current owners, for the continuing laxity of regulation, as the guardian of the health and welfare of Lake Macquarie/Wyong communities, and because it incurs the ultimate and accumulating liability.

Long overdue regulatory reform should focus on obliging power plant owners to install best-practice dry-ash storage and contracting to a remediation program for existing slurry ash.

As an incentive for best practice and to correct the unfair cost advantage enjoyed by the power plant owner-operators through cost-minimising waste dumping, a **levy per ton** of dry ash and higher levy per ton of slurry waste should be payable to the NSW Government and the revenues earmarked to remediation.

E. Recommendations

1. Given that the NSW Government has determined that the immediate environs of the Eraring ash dam are too risky for human habitation (viz. closure of Myuna Bay Sport & Rec. Camp), the NSW Government and its agencies should not allow an accumulating toxic hazard for the growing population of Wyong and Lake Macquarie. [TOR d), f)]

2. Given the increasing likelihood that Vales Point B and perhaps also Eraring will be decommissioned by the end of this decade because of the accelerating capacity, steadily reducing cost and increasing reliability of renewable energy sources, the NSW Government is obliged, on grounds of public safety, health

and welfare, to set a **moratorium** on any further expansion of slurry-ash storage in favour of dry-ash storage. [TOR d), f)]

3. The December 2019 approval and prior process for expansion of the Eraring slurry ash dam should be subject to **thorough independent peer review by the Chief Scientist, expert engineers, health experts and urban planners in the light on international best practice.** [TOR e)]

4. **Expansion of the monitoring net and plain-English public reporting of the leaching of toxic chemicals from the existing ash dams into groundwater and Lake Macquarie should be an immediate priority.** These actions should be taken on the advice of the Chief Scientist, fisheries and health experts, not only the EPA and Dam Safety Committee. [TOR e)]

5. **A levy per ton** of dry ash and a *higher* levy per ton of slurry ash should be imposed in 2021 upon the owner-operators of Vales Point and Eraring power plants and be factored into their wholesale power prices. The levy would be offset by sales of ash-product from recycling. Revenue from the levy should be **earmarked to remediation.** [TOR f)]

6. **A slurry-ash remediation strategy** should be set in place by **2022** for both power stations according to best international practice, taking into account the USEPA rule (2014). [TOR d), f)]

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14 February 2020