

'UNTOLD STORIES'

FINAL REPORT AND RECOMMENDATIONS

MARCH 2025



**CITIZENS' INQUIRY INTO HEALTH IMPACTS
OF COAL POWER GENERATION**

Prepared by



FutureSooner

The Citizens' Inquiry into the health impacts of coal-fired power stations was held at Halekulani Bowling Club, Budgewoi, on 25 August 2024.

Future Sooner wishes to acknowledge the individuals and stakeholder groups who attended the Citizens' Inquiry and particularly those who gave evidence.

Report Editorial Committee: De Brierley Newton, Gary Blaschke OAM, Gill Boehringer, Wolf Messthaler and Jackie Pearson

Design, cover and illustrations: Rebecca Watkins and Justin Stanley

Videography: Mark Merritt, Earthling Studios

© 2025 Future Sooner

All rights reserved except as permitted under the Australian Copyright Act 1968

All inquiries: Future Sooner futuresoonernsw@gmail.com

2024 Citizens' Inquiry into the Health Impacts of Coal-Fired Power Stations Report and Recommendations

ISBN 978-0-6458520-1-1

Published by: Future Sooner, PO Box 149 Ourimbah NSW 2258



First Nations Acknowledgement

Future Sooner wishes to acknowledge the Traditional Custodians of the lands of the Central Coast, Lake Macquarie and Hunter Valley - the Guringai, Darkinjung, Awabakal, Worimi and Wonnarua people.

We pay our respects to their ongoing custodianship, give thanks for their traditional knowledge and stewardship and acknowledge their sovereignty has never been ceded

TABLE OF CONTENTS

Foreword by Citizens' Inquiry Chair Dr Ian Charlton	5
About Future Sooner	6
Terms of Reference	7
The Citizens' Inquiry panel	8
Overview	10
Recommendations	13
Evidence and analysis	17
Cancers and chronic health conditions	19
Air pollution	24
Coal ash dam air, water and ground pollution	28
PFAS contamination	32
NSW Government failure to protect citizen health	36
Citizens' Inquiry transcripts	40
• Testimonies given on the day	40
• Written submissions	45
• Comments from the floor	??
Further reading	68
Appendices	72
Appendix 1: Submission by Sonya McKay	72
Appendix 2: Future Sooner Presentation to NSW Health and EPA 2022	78

FOREWORD

It is common knowledge that the air we breathe is important to our health. The burning of fossil fuels produces toxic emissions. It is estimated that coal-fired power stations on the Central Coast and Lake Macquarie cause over 650 cases of childhood asthma a year and that they appear to be associated with higher rates of cancers well above areas where coal fired power stations do not exist.



Dr Ian Charlton

They also appear to be associated with higher rates of cancer compared to areas without power stations.

When coal is burnt it gives off heat and smoke, but what is left are high concentrations of metals that don't burn. These heavy metals, waste products such as mercury, cadmium and arsenic are then concentrated in unlined ash dams which have been parked next to our homes, schools and lakes.

The Future Sooner group has been pressing for government intervention to improve the region's air quality and to address the ash dam issue for years. We are particularly alarmed that new housing estates, some next door to ash dams, are being gazetted without these health concerns being addressed.

In 2023 the United Nations Special Rapporteur on Human Rights and Toxicity, Dr Marcus Orellana, came to a community meeting organised by Future Sooner. His interim report said:

“There is a deep disconnect or distance between the government and the community narratives concerning toxic material entering the environment.”

The Citizens' Inquiry aimed to address this disconnect by inviting citizens to come forward and tell their stories. As you will read, the stories are concerning. Also concerning was that many power station workers and former workers were reluctant to voice their concerns having signed non-disclosure agreements as part of their employment contracts. We suspect we may be dealing with the tip of the iceberg.

The Citizens' Inquiry was not a scientific study, but a process to allow those people affected to come forward and tell their stories about how they believe their health may have been impacted from living near coal fired power stations. The Citizens' Inquiry gave those affected the opportunity to ask the governments and the power industry for answers and to ask that the necessary actions be taken to address the concerns of the community.

As this report demonstrates, there have already been reports highlighting the health concerns imposed by the power stations. As the Citizens' Inquiry points out, further reports are not required, but rather some definitive action to see community concerns addressed.

Governments of all persuasions need to listen to their people, and they need to act on those concerns. This Citizens' Inquiry has been an important part of that process.

Associate Professor Dr Ian Charlton
M.D, M.B.B.S, M.R.C.G.P.
Chair, Future Sooner Citizens' Inquiry

ABOUT FUTURE SOONER

Future Sooner was created in 2020 to investigate and raise public awareness of the environmental and human health impacts of the coal-fired power stations located on the Central Coast, Lake Macquarie and the Hunter Valley regions of New South Wales.

The vision of Future Sooner has always been to have these old, dirty, polluting power stations shut down on, or preferably before, their closure date and replaced with renewable energy, including the full and complete rehabilitation of all coal ash dams.

The group lobbies parliamentarians, holds events, writes submissions, participates in elections, has a Facebook page and holds regular meetings via Zoom. It is committed to working towards a clean energy future on the Central Coast, Lake Macquarie, Hunter Valley and NSW.

The group ran a successful campaign that resulted in the Environmental Protection Authority of NSW (EPA) capping the toxic emissions coming from the Vales Point coal-fired power station that contributed to over 650 more cases of asthma in children on the Central Coast and Lake Macquarie than in areas that do not have coal power generators.

It is now working with NSW Regional Health to monitor air quality and has a plan to replace coal and provide more jobs in renewable energy, reduce energy bills and make the Central Coast, Lake Macquarie and Hunter Valley 'healthy tourist destinations of choice'.

During the past two years Future Sooner has hosted community meetings to discuss the health impacts of coal-fired power stations with:

1. The United Nations Special Rapporteur on Human Rights and Toxicity Dr Marcus Orellana and UN Human Rights Officer, Heleda Nasic. Our local meeting with the UN was one of only three destinations visited in Australia and had a major influence on the Rapporteur's final report;
2. CEO and senior representatives of the EPA; and
3. In August 2024 Future Sooner held a ground-breaking Citizens' Inquiry into the health impacts of the pollution from coal-fired power plants and their ash dams.

Future Sooner collaborates and works closely with community NGOs on the NSW Central Coast, Lake Macquarie and Newcastle. It is a member group of the Community Environment Network (CEN). If you would like to be part of the movement, meet interesting people, bounce ideas and get your teeth into campaigns that will build a healthy, renewable and sustainable future for this region, join Future Sooner.

Contact: futuresoonernsw@gmail.com
Web page: <https://cen.org.au/campaigns/future-sooner/>

TERMS OF REFERENCE

The Citizens' Inquiry Committee is a subcommittee of Future Sooner. The committee was established because of the continuing inaction of the NSW Government to the health issues facing residents living on the Central Coast and at Lake Macquarie. The Citizens' Inquiry Committee is accountable to the Future Sooner group.

The purpose of the Citizens' Inquiry Committee is to pressure the NSW Government to close Vales Point and Eraring power stations on or before their due date to protect the health and wellbeing of residents of the Central Coast, Lake Macquarie and the Hunter Valley by:

- Giving residents the opportunity to tell their health stories
- Alerting the community and media to the life-threatening health problems from coal-fired power stations
- Ensuring the NSW Government adopts all recommendations from the Coal Ash Inquiry
- Prohibiting further Environment Protection Licence exceptions and exemptions
- Pressuring the NSW Government to raise emission controls to those of the EU and US and ensure compliance by Vales Point and Eraring

The role of the Citizens' Inquiry Committee is to provide:

- strategic direction and leadership in establishing and promoting the Inquiry
- contacting and briefing panellists
- producing a survey/submission to collect stories
- finding and encouraging witnesses to tell their health stories
- engaging with the traditional and social media
- fostering collaboration with other groups
- engaging with and lobbying politicians, NSW Health and the EPA
- ensuring that a written report is provided in a timely manner

Term This Terms of Reference is effective from January 2024 and continues until the final report has been delivered.

Membership The Citizens' Inquiry Committee will comprise members of Future Sooner group. Other interested members of Future Sooner or other organisations may attend with the approval of the Committee.

Roles and Responsibilities

Chair of the Inquiry	Dr Ian Charlton
Spokespeople	Gary Blaschke OAM Dr Ian Charlton
Media	Jackie Pearson
FS Panellists	Dr Merlene Thrift Gill Boehringer
Convenor	De Brierley Newton

Members of the Committee commit to:

- Attending all scheduled Citizens' Inquiry meetings
- Promoting the Citizens' Inquiry
- Assisting where needed
- Completing actions and reporting back to the Committee quickly

Meetings All meetings will be convened by Future Sooner convenor – De Brierley Newton - or another member appointed by the Citizens' Inquiry Committee. A meeting quorum will be three (3) members of the Committee. Decisions made by consensus (i.e. members are satisfied with the decision even though it may not be their first choice). If not possible, the convenor makes the final decision.

Meeting agendas minutes will be provided by the convenor including:

- preparing agendas and supporting papers
- preparing meeting notes and information
- meetings will be held regularly via zoom

THE CITIZENS' INQUIRY PANEL



Panellists at the Citizens' Inquiry. Source: Future Sooner, 2024



Bronwyn McDonald



Dr Ben Ewald



Dr Ian Charlton



Dr Ian Wright



Dr Merlene Thrift



Dr Thomas Bunn



Peter Sainsbury



Prof Gill Boehringer

Chair: Assoc Professor Dr Ian Charlton – MD, MBBS, MRC, GP. His MD Thesis was on Asthma Care in General Practice; a committee member of the National Asthma Council and Lung Foundation.

Honorary Professor Gill Boehringer – Former Dean, School of Law, Macquarie University. Recently a panellist on the Citizens' Inquiry into the Health of the Barka/Darling River. Previously a member of the Occupational Health and Safety Action Group and the Committee for Mental Health Advocacy.

Dr Thomas Bunn – Senior Consulting Engineer, TUNRA Bulk Solids, Research and Innovation Division, Newcastle University. Thomas has worked in power stations for 60 years.

Dr Ben Ewald – a former academic, has a PhD in epidemiology and is a member of Doctors for the Environment.

Dr Bronwyn McDonald – Healthy Futures, Energy Transition Campaigner to help protect public health.

Professor Peter Sainsbury – Previously worked in public health, PhD in sociology.

Dr Merlene Thrift – GP specialising in acute and chronic illnesses and nutritional and environmental medicine.

Assoc Professor Ian A Wright – Environmental Science School of Science, Western Sydney University; Coordinator: Management of Aquatic Environments, Environmental Planning, Policy and Regulation

OVERVIEW



Vales Point Power Station. Source: Mountainscape Creative, 2021

After years of gathering peer-reviewed scientific evidence on the profound health impacts of coal-fired power stations, Future Sooner held a Citizens’ Inquiry at Budgewoi to give people living around Vales Point, Eraring and Colongra/Munmorah coal-fired power station sites the opportunity to tell their own stories about how they believe living near these big emitters had affected their health.

Citizens’ Inquiries are often held in response to government failure to protect the lives and health of citizens, a failure that is regularly combined with corporate malfeasance. Future Sooner’s Citizens’ Inquiry was just such a response to the impacts on the health of residents living in the wind shadows of coal-fired power stations and their ash dams.

Several scientists were members of the Citizens’ Inquiry panel, but it was made clear that this was a Citizens’ Inquiry to give residents living near the power stations the opportunity to share stories of the health problems that they, their families and their neighbours have experienced – which they did.

The submissions to the Citizens’ Inquiry offered an insight into a distressed community, grappling with respiratory illnesses and cancers, that raised serious concerns about the impact coal-fired power stations have on local air quality and health.

The clearest observation was the genuine display of pain and anger in the witness testimony regarding their own and others illness(es), suffering, and death caused by what they believe to be pollution associated with the coal-fired power stations resulting in air, water and soil contamination.

Testimony from more than a dozen residents reflected their concern by the high rates of asthma, cancers, chronic respiratory diseases and a range of other illnesses that were affecting them and their families that they believe were associated with living near coal-fired power stations.

A recurring theme throughout the submissions was a sense of frustration and betrayal at the perceived inaction of the NSW Environmental Protection Authority (the EPA), the governmental health authorities and the government in general, in addressing the health concerns of the communities living near coal-fired power stations.

Residents expressed their dismay at the lack of adequate monitoring and regulation of air pollution at and near the coal-fired power stations local to them and the continued failure of the NSW Government to enforce stricter emissions standards.

It was a view also expressed by the Chair of the NSW Parliament's own report from the inquiry into *Costs for remediation of sites containing coal ash repositories*, Daniel Mookhey MLC, now Treasurer of NSW:

“The committee agrees with the Inquiry participants that little research, if any, has been conducted on the impacts and long-term consequences in relation to the health of communities residing near coal ash dams.

“We were disappointed with the response by the NSW EPA and NSW Health to community concern about the potential link between the circulation of additional metals in the air and waterways and impacts on health outcomes for the community. This response, in conjunction with the lack of research conducted to date on this matter, demonstrates a complete disregard by the government towards the health of its citizens.”

The Citizens' Inquiry submissions and witness statements also highlighted the lack of transparency, communication and community consultation from the authorities, leaving people feeling uninformed and disempowered.

An example of this is the planned location of a major mixed-use development at Doyalson which will include the incumbent Doyalson-Wyee RSL Club, childcare and medical facilities, low density housing and seniors living. This will lie between two coal ash dams full of materials injurious to life and the environment, including illegally dumped asbestos and other construction materials that could further damage the health of the residents.

Neither of these coal ash dams are lined to prevent leaching of health endangering contaminants into the groundwater, surrounding soil and nearby lakes. Nor are they adequately covered to prevent air pollution associated with asthma and other illnesses.

PFAS/PFOS (per-and-poly-fluoroalkyl substances) 'forever chemicals' previously used in firefighting foam at Munmorah, Colongra, Eraring and Vales Point power stations sites, have been found in the canals at these sites. The EPA has declared some parts of the former Munmorah Power Station 'significantly contaminated land' under the Contaminated Land Management Act 1997. However, the flow of information to residents and a timeframe for decontamination has been and continues to be grossly inadequate.

The concerns raised during the Citizens' Inquiry painted a picture of the interests of the coal industry being prioritised over the health of people. The lack of accountability for the environmental and health impacts of coal-fired power stations is a systematic failure of our governments. The residents the Inquiry heard from do not trust the very institutions that are meant to protect them.

The Inquiry revealed the profound mental health impacts of living in the shadow of these power plants. The constant worry about the health effects of pollution clearly contributed to increased levels of anxiety in the community. The human cost of coal-fired power stations therefore extends far beyond physical ailments, affecting the overall well-being and quality of life of residents.

Submissions asked questions of the Inquiry that demonstrated these fears such as “Are there common risk factors for all of these health concerns?” and “there are certainly questions to be asked about the health of our environment.” The evidence presented in the Inquiry is a clear call for action. The health and well-being of the community, and indeed, all Australians, must be prioritised over the short-term economic interests of the fossil fuel industry. The transition to a clean energy future is not only an environmental imperative but also a public health necessity.

The intention of the Citizens' Inquiry was to provide the community with resources – citizen testimonies along with analysis of the well-documented negative health impacts of the coal-fired power stations – so that we may move collectively to achieve reforms, legal and other.

The stories shared complement the existing and accepted scientific evidence – already presented to multiple arms of government and provided in advance of the Citizens' Inquiry to aid the panel in its understanding of the nature of the health and environmental problems facing those residents.

In bearing witness to these stories through the written submissions received, and testimonies collected, the Final Report of the Citizens' Inquiry now seeks to find solutions that the NSW Environmental Protection Authority (EPA), NSW Health, the Federal Government and Lake Macquarie and Central Coast Councils will be prepared to undertake to protect the health of their citizens and the environment.

Our recommendations identify opportunities for the government, academics, activists and others, including community researchers, to assist in improving human health and providing a clean and safe environment for the residents of the Central Coast, Lake Macquarie and the Hunter Valley.



Excessive water collecting in Vales Point intake.. Source: HCEC 2023

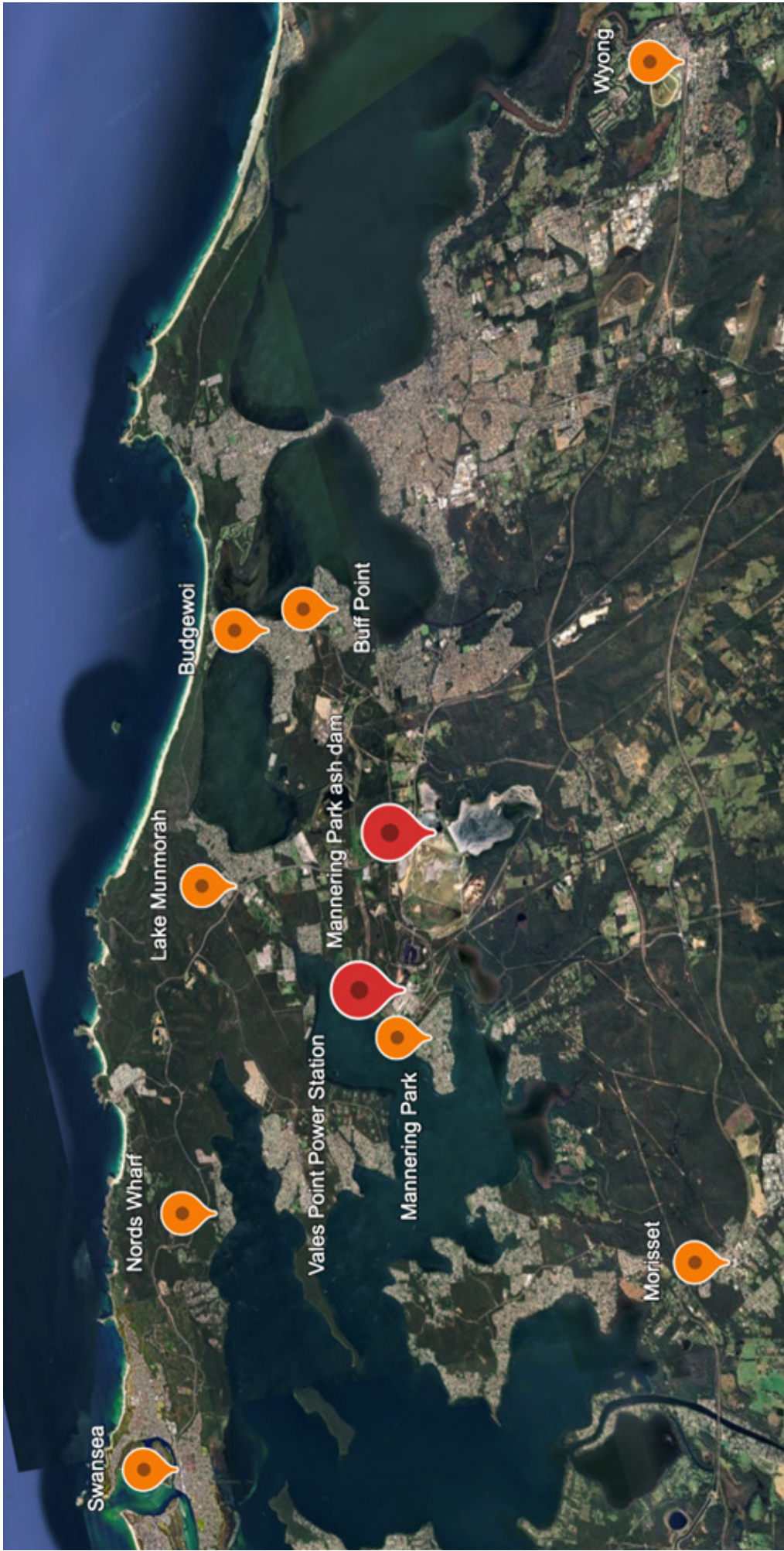


Figure 1: Some of the communities impacted by the power stations. Source: Google Maps 2023

RECOMENDATIONS

Based on the statements received by the Citizens' Inquiry along with supporting evidence, Future Sooner believes these recommendations must be enacted with urgency:

1. Over-arching recommendations

- 1.1** Evidence provided in writing and during the Citizens' Inquiry supports recommendations already made by other organisations that have done exhaustive research on the health and environmental impacts of burning coal to produce electricity. For instance, Environmental Justice Australia has, since 2016, been advocating for the Australian and New South Wales governments to enact a comprehensive **Human Rights Act** embedding the United Nations recognised right to a safe, clean and sustainable environment. The Citizens' Inquiry further strengthens the need for such a Human Rights Act. based on the outcomes of the Citizens' Inquiry, Future Sooner supports the position of groups advocating for legislation recognising the **Rights of Nature**. We support calls for the NSW Government and/or Commonwealth Government to enact legislation providing for **legal personhood** to give standing, through a trustee or guardian, for environmental entities such as lakes and local/regional ecosystems to take legal action for protection from and remediation of harm. We believe the Australian Government should enact legislation making **Ecocide a crime** in Australia. We believe the Central Coast Council should follow the example of the Blue Mountains City Council and recognise the Rights of Nature.
- 1.2** The transition to renewable energy is urgent and imperative for the health and wellbeing of millions of NSW citizens. As such the NSW Government must make available to the public a clear and comprehensive road map for the **rapid transition to clean renewable energy** and the urgent phasing out of coal-fired power stations. **No extensions** should be granted to the operations of Vales Point, Eraring and other coal power generators. We note Eraring power station was on schedule for shut down towards the end of 2025 and it is disappointing that the NSW Government has forced an extension of its operations. In addition to the climate and environmental needs for a fast-tracked clean energy transition, the NSW Government must **prioritise public health** in all decision-making processes relating to energy policy, and particularly those relating to coal-fired power stations and coal ash dams.
- 1.3** The NSW Government must establish a **Royal Commission** to investigate the failures of the EPA, NSW Health authorities and the owners of coal-fired power stations on Lake Munmorah and Lake Macquarie to protect the health of residents on the Central Coast, Lake Macquarie and Lower Hunter Region.
- 1.4** There is a substantive need for lawyers, including the Environmental Defenders Office (EDO), to consider **legal actions** against the NSW Government and relevant corporations, for the harm to the health of residents, in addition to the clear environmental harm, perpetrated by coal-fired power stations. We support access to legal aid for those pursuing **compensation for injury** suffered due to the operations of the coal-fired power stations.
- 1.5** The NSW Government must establish a **compensation program** for residents who suffered ill health due to processes associated with coal-fired power stations including air and water pollution, PFAS contamination and coal ash dam pollution.
- 1.6** The NSW Government must legislate, during the current parliamentary term, to ban industrial or agricultural processes likely to contaminate rivers, lakes, artesian water and catchments that could lead to human (and environmental) health impacts; such an Act must be enforceable at Local Government level. The Australian Government must assist states in protecting lakes and rivers from being contaminated. The Australian Government must also adopt all recommendations from the final report of the United Nations Special Rapporteur on Toxics and Human Rights.
- 1.7** **Pollution standards** set in the National Environmental Protection Measure on Air Quality must be reformed to ensure they are health based, are equal to or even better than overseas standards and are enforceable across all Australian jurisdictions.

- 1.8 The Australian Government must urgently establish the **Net Zero Economy Authority** and ensure its functions extend to addressing legacy pollution, waste and contamination issues caused by coal-fired power stations.
- 1.9 The operators of coal-fired power stations in NSW must be **legally compelled** for the duration of their operations via their Environmental Protection Licences to invest in the latest technology proven to substantially reduce toxic pollutions and this compulsion and compliance needs to be fully disclosed to the public. There must be no exemptions or exceptions.
- 1.10 The owners of coal-fired power stations must be compelled using industrial laws to immediately stop enforcing **employee non-disclosure agreements** and give their employees and former employees freedom to speak about the health impacts of the facilities.
- 1.11 Furthermore, Future Sooner commits to immediately **establishing a Permanent Citizens' Tribunal on the Health Impacts of Coal-fired Power Stations** to monitor and report on the extent to which the NSW Government, Commonwealth Government and coal-fired power station owners are fulfilling their responsibility to protect human and environmental rights as outlined in the United Nations Guiding Principles on Business and Human Rights.

In addition to providing substantive justification for the above over-arching recommendations, the outcomes of the Citizens' Inquiry have compelled Future Sooner to put forward the following specific recommendations:

2. Air Pollution

- 2.1 The **closure** of all coal-fired power stations by or before their scheduled closure dates without exception is the only sure way to guarantee the end of air pollution in communities living within their wind shadows. As part of fast tracking its transition to renewable energy, the NSW Government must develop and publicly communicate an **exit strategy** for coal-fired power stations to provide market certainty for the renewable energy transition. The NSW Government must immediately establish a **remediation plan** for all coal-fired power stations, their lands, adjoining lands and coal ash dams.
- 2.2 As an interim measure, until their closure and remediation, the NSW Government must enact **pollution concentration standards** in line with international standards for Vales Point and Eraring, to be enforced by the Environmental Protection Authority (EPA) via Environmental Protection Licences (EPL) including the regular public reporting of compliance.
- 2.3 The EPA must include in all its decisions, its **legal obligation** to “protect the community and environment from harm, including the health of its citizens and that caused by Climate Change”, As such the NSW Government must take legislative and regulatory steps to prohibit the EPA from granting any further EPL exemptions that allow coal-fired power stations to pollute over NSW emission limits.

3. Coal Ash Dams

- 3.1 There must be **rapid remediation** of contaminated sites including a comprehensive plan for the complete remediation of all coal ash dams in NSW. The NSW Government must develop and implement **formal plans** to address the issue of emptying and remediating coal ash dam sites with a specific timeframe. The NSW EPA must make urgent recommendations to the NSW Government to remediate coal ash dams. As interim measures the State Government must immediately enforce the cessation of further dumping of coal ash into existing unlined ash dams and must provide **air monitors to schools** within 20km of existing ash dams. The NSW Government must consider mandating the safe use of the different types of coal ash via recycling, for example, fly ash in concrete, and ensure a competitive marketplace for the safe use of all coal ash including the pond ash in unlined dams.
- 3.2 The current NSW Government must renew its commitment and provide a timeframe so that **all recommendations** published in the NSW Public Works Inquiry Report are implemented in full.
- 3.3 State and Federal Governments must put in place plans to ensure that **the cost burden** of remediation of contaminated sites does not fall upon citizens who in substantial numbers have paid a terrible price already because of the operations of those stations.



Vale Point. Source: Hunter Community Environment Centre 2019

- 3.4** The NSW Government must commit to a **moratorium** on all proposed and current residential developments within a 20 km radius of coal-fired power stations and ash dams to protect the welfare of future generations.

4. PFAS/PFOS Contamination

- 4.1** Studies must be undertaken by the NSW EPA, or an independent body, with urgency and full transparency, to determine the full extent of PFAS/PFOS contamination at the Munmorah/Colongra site, surrounding lands, waterways, groundwater, and the Lake Munmorah system. Such studies should include an Environmental Impact Study of fauna and flora to measure PFAS contamination impacts on local land and marine species with the results to be made public.
- 4.2** The EPA must commit to the **ongoing** measurement and publication of PFAS contamination levels at the Munmorah/Colongra site, surrounding lands, ground water and waterways and the Lake Munmorah system, and must make this information available in full to the public with no restrictions on its use. Measures to keep the public informed must include regular face-to-face **community meetings** to allow for any questions to be answered, as not all residents are connected to the internet. PFAS Contamination **warning signs** must be installed in areas around the lake system frequented by the public as a precautionary measure, including boat ramps, swimming areas and walking tracks. Surrounding households should be letterbox dropped with information about the dangers of using **ground/bore water**.
- 4.3** A fully costed and funded plan must be developed and implemented by the NSW Government and NSW Treasury for the **complete remediation** of all sites found to be PFAS contaminated with a timeline included.



Coal ash waste at Eraring power station, HCEC 2019

EVIDENCE AND ANALYSIS

“Growing up in Budgewoi our mums dreaded wind changes on washing day. If the wind blew the wrong way, they would have to do the washing again because it would have black and grey flecks on it.” It was a light-hearted comment, probably the most light-hearted of all the statements made at the Future Sooner Citizens’ Inquiry, but it was highly symbolic of the fact the Inquiry was airing over five decades of dirty laundry – the secret health consequences of living near Eraring, Vales Point and the former Colongra/Munmorah coal-fired power stations. Those health consequences have long been known and ignored by the power industry, the key state government agencies – NSW health authorities and the NSW Environmental Protection Authority – and our elected representatives at federal, state and local levels.

At the other extreme, one of the most distressing statements presented to the Citizens’ Inquiry came from another Budgewoi resident, Steve Hassen, who told of how three generations of his family – grandmother, father and auntie, and then Steve himself, succumbed to serious and multiple health problems after moving to a house next to an outflow canal from the nearby power station. In addition to the human health toll, Steve told the inquiry that four of his dogs, and a neighbour’s dog, had also died from excruciating and rare cancers.

Could such sicknesses be a weird coincidence or were they related to living next to that outlet canal?

Responses from expert panel member and long-term electricity industry professional, Dr. Thomas Bunn, gave some indication of potential causes of the complex and multiple health conditions contracted by that family upon moving to that house:

“When I was an operator at Munmorah Power Station we used to fight fires on the side of the canal and we would drop the pump in the canal, put the foam in and all the stuff would run into the lake... I was on the coal dust technical panel for Pacific Power and they changed Eraring Power Station from an open source to a ‘recyc’ system purely and simply because of the flora and fauna being polluted in Myuna Bay. What they would do then was dump it in the outfall canal. ‘Dilution is the solution to pollution’.”

Whilst it is not straightforward to prove a direct causal link between any health condition and the pollution from nearby coal-fired power stations, the precautionary principle must apply. Future Sooner has also been providing evidence of the health outcomes for communities surrounding the power stations. The evidence has not been disproved by neither multiple NSW Governments nor the power industry. Both governments and corporations have a duty of care for the decisions they make and the practices they undertake.

The facts underpinning the submissions, statements and comments on the pages that follow cannot be refuted. Over 200 million cubic metres of coal ash is stored in ash dams at Eraring, Colongra-Munmorah and Vales Point. They are unlined. In high winds the Vales Point ash dam is aerially sprayed with a blue substance to stop the ash from flying into the air and residents’ lungs. One participant to the Citizens’ Inquiry said that Eraring doesn’t bother spraying its ash dams because it’s cheaper to pay the fine although other evidence suggests Eraring uses a water spraying system to keep the dust down.

Mercury, lead and other heavy metals were of major concern to expert panel member Professor Ian Wright, who cautioned residents against using tank or bore water for drinking or watering vegetables. He was also concerned about the lack of monitoring for PFAS.

The bottom line is that the citizens living around the two remaining active power stations and the legacy site at Colongra/Munmorah have asked many questions at the Citizens’ Inquiry and they deserve answers. Future Sooner’s recommendations are an attempt to synthesise the key themes identified in this collection of statements and submissions into specific actions that can be taken at the local, state, federal and industry level.

The compelling evidence provided in writing and orally by residents to the Citizens’ Inquiry gave personal, qualitative verification of the many quantitative, science-based studies conducted into the health impacts of coal power stations throughout the world. In the Australian and NSW context, the Citizens’ Inquiry makes it patently clear that governments at all levels have failed in their duty to provide a safe and healthy environment for the citizens of our region and elsewhere. Following is our analysis of the witness evidence provided, presented in the context of existing scientific evidence.



Section of dead trees at Vales Point. Source: HCFC 2020

CANCERS AND CHRONIC HEALTH CONDITIONS

The Australian Cancer Atlas research identified that suburbs close to power stations and their associated ash dams have incidents of cancer and chronic health conditions well above the Australian average. The Atlas shows that suburbs on the Central Coast and Lake Macquarie with Eraring & Vales Point power stations close by, reflected this finding. The Australian Bureau of Statistics (ABS) also found that the region had incidences of three or more chronic health diseases that exceeded the national average.

The Citizens' Inquiry heard statements about the growing number of patients diagnosed with cancer at John Hunter Hospital and of patients being told that they would have to wait eight weeks to commence treatment.

At Wyong hospital the Cancer Clinic is currently quadrupling in size. We can only assume this is to cater for an anticipated growth in the number of cancer patients it will need to accommodate in the future.

The Inquiry heard many stories of people suffering with cancers.

Witness statement:

The doctors had told him his cancer was most likely related to his work as a Boilermaker in Eraring and Vales Point Coal Fired Power Stations, where he worked for over six years. Some of his workmates had similar health issues. He had been diagnosed with Small Cell Carcinoma in his Ethmoid sinuses (the small cavities up in his nose) around the 2000s. This cancer is very rare and has very bad predictions. The Small Cell Carcinomas respond very quickly and well to chemo and radiation treatment, but can return very quickly again. He survived until 2015, when he died of sharp decline in his consequential liver problems.

Witness statement:

In the year 2020, after coming out of the surf, I found a lump on my back when I was drying off. I went to see my GP; he told me that it was a non-malignant tumour and to leave it alone. I insisted on him removing it, and lucky I did, ... he had diagnosed me with Non-Hodgkin Lymphoma. I didn't get upset at all, I just said "Righto, what's the next step"? Next step was a series of CT Scans and MRI's. That then culminated in a further finding that I had Liver Cancer and Bone Cancer. Three cancers at once!

When I spoke to my oncologist, he told me that it was becoming a very common occurrence at the cancer clinic. That people were coming in with three or more cancers at the same time...I had 61 treatments of immunotherapy, but at least then, having a good oncologist, and following the rules, I'm now classified as cancer free with no guarantees. But, just the treatment alone has given me Type 1 Diabetes and arthritis in my joints, which I'm just going to have to live with. But, look, it's a better result than the other result, so that's what it's all about.

Witness statement:

He started chemo, that's the normal thing, and radiation. Radiation for six weeks, chemotherapy, and come five months and they were still doing the scans. "Oh, there's another little one trying to grow". Go another month with the same chemotherapy tablet, "No, it's still there, switch". So, two different types of tablets. Two years of that. Well, within a few weeks of the second lot of chemotherapy (the two tablets), the little tumour started disappearing. All of a sudden, he was left with no tumours at all.

Brilliant, we thought. At the end of two years of that chemotherapy (two tablets), they said "Well, you haven't had anything for a while, we won't do anymore". And Eddie says "But I'm exhausted". Oh well, let's see what your bloods are like. "Hmm, you are not making red blood cells very well". Bone marrow biopsy. You need transfusions every two weeks. So, started that!...And then, within 18 months, "It's not working anymore, it's not working anymore". Alright, another bone marrow, "You're not making white blood cells anymore".

Comment from the floor:

My partner and I live in Lake Munmorah in a small housing estate ... There are probably about 50 homes in this housing estate. We are aware that we have three neighbours, two of them have cancer, at the moment, are fighting cancer. One about three houses away is also fighting cancer. That is just the ones we know of within this housing estate. I don't know how many others there are

The United Nations Special Rapporteur on Toxics and Human Rights, Dr Marcus Orellana, visited Australia in 2023 to assess the nation's track record on the environmentally sound management and disposal of hazardous substances and waste. In his Final Report to the United Nations Human Rights Council, The Special Rapporteur reinforced the evidence Future Sooner had compiled and the stories and presentations by residents and organisations at the Citizens' Inquiry.

The Special Rapporteur takes note of acute toxic challenges facing the country. The toxic impacts of coal mines and coal-fired power plants, uranium mines, hazardous pesticides, radioactive wastes, perfluoroalkyl and polyfluoroalkyl substances, and waste incineration projects pose serious threats to the environment and to the health of affected communities.

The Special Rapporteur offers several recommendations for the recognition and implementation of the right to a clean, healthy and sustainable environment in Australia¹.

In his final report, the Special Rapporteur stated that:

Coal-fired power plants have powered the country's energy sector for decades. However, the environmental health costs have often been externalized to communities, who have paid the price with premature deaths, terminal illnesses, asthma and other health problems. The Special Rapporteur visited communities in the Upper Hunter Valley of New South Wales and the Latrobe Valley of Victoria that continue to be exposed to unsafe levels of air pollutants and toxics from coal mining and coal-fired power stations. Unfortunately, insufficient action has been taken to assess the health and other impacts of coal mining projects in these regions.

We support the full adoption of all recommendations in the UN Special Rapporteur, Dr Marcus Orellana's Final Report and hope they are taken up with urgency by the Australian Government; including:

The Special Rapporteur recommends that the Government of Australia:

- (a) Guarantee the right to a clean, healthy and sustainable environment in the Constitution of Australia and the national and subnational legislative framework, allowing for its justiciability in domestic courts;
- (b) Accelerate steps towards a federal Human Rights Act;
- (c) Fully incorporate economic, social and cultural rights into the domestic legal order and allow for their justiciability in domestic courts;
- (d) Create a national environmental regulator or a federal Environmental Protection Agency that can enforce harmonized national standards;
- (e) Align national and subnational legislation with the United Nations Declaration on the Rights of Indigenous Peoples
- (f) Ensure meaningful engagement with Indigenous Peoples in licensing processes for extractive and other industries, including guaranteeing their right to free, prior and informed consent and respect for their cultural rights;
- (g) Protect the right to freedom of assembly against excesses in restrictions to the legitimate right to peaceful protest;
- (h) Impose fines adequate in severity to deter non-compliance with environmental regulations;
- (i) Ratify the amendments to the Stockholm Convention on Persistent Organic Pollutants that list new pollutants, and revise the National Implementation Plan;
- (j) Reduce and eliminate the releases of unintended persistent organic pollutants, such as from waste incinerators;
- (k) Introduce and implement a comprehensive control system to regulate and reduce mercury emissions from coal-fired power plants, in line with the objectives of the Minamata Convention on Mercury;
- (l) Prioritize the development and implementation of a substitution plan for methyl bromide, in accordance with the principles of the Montreal Protocol on Substances that Deplete the Ozone Layer;
- (m) Ratify the Basel Ban Amendment to the Basel Convention;
- (n) Ratify the Optional Protocol to the International Covenant on Economic, Social and Cultural Rights;
- (o) Prepare a National Action Plan on Business and Human Rights through informed consultation with all rights holders and stakeholders, including groups in vulnerable situations and local communities;
- (p) Strengthen the National Pollutant Inventory by linking it to pollution prevention mandates and expanding the coverage of pollutants.

The Rapporteur's conclusions, along with the observations presented by witnesses at the Citizens' Inquiry, should be seen in the context of data from the Australian Cancer Atlas for the Central Coast and Lake Macquarie.



Witness statement:

...when you know that your community has cancers that are 16% above the Australian average, you know you've got a real problem.

Sadly, this is not a new battle for the communities of the Central Coast and Lake Macquarie and the authorities have had ample evidence of the health impacts of the Vales Point, Eraring and the former Munmorah power stations since at least the 1980s but have failed to act.

Submission quote:

1985: The massive battle to save lower Wyong Shire from the Electricity Commission's plans to develop two more power stations and 10 coal mine complexes triggered an appeal to Government and Elcom to look at pollution in the Shire's north from the overwhelming effects from Eraring, Vales Point and Munmorah complexes. ...

Dr John Vaughan and Associates, Lake Munmorah GPs at the time, issued a public statement to the Commission of Inquiry into Electricity Planning in NSW indicating child asthma at twice the national average and recurrent bronchitis in adults who do not smoke "greater than one would expect" and was probably attributable to the power stations in the area. This was a significant statement and one that would help halt the progress of coal fired power in NSW. These figures were confirmed by parents at Lake Munmorah in press articles. Of the 258 children at the local school, 103 had respiratory problems with 76 classed as having asthma.

The Editorial column of the Central Coast Express 30/10/1985 stated..."If these figures are available they have been kept secret" ... "However it shocks us", the editorial said, "it must shock every resident that such a tragedy could occur and nobody knew about it." ... "It would be even worse if people in power actually knew what was happening but decided to cover it up" the editorial claimed.

The following table shows the suburban percentages of Cancers above the Australian Average (Australian Cancer Atlas), three or more chronic health conditions (Australian Bureau of Statistics) and rates of acute asthma in suburbs near the power stations and their ash dams.

TABLE 1: THREE TOP IMPACTING CANCERS ABOVE THE AUSTRALIAN AVERAGE (AAA) AND OCCURRENCE OF THREE OR MORE CHRONIC HEALTH CONDITIONS AS A PERCENTAGE OF POPULATION

Suburb name	Cancer / chronic health issues	% Above Aust Average (AAA) / % per population
Budgewoi/Buf Point	<i>Head and neck</i>	102
	<i>Lung</i>	90
	<i>Oral cancer</i>	87
	<i>3 or more chronic health conditions</i>	16.2
	<i>Acute asthma</i>	15.4
Lake Munmorah/ Mannering Park	<i>Mesothelioma</i>	83
	<i>Lung</i>	54
	<i>Oesophageal</i>	30
	<i>3 or more chronic health conditions</i>	16.9
	<i>Acute asthma</i>	15.3
Nords Wharf, Swansea	<i>Mesothelioma</i>	77
	<i>Neuroendocrine</i>	43
	<i>Thyroid</i>	41
	<i>3 or more chronic health conditions</i>	15
	<i>Acute asthma</i>	12.6
Morisset	<i>Mesothelioma</i>	83
	<i>Lung</i>	54
	<i>Oesophageal</i>	30
	<i>3 or more chronic health conditions</i>	13.5
	<i>Acute asthma</i>	12.8
Wyong	<i>Mesothelioma</i>	58
	<i>Lung</i>	34
	<i>Classi MPN</i>	34
	<i>3 or more chronic health conditions</i>	15.1
	<i>Acute asthma</i>	15.3

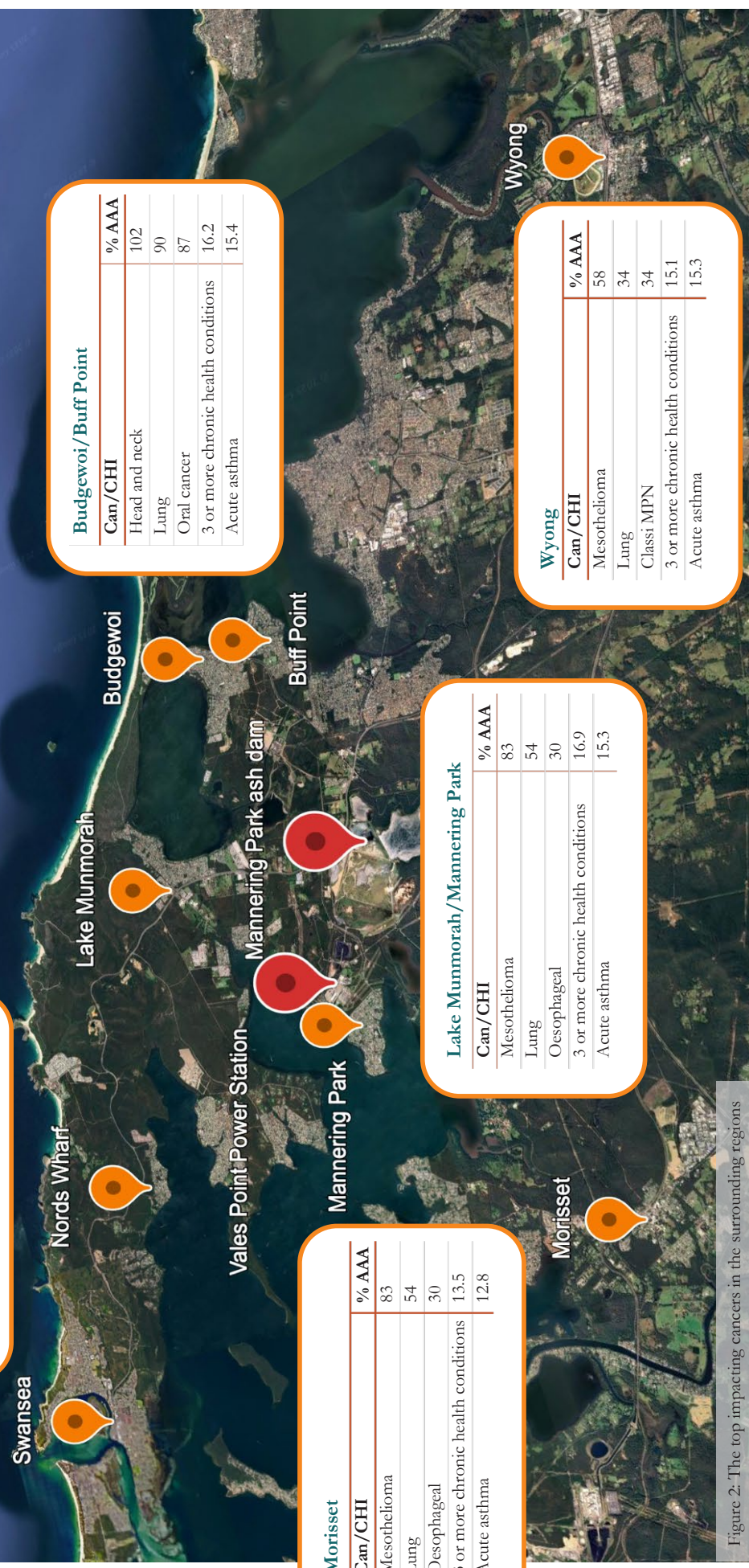
NB: SIMPLE TERMS FOR DISEASES

- *Classic MPN: (Myeloproliferative neoplasms) Bone Marrow Leukaemia.*
- *Mesothelioma: Lung cancer due to asbestos.*
- *Neuroendocrine: Rare specialised cell cancers mainly in respiratory or digestive regions.*
- *Oesophageal: throat or oesophagus related tumours.*
- *Sarcoma: generally developing in the bone and spreading throughout to the soft tissue.*

Key
 Can/CHI: Cancer / chronic issues health
 % AAA: % Above Aust Average (AAA) / % per population

Nords Wharf/Swansea

Can/CHI	% AAA
Mesothelioma	77
Neuroendocrine	43
Thyroid	41
3 or more chronic health conditions	15
Acute asthma	12.6



Budgewoi/Buff Point

Can/CHI	% AAA
Head and neck	102
Lung	90
Oral cancer	87
3 or more chronic health conditions	16.2
Acute asthma	15.4

Lake Munmorah/Mannerling Park

Can/CHI	% AAA
Mesothelioma	83
Lung	54
Oesophageal	30
3 or more chronic health conditions	16.9
Acute asthma	15.3

Morisset

Can/CHI	% AAA
Mesothelioma	83
Lung	54
Oesophageal	30
3 or more chronic health conditions	13.5
Acute asthma	12.8

Wyong

Can/CHI	% AAA
Mesothelioma	58
Lung	34
Class MPN	34
3 or more chronic health conditions	15.1
Acute asthma	15.3

Figure 2: The top impacting cancers in the surrounding regions

AIR POLLUTION

There is no safe level of PM2.5 or PM10 emissions and emission limits as set by the NSW EPA are far below the tougher emission limits of the European Union, United States or Japan.

Residents living in the wind paths of the local power stations reported to the Inquiry a litany of health problems, including asthma, chronic obstructive pulmonary disease (COPD), lung cancer, and other illnesses.

Witness statement:

When we did get here, Eddie had some sort of asthma problems, but suddenly, it became ‘magnificent’, and that was a real issue. Several times in hospital...

Witness statement:

I started hearing stories from the local region of pre-schoolers at Chain Valley Bay having brain cancer, and I couldn’t believe it because I know the pre-school, because I donate goods to their Christmas Fund, and I knew there would only be 20-25 kids there, and having two kids with brain cancer really started to alert me. I then found out about two teenagers who grew up together there. Both of them passed away nine months apart from one another with spinal tumours.

The evidence was anecdotal by nature and was revelatory of compelling firsthand accounts of feeling fearful of living near such polluting facilities. Families shared stories of loved ones struggles with serious illnesses, or their own difficult experiences of living with illness and, even tragically, the loss of close family members.

Submission quote:

I know two consecutive Coronary Artery Bypass Graft patients from the Central Coast living in post code areas 2259 & 2261. Neither had cholesterol elevated. Neither had a family history of heart disease. Both had serious heart arrhythmia after surgery requiring other interventions. Both were exposed to PM particles, NOx, SOx & heavy metals from Munmorah and Vales Point Power stations over many years.

In a two-year period 1142 children living on the Central Coast and at Lake Macquarie presented to hospitals with acute asthma with more than 650 children having asthma directly attributed to coal-fired power stations². There are two operating coal-fired power stations on the Central Coast and at Lake Macquarie: Vales Point and Eraring.

Submission quote:

My husband worked for Eraring and Vales Point power stations for decades. My son also worked for the power stations for many years. As a teenager our son was diagnosed with asthma that worsened when he started working for the power stations. There is no history in our family of any respiratory problems.

Recently my husband was diagnosed with a blood cancer and also severe asthma that hospitalises him at times. Both my husband and son aren’t smokers, don’t drink much, surfed and played a lot of sport. We eat well and there is no history of respiratory or cancer in our family. Therefore, I can only point the finger at the power stations, that even our doctors have advised that what comes out of their stacks is dangerous to people’s health.

Then I found out about a number of children in the area who are suffering with the same diseases, and some have died from their cancers. We have lived on the Central Coast for over 30 years. There was always grey dust settling over everything. Everyone complained about it, but we didn’t think much other than it was a nuisance.

But it wasn’t until our young grandchild was diagnosed with severe asthma that the whole family decided to up and move away but still staying on the Central Coast. However, even moving further away from the power stations we found that many people here have cancers and respiratory diseases like our family. One of the locals said it was because the wind carries chemicals from burning the coal across to here. It seems we can’t escape....

The submissions and testimonials highlighted the impacts from knowing you live near air polluting coal-fired power stations.

Witness statement:

Since I've moved up here, I've developed Stage 4 Metastatic Hormone-Sensitive Prostate Cancer, and that may have been starting to develop when I moved here but it certainly hadn't been picked up by annual PSA Tests, which was the normal way of diagnosing that condition.

I've developed Hyperthyroidism, which, I've got no idea why that has occurred. It is an auto-immune illness. I've also got rheumatoid and osteoarthritis, which according to my rheumatologist, is extremely unusual. And, I've got cardio-vascular disease. I've only had one heart attack, so far, but, yeah, anyway. ... My life before I became unwell, I was an extremely fit, healthy person. ... It just occurred to me this morning, after listening to the other speakers, not only do I have cancer myself, but the woman across the road (I think she's been living there, for about 7-8 years), she's in her late 30s and she's just recovering from her first bout of chemotherapy for breast cancer.

I don't know what the cancer cluster is like in our area, but we're only 600m from the beach, so it's quite possible that any air pollution that gets blown out to sea from Eraring and Munmorah then blows down the coast and lands in our lungs, and presumably, in the water supply that I'm taking from the rain water tank on my roof.

Research demonstrates that the burning of coal releases a toxic mix of pollutants into the air, including particulate matter (PM_{2.5} and PM₁₀), sulphur dioxide (SO₂), nitrogen oxides (NO_x), and heavy metals like mercury.

These pollutants can travel long distances, affecting communities far beyond the immediate vicinity of the power stations. Once inhaled, these pollutants can penetrate deep into the lungs, causing inflammation, damage to lung tissue, and triggering a cascade of health problems.

Witness statement:

I then had an anonymous phone call from Mannering Park Public School, she would not tell me if she was a teacher or a parent, but she said, "Please look into the number of blood disorders and, in some cases, brain cancers that are occurring there". Now, I thought the person would know the most about all of this would have been the local pharmacist, who's just across the road from the school. When I went over and discussed the issue with him he said "I have the same blood disorder and I inject myself twice a day to try and prevent it from getting worse".

The Citizens' Inquiry evidence emphasised the vulnerability of those living with pre-existing health conditions to the adverse effects of knowing they live near air pollution.

Submission quote:

I live close to the lake on the east side of Lake Macquarie. My house faces West, and the prevailing winds are Westerlies. On the Western shore and clearly visible is the Eraring Power Station. Debris, generally in the form of a dirty grit or dust, is common on our outdoor furniture and deck area which faces Eraring.

Approximately five years ago I developed a persistent cough, initially just annoying, and sought medical advice. This led me down a path of multiple 'possible' diagnoses which ranged from changes to blood pressure medication to several exploratory interventions of the x-ray, cat scan variety...

Over the ensuing period my cough has become much more significant. I frequently cough up a seemingly endless amount of phlegm and find myself unable to control the cough which can strike at any time of day and on occasions last for several hours. ... I have become a regular user of Ventolin which is the only product that ultimately loosens the phlegm and provides me with some relief.

More recently, perhaps in the last few months, I have become aware of increased breathlessness with even minor exertion. I attribute this to the phlegm in my lungs/throat, but my doctor has subsequently set me on a course of heart examinations under the care of a cardiologist...

Despite all the above interventions it occurred to me some time ago that the proximity of Eraring Power Station, and the prevailing westerly winds potentially driving mini particles of who knows what across the lake, may be a factor. I can't categorically say that Eraring is the cause of my chronic cough, but the time frame is cause for suspicion. ... But given the evidence of built-up dirty debris that gathers on our deck I must believe that every breath I take is potentially depositing particles in my respiratory system.

In conclusion and given that I have no prior history of respiratory conditions, the timing of the onset of my chronic cough and the proximity of the Eraring power station, would suggest to me that, if not the cause of my cough, pollution from Eraring is highly likely to be a contributing factor.

The concerns raised by the Citizens' Inquiry support the growing body of scientific evidence linking air pollution from coal-fired power stations to a range of health problems. In fact reference was also made during the Citizens' Inquiry to the connection between impacts of heavy metal exposure and learning difficulties:

Comment from the floor

As a researcher, I analysed the data that showed that Naplan results were lower for schools closer to power stations. The results suggested that students attending these had lower scores, in line with similar school student research overseas on heavy metal contamination.

Studies have shown a strong association between exposure to particulate matter and increased risks of respiratory and cardiovascular diseases, including lung cancer, heart attacks, and strokes.

The World Health Organization estimates that air pollution contributes to millions of premature deaths globally each year. The submissions underscore the urgent need for action to reduce air pollution from coal-fired power stations and protect the health of communities living in their shadow.

Witness statement:

You know, the government wouldn't let you re-register your 60-year-old car, unless you did something about the emissions coming out of it. So, why do they allow the power stations exemptions left right and centre, to allow them to continue doing that sort of stuff?

By using the latest technology, coal-fired power stations can substantially reduce emissions, but the EPA has not mandated for coal-fired power stations to install the latest pollution reducing technology although it has negotiated some improvements at Eraring.

Submission quote:

My big question is how can the Australian Government and the NSW Government under the guidance of the NSW EPA allow old CFPS to pollute our environment causing death and serious health effects when there are affordable modern reduction technologies available today which will when implemented reduce significantly these problems? These technologies are affordable in the context of the huge profits these companies make.

What holds the government back to force implementation? How much will the Eraring extension cost?

Independent Air pollution monitor(s) are not positioned in and around Vales Point and Eraring coal-fired power stations and their ash dams or in line with the prevailing winds.

Comment from the floor:

Another one of my numerous jobs was with technical services, and the power stations used to have monitoring sites all around the Central Coast but they have all disappeared. This is my memory a few years ago. There was one at Munmorah Public School. There was one at Wyee near the old people's home and there was another one at the Central Coast at one of the primary or high schools there – they were the ones I visited... The data from the three monitoring sites all disappeared when the plants were privatised...

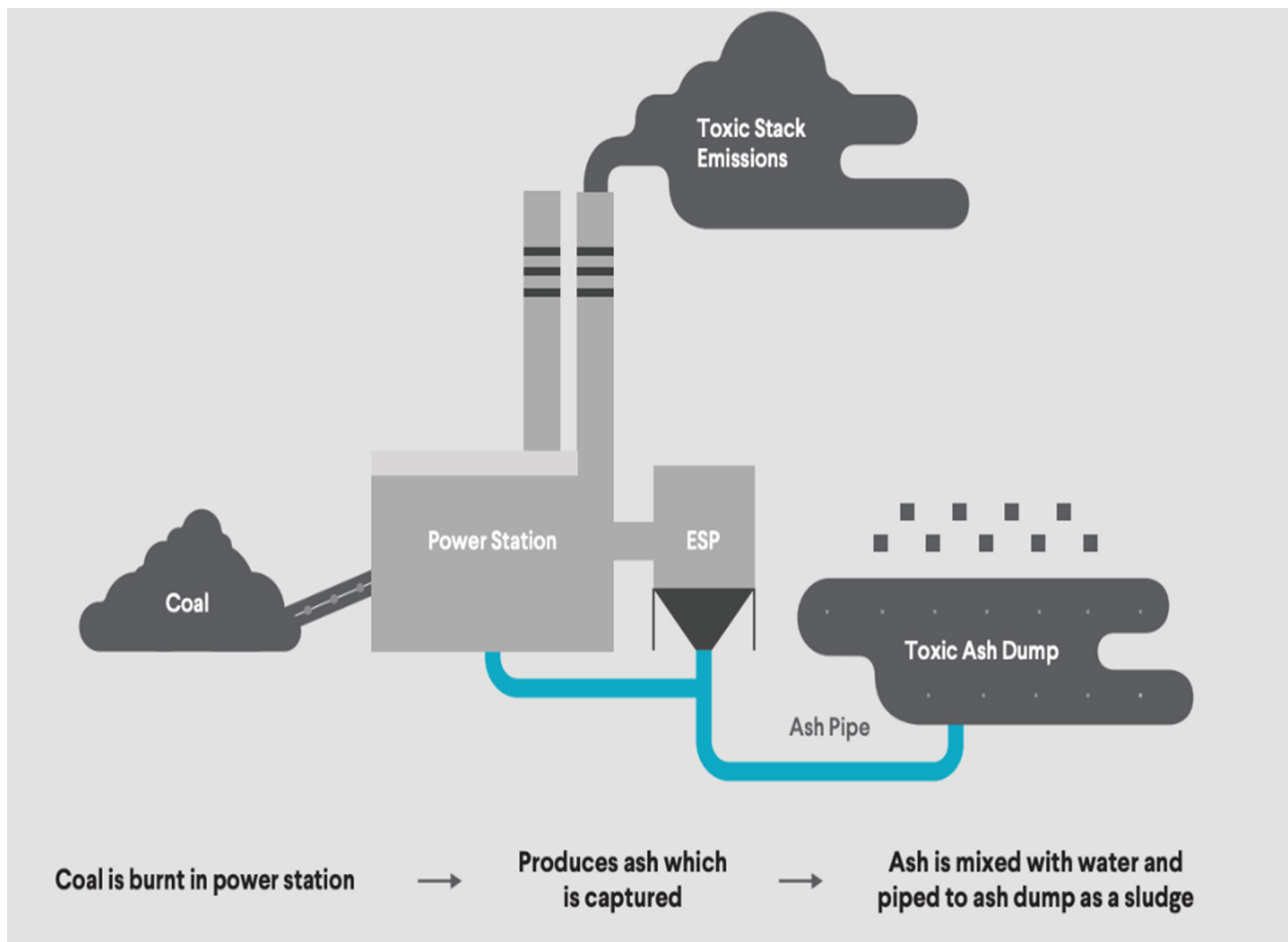
Residents are fearful about speaking up because of the Non-Disclosure Agreements (NDA) they are forced to sign as employees by the operators of Vales Point and Eraring power stations.

Based on legal advice received on the issue of NDAs, there is almost no limit to the level of secrecy demanded by an employment contract. Exceptions might include that you can't require an employee to stay silent about criminal conduct, or to stay silent in circumstances where such silence amounts to a failure by the employee to meet a statutory obligation. It is otherwise very lawful to contractually require an employee to remain silent about civil wrongs.

If the NDA forms part of the contract of employment, breach of the NDA is grounds for the sack, so residents' fears in relation to job security are well-founded.



Figure 6: Vales Point Power Station., Source: Google Earth April 22, 2005



The main processes involved in coal combustion and generation of coal ash. Source: EJA 2019

COAL ASH DAM AIR, WATER AND GROUND POLLUTION

Most people in NSW do not live near an operating coal-fired power station and for even those communities that do, a great majority have no idea of the environmental and health hazard that lies hidden behind fences and trees at a power station site.

The hazard: the storage of millions of tonnes of coal ash, the waste material generated by the burning of coal, buried in unlined dams within the boundaries of the power station's land.

Submission quote:

My postcode is 2262. I have Stage 4 non-Hodgkin lymphoma. I have lived on the Central Coast for over 30 years, a non-drinker, non-smoker, who regularly exercised and ate healthy.

I was diagnosed in 2020 with throat cancer that had metastasized to lymph nodes and lungs. My health journey has obviously involved seeing numerous medical practitioners where there was always the same question, was I a smoker? Never a smoker but lived and worked within a few kilometers of Munmorah Power Station where previously, depending on prevailing winds, our house would regularly be covered with coal ash.

Add to this a very sporty daughter who developed asthma as a teenager and there are certainly questions to be asked about the health of our environment that we live in.

I would like to see WHO and United Nations recommendations adhered to.

Fly ash is the material that rises with the flue gasses before being collected and then conveyed to the relevant dam. In 2020 the combined storage of coal ash was estimated to be circa 100 million tonnes³ in the Lake Macquarie/Central Coast region, which included the waste from the now decommissioned Wangi Wangi and Lake Munmorah power stations. This waste will continue to grow whilst the Eraring and Vales Point power stations continue to operate.

This material has been nominated as one of the largest waste problems in Australia that governments must address. If more people were aware of this hazard, then perhaps greater pressure would be put on both federal and state governments to urgently formulate a plan to deal with it.

The storage of the ash in open, unlined dams at Eraring, Vales Point, and the now decommissioned Lake Munmorah power stations poses significant environmental and health problems, both in air pollution via dust inhalation (Eraring and Vales Point), as well as the contamination of soil, and water contamination from the leaching of heavy metals into the ground water systems that flow into Lake Macquarie and the Tuggerah Lakes system.

At the time of the commissioning of the power stations, 60 years ago for Vales Point, 42 years ago for Eraring, and 45 years for Lake Munmorah, unlined dams were constructed to take the fly ash via wet conveyance⁴ i.e. water was mixed with the ash to allow it to flow into the dams. Because of its water content, this form of conveyance provides a material that can easily leach into the surrounding ground and ultimately enter the groundwater. In addition, when the surface of the dam dries out, dust is distributed across the surrounding communities during strong winds.

Nevertheless, whilst steps are taken to mitigate this issue, either by ground level water spraying or by aerial spraying with a chemical, residents report dust issues in their homes and gardens.

Comment from the floor:

One of my concerns with the substantial fallout from both the power stations and the ash dams, as well as coal and coal processing – a roof is like a catchment of a lot of water and then it gets flushed into tanks. I have done a study recently up at the Orange district where there is a gold and copper mine and some fairly sub-standard testing was done by the Department of Health and the EPA but I believe there is a lot of flushing of contaminants from those

3. In 2019 the Hunter Community Environment Centre published a report estimating over 60M tonnes of ash was stored in the Eraring and Vales Point ash dams. See Wynn, P, Lynch J, and Woods, G, "Out of the Ashes – Water pollution and Lake Macquarie's ageing coal-fired power stations", HCEC, Hamilton East, NSW, 13th February, 2019, Executive Summary. Five years later, it is estimated that figure has grown to over 65M tonnes. Vales Point continues to use this method of ash conveyance, whilst Eraring generally uses a form of conveyance called "dense phase" where less water is used in its conveyance i.e. more like a paste.

4. Vales Point continues to use this method of ash conveyance, whilst Eraring generally uses a form of conveyance called "dense phase" where less water is used in its conveyance i.e. more like a paste.

operations into water and it particularly collects, there is a layer down the bottom, and most water tank outlets are close to the bottom and then when you get a summer thunderstorm that gets stirred up and I know as a semi-rural area there probably are quite a lot of other water tanks that are exposed.

Water running off roofs and from tanks: I am really concerned about it and particularly given the known fallout of metals in this area and particularly mercury. We detected mercury in water tanks around the Newcrest Cadia gold mine. Again Department of Health did the worst water survey I have ever seen in my life and the EPA marginally better than that. But I am very concerned about mercury levels here because of that fallout and some of the great work done by the Hunter Community Environment Centre has demonstrated that. But there is also lead and just about every other heavy metal will run off, everyone is talking about that dust, it will run off and flush into your tank and then form this layer down the bottom that gets stirred up and enters the system. It is hard to test. I would not recommend drinking it and I wouldn't generally recommend using it on vegetables if you have got concerns because a lot of those metals can bioaccumulate or bio magnify. I don't have an easy answer I am sorry.

Contamination studies for Lake Macquarie have found the presence of a variety of heavy metal concentrations, including cadmium, selenium, aluminium, arsenic, boron, cobalt, iron, manganese, nickel and zinc⁵ which has led to reservations by the local council on fishing and the consumption of catches in these waters. The NSW Environment Protection Authority concedes that 'The 3 main pathways that contaminants from coal ash repositories can enter the environment are via leaching into the groundwater, overflow into surface water and air mobilisation'.⁶

In the NSW Public Works Committee's final report into the remediation of coal ash repositories, it was noted that: "Over 400 million tonnes of coal ash is stored in dump sites across Australia, and in NSW some 5.5 million tonnes is produced annually."⁷

In addition, the 2022 National Waste Report⁸ stated that: "In 2020-2021 circa 12.0M tonnes of coal ash was generated in Australia, of which about 89% was fly ash"⁹

Currently Eraring power station is generating 1.2 million tonnes of fly ash each year, of which circa 600,000 tonnes was recycled in the 2023-24 financial year. The figures for generation and recycling of fly ash at Vales Point power station are not available at present.

It is imperative that governments and environment protection authorities seek to encourage the uptake of recycled coal ash. Australia lags Japan (97%), China (70%) and Great Britain (70%) in the utilisation of coal ash, in fact it is well below the global average.¹⁰

Comment from the floor:

The problem with recycling fly ash is a legal problem. Boral has actually cornered the market there and I don't know why but I think Origin has somehow got a deal. I know that because MCI, the guys who are trying to sequester carbon, they went to see if they could get hold of the fly ash and basically it is locked up and Boral only wants to use it every now and then. I stipulated in my concrete for my slab, and I had to wait an extra two or three weeks so it is available, but they don't widely publicise. I know they have got Envirocrete, they have got Invisia and Invisia costs a lot of money. They've got all these products. Envirocrete you can get 5%, 10%, 20% so they are starting to promote it now but it is locked up.

According to other sources, the largest customer of fly ash from Eraring is Fly Ash Australia, and other customers include Daracon, Holcim as well as Boral. This was discussed at the Eraring Community Forum 7th August last year and appears in the minutes of the meeting on the Eraring website.

Comment from the floor:

I can tell you about 25% of the coal ash is recycled and it goes to the concrete industry. If you go to the latest power stations built in Australia in Queensland, they have lined the ash dams so there is no leakage out of them. What goes in stays in.

The only way to get the industry using coal ash in concrete is to legislate and have a policeman to make sure they do it.

Other sources state the level of recycling from Eraring was closer to 50% for the 2023-24 financial year or around 600,000 tonnes of fly ash.

Western Sydney University water scientist, and Citizens' Inquiry panellist, Associate Professor Ian Wight, noted:

5. Hunter Community Environment Centre, "Out of the Ashes 2", August, 2020, X.

6. <https://www.epa.nsw.gov.au/working-together/community-engagement/coal-ash-dams>

7. The Hon. Daniel Mookhey, MLC, Chair, Public Works Committee, "Costs for remediating sites containing coal ash repositories", Legislative Council, Report 4, March 2021, Chair's foreword, vii.

8. Commissioned by The Department of Climate Change, Energy, the Environment and Water.

9. "National Waste Report", Blue Environment Pty. Ltd., Suite 209, 838 Collins Street, Docklands, 3008, August, 2022, 44.

10. "National Waste Report", Op Cit., 44.

...mixing the ash with water ‘accelerates and mobilises the pollution out of the coal ash. I think this is Dark Ages, Dickensian management of pollution and we need a quantum leap in the management of this’.¹¹

But coal ash is not all that has been dumped into these dams. At Vales Point Power Station, the NSW Environment Protection Licence dated 19 October, 2023 allowed for the dumping of:

...mill pyrites, residual detergents and oil sheens, sand, concrete products, boiler blowdown, minor chemical spill residues, chemicals for environmental control, ash dam water treatment plant residues, dust returned from the ash recovery plant, marine growth, debris, seaweed, chemical cleaning solutions, oil and chemically impacted soil, silt from settling basins, dredge spoil, waste wood, wood chips, dirty water from drains, treatment plant discharges, coal handling plant stormwater, neutralised demineralisation effluent, polisher plant effluent, spent ion exchange resins, chlorine plant storage vessel precipitates, cable tunnel drainage water, fabric filter bags, coal chitter and soil capping materials, coal mine dewatering discharges; c) a spent solvent in the form of dilute ammonia of less than 5% concentration and at pH of not more than 9. Those discharges from the post combustion carbon capture facility must only occur whilst this facility is operational. The total annual volume discharged must not exceed 5 tonnes.

In 2021 The EPA served a Variation of Clean-Up Notice on Delta Electricity, the owners of Vales Point Power Station, for the illegal dumping of some 61,770 cubic metres of asbestos and 159,200 cubic metres of unidentified general waste in its ash dam.

Both Federal and State Governments continue to procrastinate on a formal plan to address the issue of emptying the unlined ash dams. At this time (March 2025) only eight of the sixteen recommendations published in the Coal Ash inquiry report have been implemented and whilst recent box ticking, including the formation of a community committee to reconsider the findings of the inquiry looks like action, residents continue to suffer the consequences of living with coal pollution.

The reports, “Out of the Ashes” and Out of the Ashes II” (published by the HCEC); “Costs for remediating sites containing coal ash repositories” (NSW Public Works Inquiry) and the “National Waste Report” (Blue Environment) as well as the lobbying by groups such as Environmental Justice Australia and the Coal-ash Community Alliance, provide ample evidence for the urgency of this issue. The NSW EPA is not taking a pro-active stance on pushing government to put a plan in place.

Meanwhile, a proposal to build a whole new suburb at Doyalson, as referred to on page 10 of this Report, was cause for substantial concern at the Citizens’ Inquiry, etc, etc.

Witness statement:

It’s going to become a major, major development. Across the road, behind the trees is Vales Point Ash Dam. Down the end of the block is the ash dam from the former Lake Munmorah Power Station.

11. Millington, Ben, “NSW coal ash dams need better regulation, say environmental groups”, <https://www.abc.net.au/news/2020-10-18/nsw-power-stations-dispute-coal-ash-contamination-claims/12777274>



Settling ponds of Vales Point ash dam. Source: HCEC 2023

PFAS CONTAMINATION

The health threat facing the residents of the Central Coast and Lake Macquarie from PFAS/PFOS contamination, particularly at and around the Lake Munmorah/Colongra power station site has recently been receiving publicity after years of being kept quiet.

Per- and poly-fluoroalkyl substances (PFAS) are a large group of manufactured chemicals used in a variety of applications, including firefighting foams. Their heat, oil, and water resistance make them effective at suppressing high intensity fires involving combustible accelerants, defined in regulations as ‘catastrophic’. These chemicals can harm the environment if not properly contained.

3M, the company that manufactured the firefighting foam, knew how toxic and non-biodegradable PFAS were back in 1978¹². In 2023, it agreed to pay settlements amounting to more than \$10 billion over contamination of various public drinking water systems.

Comment from the floor:

When I was an operator at Munmorah power station, we used to fight fires on the side of the canal, and we dropped the pump into the canal, sucked the water out, put the foam in, and all the stuff ran into the lake.

The Munmorah coal-fired power station was decommissioned and demolished in 2017. However, the Munmorah/Colongra property is the location of the operating Colongra gas/diesel power station and the Transgrid/Akaysha Energy Waratah Super Battery. It is unclear what measures are being taken to protect the site’s current workforce from the impacts of PFAS contamination.

The New South Wales Environmental Protection Authority (EPA) has known since at least 2016 that Polyfluoroalkyl substances known as PFAS (the ‘forever chemicals’ that have been used since the 1950s because of their heat-resistant capabilities) and other Hydrocarbons have been leaching out of the soil from the former Lake Munmorah power station site into the Tuggerah Lakes system. The site was the firefighting training ground for all the region’s power stations over decades, so this is not a new problem.

Witness statement:

Since I’ve been up here, I’ve developed an auto-immune disease, the doctor doesn’t know why. I should preface this with: I live right on one of the waterways. The waterway runs right next to my house. Before I put a fence up, I could just run and jump over the waterway. ... Where my senses started going ‘Ok, this is wrong’, since we’ve been up here, I’ve had 4 dogs. My Dad and I had 4 dogs, all of them have died of rare (don’t know what’s going on) brain, liver, lung cancers through their entire bodies. They die in excruciating pain!

Now, when it happened to my first dog (this hurts me a lot), when it happened to my first dog I said “I’m never allowing this to happen to one of my dogs again”. So, I said “It’s got to be something I’m doing with the food”. I made sure that they ate nothing but the best, the most expensive food I could find them, freshest ingredients. They get walked every day, they’re healthy dogs. They all died with tumours.

I read something that happened in America, and it was something called the East Palestine, where a train derailed and all these chemicals flooded through their water system. Now, what happened is the government came out and the local environmental agencies came out and said they’d checked the waterways and the levels are fine for humans. But, people’s birds, cats, dogs were just dropping dead within days of this accident. And they said, “Why are the dogs and cats dying”? It’s because they are a much smaller organism, and they toxify much quicker. So these cancers and all these things happen much more rapidly. When I heard that I was like “That’s what’s happening to my dogs”. That is what’s happening to my dogs! That’s what’s happening to me and my family while we’re living in this paradise. What I thought was paradise, ... Apparently, paradise is killing us, and someone needs to do something.

PFAS firefighting foam was not banned for demonstration and training purposes in NSW until March 2021 and it can still be used in “catastrophic” or “special” circumstances.

Official statements from the EPA have clarified that “concentrations of PFAS have been detected at sites where PFAS firefighting foams have been used”. Based on investigations of PFAS contamination sites, the ongoing use of PFAS firefighting foam has been identified as a primary cause of PFAS contamination in the environment in NSW, according to the EPA.

Most people in Australia are likely to have very low levels of PFAS in their bodies ... “but people living near sites where PFAS has been released into the environment in large amounts (usually due to the use of PFAS-containing fire-fighting foams) may have higher levels in their bodies - particularly if they have been drinking contaminated bore water,” according to the Australian Government.

Whilst declaring to the public that there are no known causal connections between PFAS and human disease, the federal government’s Environmental Health Standing Committee (EnHealth) has released guidance statements on the potential health impacts from exposure to three types of PFAS (PFOS, PFOA and PFHxS); the major human exposure pathways; development of human health reference values; breast feeding and pregnancy; and blood tests.

According to EnHealth, “PFAS are of concern around the world because they are not readily broken down in the environment nor are they readily eliminated from the body. This means they can persist for a long time in humans and in the environment. Their widespread use and persistence mean that many types of PFAS are global contaminants”.

Eating food and drinking water contaminated with PFAS is the primary source of exposure, according to EnHealth. PFAS travels long distances via surface and groundwater and can accumulate in foods. They are readily absorbed through the gut. Inhalation of dust contaminated with PFAS and skin contact with PFAS, including from showering and bathing in contaminated water, are minor exposure pathways, EnHealth reports.

Comment from the floor:

A common thing is a lot of them are using bore water. And I am wondering; I myself was thinking I might use this bore water on my vegetables. Na-ah, I am not going to do it. But I don't know. Does anybody know, can the bore water become contaminated. You see it all over the houses. They've all got bore water stains...

EnHealth reports that PFAS exposure has been associated with: increased levels of cholesterol in the blood; increased levels of uric acid in the blood; reduced kidney function; alterations in some indicators of immune function; altered levels of thyroid hormones and sex hormones; later age for starting menstruation (periods) in girls, and earlier menopause; lower birth weight in babies.

“However, these differences have generally been small and are unlikely to be important to health outcomes,” EnHealth qualifies.

Potential associations between PFAS exposure and increased risk of two uncommon cancers, namely testicular and kidney cancer, have also been reported. EnHealth notes that much of this evidence relates to PFOA which is less commonly used in Australia than PFOS or PFHxS. And the nation’s health experts give another qualification: “Studies on these cancers remain conflicting and associations have only been observed in high exposure groups such as workers in international factories where PFOA is produced”.

“A further finding from recently conducted research in Australia is that people living in PFAS affected communities are more likely to experience psychological distress, irrespective of the PFAS level in their blood.”

“Whilst PFAS has not definitely been shown to be a cause of disease in humans, EnHealth notes that science and our understanding of these issues will continue to evolve.”

The bottom line in terms of advice from the Australian Government via EnHealth is that, even considering current scientific evidence, including the lack of causal data on human health, exposure to PFAS should be minimised wherever possible.

According to EnHealth, “If you live or work in a PFAS affected community, your state or territory health department can provide you with local advice on how to minimise exposure to PFAS”. To date the NSW Health Department, the Local Health District and Primary Health Network have not provided any such information to the residents living around the contaminated land at Munmorah/Colongra.

The indisputable presence of PFAS ‘forever chemicals’ from the historical use for firefighting foams at Munmorah and Colongra power stations, and the seemingly contradictory Australian Government’s precautionary position on exposure, adds yet another layer of health concerns for the community.

Investigations have found PFAS onsite and at the end of the canals at the Colongra and Munmorah power stations. The 2017 EPA studies into Lake Munmorah contamination only examined the fish and not contamination of the water and adjoining lands. It is disquieting that this study was done seven years ago, and that no further studies have been undertaken by the EPA since.

Finally in May 2024 the EPA declared some parts of Munmorah Power Station as significantly contaminated land under the Contaminated Land Management Act 1997 but the flow of information to residents and timeframe for decontamination are grossly inadequate.

Submission quote:

Interestingly, the EPA did not comment on the use of fire-fighting equipment at the nearby Erarang and Vales Point coal-fired power stations, both of which would have poured PFAS laden foam into Lake Macquarie.

The EPA classification of parts of the Munmorah/Colongra site as **significantly contaminated**, means, in accordance with the EPA's own guidelines, that the EPA and/or GPM Co have found the presence of:

- Substances that have already caused harm
- Substances that are toxic, persistent or bio accumulative or are present in large quantities or high concentrations or occur in combinations
- Exposure pathways available to the substances
- Uses to which the land, and land adjoining it, are currently being put that are likely to increase the risk of harm
- Approved uses of the land and the land adjoining it that are increasing the risk of harm from the substances
- Substances that have migrated or are likely to migrate from the land

It is impossible to estimate the amount of contamination which is in the soil or has reached the lakes. The decommissioning and cleanup of the Munmorah Power Station is the responsibility of Generator Property Management Pty Ltd (GPM Co) – a private company owned by the NSW Government. Based on studies of the PFAS contamination conducted seven years ago it was determined that PFAS levels were below human health impact levels. There was, accordingly, no reason to position public warning signs about the contamination around nearby public parts of the lakes.

Future Sooner is not aware of the EPA requiring GPM Co to conduct any further studies during the past seven years to estimate the spread of contamination. It is not clear if any preliminary investigation orders, clean-up and prevention notices, voluntary management proposals, management orders or ongoing maintenance orders have been required for the site by the NSW EPA.

Former declarations by the NSW EPA of land as 'investigation areas' and 'remediation sites' may be taken to be declarations of significantly contaminated land from as early as 1 July 2009.

Since the EPA's declaration of the Munmorah/Colongra land as significantly contaminated, GPM Co has established a Community Consultation Group. However, the information available to the public via GPM Co's website in relation to the membership and function of the Community Consultation Group is non-existent. Future Sooner understands that GPM Co believes the group's make up represents a cross section from the community including users of the Tuggerah Lakes.

The need for the Consultative Group, along with test results showing PFAS present in water sampled from Tuggerah Lakes as far south as Long Jetty, may imply that the PFAS issues have spread throughout the entire lakes system. It is alarming that many people living around the southern lakes may not know of or have heard of PFAS contamination and may continue to use bore water.

Central Coast Council's own modelling of the lakes indicate that Lake Munmorah's retention time for full circulation is over 520 days, Budgewoi Lake 460 days and Tuggerah Lake 220 days. With an overall area of 80 square kilometres, the Tuggerah Lakes system is the eighth largest estuary in NSW. No matter how much PFAS has leached into the lakes by any means, the bioaccumulation could be catastrophic for the environment and human health due to the lack of flushing.

With full knowledge of the presence of PFAS, a new housing and commercial precinct has been approved at Doyalson RSL Club, near the officially declared significantly contaminated lands at Munmorah/Colongra. It would be prudent that all approval authorities must take into consideration the EPA's own guidelines for significantly contaminated lands and lands adjoining them.

Development proposals under the Central Coast Regional Plan 2041 and the Greater Lake Munmorah Structure Plan could see 50,000 new homes built in proximity of the power stations, ash dams and significantly contaminated lands, therefore putting potentially some 125,000 new residents in harm's way from several sources of contamination. In addition to the formation of the Community Consultation Group, no work to date has commenced for any form of

comprehensive remediation except for booms in the channels leading to Lake Munmorah, Colongra Lake and Budgewoi Lake. Central Coast Council has also approved a Development Application for a water (PFAS) treatment plant which may take a further twelve months to complete construction and start operations. The so-called water treatment plant will be required to operate for the next 10 years, as per the development application by GPM to Council. This timeframe suggests that the problem may be much greater than previously suggested or divulged by the NSW EPA.

These findings are for the former Lake Munmorah power station site and Vales Point ash dam and do not reflect the potential enormity of the problem from each of the NSW operational and or decommissioned power station sites. Recent news coverage about the presence of PFAS in drinking water supplies across NSW prompted the NSW Legislative Council's Select Committee on PFAS Contamination to conduct an inquiry into PFAS Contamination in Waterways and Drinking Water Supplies throughout New South Wales which will report back to parliament in June 2025.

The Chair of the committee, Ms Cate Faehrmann MLC, said: *"The World Health Organisation has linked forever chemicals to cancer, interference with hormones and the immune system, and developmental effects in children".*

"This committee will meet and work with affected communities, experts, regulatory agencies and the whistleblowers who raised the alarm about PFAS in New South Wales".

International experts have been scathing of Australia's complacency around the health impacts of PFAS. The Australian Broadcasting Commission (ABC) quoted Dr Mariann Lloyd-Smith, a senior policy advisor for the International Pollutants Elimination Network and former member of the UN Expert Group on Persistent Organic Pollutants, as saying that "Australia is lagging behind other nations in ensuring our drinking water is safe".

"Forever chemicals", or per- and polyfluoroalkyl substances (PFAS) are the subject of new drinking water limits in the US – and they're notably more stringent than Australia's. Australia cannot continue to use drinking water guidelines that are an international embarrassment."

The National Health and Medical Research Council (NHMRC), the government agency responsible for the guidelines around safe drinking water standards, told the ABC an investigation into PFAS in drinking water is underway and is anticipated to be completed by 2025.

According to the same ABC article, people living in parts of Mullumbimby in the Byron Shire hinterland are being warned to avoid using groundwater or harvesting homegrown fruit and veggies after PFAS chemicals were detected near their fire station. BHP has sent two letters to Port Hedland residents regarding PFAS in the groundwater.

Despite such growing concerns about PFAS, the communities located around the contaminated land at Munmorah/ Colongra remain in the dark about the risks on their doorstep if not under their vegetable patches and in their bore water.

Submission quote:

In failing to deal with the PFAS problem in a timely and comprehensive manner, including warning the residents adequately of the dangers they faced, the EPA has failed in its duty to protect the health of Citizens' of the Central Coast, and allowed harm to the environment through contamination of lakes and very likely to the groundwater.

Comment from the floor:

How do we treat our water at home to make sure it is safe? First thing, are you connected to Gosford-Wyong town water supply? They are required under the Australian Drinking Water Guidelines to report. And the list of contaminants is as long as your arm. Most of that is pretty good except for PFAS ... the US EPA has much, much, much tougher guidelines than Australia does and in some cases about 140 times tougher. My greatest concern is they don't generally monitor. Sydney Water just monitored and made public last week for the first time across their water districts. The only way you are going to make that happen, every time they send you a bill, write to them, ask for it. Also talk to the Department of Health because they regulate water authorities and most importantly talk to the media about it. What can you do about it? You can't boil it. It generally won't filter out unless you've got fantastic filters and if you reverse osmosis your water that can reduce your mineral density because after desalination they must put minerals back into your water

NSW GOVERNMENT FAILURE TO PROTECT CITIZEN HEALTH

Submissions were made to the Citizens' Inquiry from several organisations, outlining the extent of the pollution – air, land and water – as well as the danger to the health of residents and the degradation of the environment. All called on the government to act.

Presentations from members of Future Sooner outlined the number of meetings they had previously had with State and Federal MPs, NSW Health and the EPA where they presented scientific evidence detailing the health impacts on residents from coal-fired power stations. They met a wall of resistance to their pleas that action should be taken in view of their research based inter alia on Government statistics.

The March 2021 Final Report by NSW Government Inquiry into the Costs of Remediation of Sites Containing Coal Ash Repositories was unanimous in its findings¹³ making 16 Recommendations. To date, not all have been actioned. A Community Consultative Committee has now been established by the EPA to review the situation. It held its first meeting at the end of February.

Submission quote:

When I tested the water coming out of the settlement basins coming out of the system in the outfall canal, it exceeded the World Health Organisation (WHO) requirement. I took this to my senior engineer who told me not to worry, since it would be combined with the outfall canal and diluted as it went into the lake ie. the same amount of pollution but at a lower concentration. However, these coal particles could be ingested by any animal drinking this water, including dogs, cats and birds. If the same amount of pollution from the coal dust is going into the lake, it is just at a lower concentration and therefore gets through the regulation. It was a bit of a dodge.

The monitoring and regulating of coal-fired power stations by the government, the Environment Protection Agency (EPA) and NSW Health was considered ineffective to ensure the health of the citizens of the Central Coast and Lake Macquarie.

It is concerning that to date, the EPA has done nothing to tighten NSW pollution emission limits for coal-fired power stations and their ash dams in line with the EU, USA and Japan's tougher emission limits despite the evidence.¹⁴ And that the NSW government has offered no plans or solutions to counter the devastating impacts caused by these power stations on the health of its citizens.

Witness statement:

I can go back at least five decades, at least 37 years, where doctors at Lake Munmorah wrote a letter to the government and said that asthma was 30% higher than the Australian average. Now that's 37 years ago, the Power Station, especially Vales Point, is 60 years old.

In fact, for more than a decade the EPA granted Vales Point coal-fired power station an exemption to pollute in excess of even the EPA's weak emission limits.

Comment from the floor:

A question for the EPA and state Environment and Health Ministers is why the old power stations were not asked to install these modern fabric filters to at least reduce the larger particulates e.g. when Trevor St Baker bought Vales Point power station for \$1m, with reduced liabilities on disposing of the flyash, selling it for \$200 million a few years later.

Eraring did install low Nox burners in 2011 and recently completed an overhaul of Unit 3, including replacing the Nox burner tips.

Eraring power station was originally scheduled to close in August 2025. Its owner, Origin Energy, in an agreement with the NSW Government has extended its life to August 2027.¹⁵ Dependent on the availability of sufficient renewable energy, the life of the power station could be extended until April 2029. Concerns have been raised over the agreement, for which Origin could be compensated up to \$225 million each year for the first two years of the extension, a cost to be born by the taxpayer. There will be no monetary compensation if the extension continues to April 2029.¹⁶

13. <https://static1.squarespace.com/static/5e22ffdfa732e601799afb2/t/60dc0c3d462aa515b5a2dcbe/1625033795740/Final+Report+-+Costs+for+reme.pdf>

14. <https://energyandcleanair.org/comparison-of-coal-power-plant-emissions-standards/>

15. <https://ieefa.org/resources/extending-eraring-has-still-not-been-adequately-justified>

16. <https://ieefa.org/resources/extending-eraring-has-still-not-been-adequately-justified>



Proposed new development at Doyalson. Source URBIS, 2018

That doesn't include the cost to human health from Eraring's extended emissions or the additional coal ash that will be generated and added to close on 100 million tonnes of ash sitting in the coal-ash dams at Eraring & Vales Point coal-fired power stations.

The draft exposure bill and rule for the Orderly Exit Management Framework¹⁷ is currently under consultation. It aims to give jurisdictions the power to keep coal-fired power stations open if needed to secure energy supply. It does not provide for certainty on closure schedules of coal-fired power stations. Instead, it introduces a perverse incentive for operators to bring forward closure schedules to then seek government subsidies to stay open.

From evidence made to the Citizen's Inquiry it now appears that the NSW Government, the EPA and multiple proponents for many years have consistently concealed PFAS contamination at the decommissioned Munmorah coal-fired power station site and ignored the dangers these chemicals pose to soil, groundwater and lakes system of the area and the ongoing health of the community.

Development proposals under the Central Coast Regional Plan 2041¹⁸ and the Greater Lake Munmorah Structure Plan¹⁹ could see 50,000 new residential homes built in proximity of the power stations, ash dams and significantly contaminated lands. This could potentially place some 125,000 new residents in harm's way from several sources of contamination.

Also concerning, a reason given for anonymity in submissions, was that residents had been forced to sign Non-Disclosure Agreements with the coal-fired power stations

Submission quote:

I am writing this anonymously with the approval of my husband who would like to tell his story to the Inquiry, but we are both concerned about repercussions from the power stations as everyone had to sign a confidentiality agreement. It seems everyone in our community feels the same.'

Given the anecdotal and scientific evidence received, it is to the shame of the previous and present NSW Governments, NSW Health and Planning departments, the EPA and local State and Federal MPs, that have for decades ignored the warnings by doctors of the health issues facing residents of the Central Coast and lower Lake Macquarie from coal fired power stations and their ash dams.

Submission quote:

The exemption to NSW Clean Air laws enjoyed by Delta Electricity, operator of Vales Point power station, should not be. The operators should be required to invest in proven technology known to substantially reduce toxic pollutants. This technology is commonly used in other countries and has been for decades.

Considering the letter from Ryan Park, NSW Minister for Health, wherein he acknowledged that "pollution from coal-fired stations is associated with increased hospital admissions and even death", the apparent inaction by the EPA and the NSW government in continuing to ignore its own data on the health risks from Vales Point and Eraring coal-fired power stations and the health damage inflicted on the residents of the Central Coast and Lake Macquarie is damning.

From the testimony of witnesses, the submissions received from residents and organisations, the scathing conclusion from NSW government Inquiry: Costs for remediation of sites containing coal ash repositories Report (Coal Ash Dams) that: ... "in conjunction with the lack of research to date on this matter, demonstrates a complete disregard by the government towards the health of its citizens"; the United Nations Special Rapporteur Report on Toxics and Human Rights²⁰ and the numerous other health evidence and research received, there is clear evidence that Vales Point and Eraring coal-fired power stations and their associated activities are extremely dangerous to the health of residents living on the Central Coast and Lake Macquarie, their environment and the adjacent lakes and that the NSW government and the EPA have been derelict in their duty to protect them.

Submission quote:

The government needs to make sure the power stations are cleaned up or closed. They need to do this for all our sake. We need to get the government to clean up the power stations and make sure they don't stay open past the date they are scheduled to close

17. <https://www.energy.gov.au/energy-and-climate-change-ministerial-council/working-groups/system-planning-working-group/orderly-exit-management-framework-draft-exposure-bill-and-rule-june-2024>

18. <https://www.planning.nsw.gov.au/plans-for-your-area/regional-plans/central-coast/central-coast-regional-plan-2041>

19. <https://cdn.centralcoast.nsw.gov.au/sites/default/files/documents/meetings/edit-meeting/em-council-meeting-11/03/2019/draftgreaterlakemunmorahstructureplan-enclosure1part1-chapters1-5.PDF>

20. <https://flowlatrobe.org/un-sr-final-report/#:~:text=Orellana%2C%20presented%20his%20final%20report,generation%2C%20and%20other%20hazardous%20industries.>



You don't have to work in the industry to get sick from this. My kids are gonna get sick. People in my community have recurring illnesses, respiratory issues, cancer tumors.

**Micah Weekes
Former Coal Miner
Lake Macquarie**



Source: Frontline Action on Coal 2018

The Citizens' Inquiry transcripts – raw testimonies, submissions and comments

Testimonies given on the day

Witness 1 – Gary Blaschke OAM

My name is Gary Blaschke, I've lived in Lake Munmorah region with my family for over 15 years. I've been a surfer for over 50 odd years. I have never smoked, and I have never drunk alcohol. I tried to live the decent life.

In 2020, after coming out of the surf, I found a lump on my back when I was drying off. I went to see my GP, he told me that it was a non-malignant tumour and to leave it alone. I insisted that he remove it, and lucky I did, because within a week he rang me and said to grab my wife and come and see him immediately.

The test results showed I had Non-Hodgkin Lymphoma. The next step was a series of CT scans and MRI's. That culminated in a further finding that I had liver cancer and bone cancer. Three cancers at once!

When I spoke to my oncologist, he told me that it was becoming a very common occurrence at the cancer clinic, that people were coming in with three or more cancers at the same time. To begin with I had to go through five days of radiation into a broken rib. I never knew the reason why I had a broken rib, but it turned out it was because of the cancer. For the following three years I had immunotherapy.

I had 61 treatments of immunotherapy, but at least then, having a good oncologist, and following the rules, I'm now classified as cancer free but with no guarantees. However, the treatment alone has given me Type 1 Diabetes and arthritis in my joints, which I'm just going to have to live with. But look, it's a better result than the other result, and that's what it's all about.

Even prior to being diagnosed, I started hearing stories from the local region of pre-schoolers at Chain Valley Bay having brain cancer. I couldn't believe it. I know the pre-school, because I donate goods to their Christmas Fund, and I knew there would only be 20-25 kids there, and having two kids with brain cancer really started to alert me. I then discovered that two teenagers who grew up together there both passed away nine months apart with spinal tumours.

I then had an anonymous phone call from a person from Mannering Park Public School. She would not tell me if she was a teacher or a parent, but she said, "Please look into the number of blood disorders and, in some cases, brain cancers that are occurring there." Now, I thought the person would know the most about all of this would have to be the local pharmacist, who's just across the road from the school. When I went over and discussed the issue with him, he said "I have the same blood disorder, and I inject myself twice a day to try to prevent it from getting worse."

So, we have major problems here that have been swept under the carpet for a long, long time. I can go back at least five decades, at least 37 years, where doctors at Lake Munmorah wrote a letter to the government and said that asthma was 30% higher than the Australian average. Now that's 37 years ago, the Power Station, especially Vales Point, is 60 years old. You know, the government wouldn't let you re-register your 60-year-old car, unless you did something about the emissions coming out of it. So, why do they allow the power stations exemptions left right and centre, to allow them to continue doing that sort of stuff?

I was then told about the Australian Bureau of Statistics data on 'three or more chronic health conditions' and I started to investigate the different suburbs. The stats showed me that around 15% of each of the populations of all the small towns had three or more chronic health conditions. I was blown away! I contacted the public health unit of the Central Coast and they came back saying "Oh no, it's only 6% Gary, don't worry about it." I said "What! 6% doesn't set off alarm bells with you"? They said "No."

I kept plodding along looking at all the different statistics. Then I was told by my oncologist to have a look at The Australian Cancer Atlas, that even nominates cancer incidences in every little township. It showed that in some cases on the Central Coast it's reached up to 16% of local populations, above the Australian average. So, when you know that your community has cancers that are 16% above the National average, you know you've got a real problem. 41

When I lived in Sydney, I was part of a community down in Botany Bay and was Chair of The Botany Bay and Catchment Alliance. I was asked to get involved in the third largest groundwater toxic plume in the Southern Hemisphere, that was caused by the ICI facility, later it was taken over by Orica. When I first went to the meeting, the head of the Contaminated

Site section of the EPA stood up and said, “We know how big they are, we know the direction they’re heading, we know the speed, we’ve been monitoring them for 14 years.”

I put up my hand and asked, “What have you done about it”? Now, that caused them to start freaking out, and they eventually built what they call a Reverse Osmosis Plant, sucked all the Ethylene Dichloride out of the ground and solved the problem by actually selling the water to the local golf course. So, they made money out of that problem.

I’ve stood before the Legislative Councils Public Works Committee. I’ve read the reports. Daniel Mookhey (our current Treasurer), was the Chair. He was the one who was very damning of NSW Health and NSW EPA. He was very damning of the NSW Government stating in the report that the government had let its Citizens down. Now, I don’t know where we go from here, but I do believe that this has got to be exposed in a large way, maybe by taking legal action. I’m not after

compensation at all, but I want to know they’re going to do to fulfil the commitments that the Committee recognised during the Inquiry, especially Recommendation Number 6, which is to carry out an independent study, whether it’s an epidemiological assessment or a health risk assessment, whatever, I don’t care what you call it, but get out there and start doing some blood tests, get out there and do some respiratory tests and let’s see where this problem is coming from.

I have no idea if it’s coming from the power stations, but we only have one major industry on the northern part of the Central Coast, and that just happens to be two coal-fired power stations and their ash dams. And, unfortunately, the site that was mentioned a minute ago about developing the old Doyalson RSL site, is going to become a complete new suburb. I’m not just talking about an over 50’s village, I’m talking about other housing estates with take-away food facilities, Child Care Centres, Medical Centre, geez we’re going to need that!

It’s going to become a major, major development. Across the road, behind the trees is Vales Point ash dam. Down the end of the block is the ash dam from the former Lake Munmorah Power Station. But, isn’t it funny, I was told back in 2017 (from the EPA) that they’d found PFAS in Lake Munmorah. I have four documents, and four media releases from the EPA saying, “There’s no problem.” Then all of a sudden, I find there’s a DA in at Central Coast Council for a ‘Water Treatment Plant’, that turns out to be a PFAS Treatment Plant that if approved will operate for the next 10 years. This is the site that just recently was classified by the EPA as a ‘significantly contaminated site’. So, this is where the government wants to put in over 40,000 new homes, within the distance of those power stations.

Witness 2 – Corrine Knopper

We came to live here near the Eraring and the Wangi area nearly 43 years ago, so, it was a wonderful move and we did enjoy it. It was something special for us, and our new born daughter was only 2 months old. I’m like you Gary, lifestyle, no alcohol, no smoking, we were vegetarian, we lived the style of what’s called ‘CHIP’. If anybody’s heard of the Community Health Improvement Program? The research has been done with Avondale University and they put that all in place.

We were great exercisers, I played two games of basketball a week and three lots of practice. The girls did the same, my husband did the same. I ran a few marathons. I was always training. My husband got me into pushbike riding up in the mountains, so we were doing all of that.

And then there was a problem. When we did get here, Eddie had some sort of asthma problems, but suddenly, it became ‘magnificent’, and that was a real issue. Several times in hospital, so that was not good when we moved here. My story begins 14 months before Eddie’s, but I’ve got his story first. In the middle of 2019 (July), he started getting little headaches, and that only happened for a couple of weeks. And, his GP listened to him, and he said, “I want you to have a scan.” And there was quite a large tumour, and a tiny one in the ventricle.

“Alright, let’s get you in hospital, but I don’t know how? I’ve sent everything to the John Hunter Hospital, they haven’t rung me.” So we asked all the questions and then he sent us out to pay and we got there and they said “No, doctor says you don’t have to pay this time.” Doctor said, “Come back, come back, the hospital’s just rung me you’ve got to go straight there.” So, my husband drove himself in. Thinking about it later, we went, no, that was a bit silly because we had to go get the car that evening, and it was the next week, because of the specialist who came in, he didn’t know why he was there, and he just says “Oh well, there is somebody here who has got problems”, ok, looked at Eddie and he said “You’re not going to get operated here next week in John Hunter, it might be the week after, I don’t know. Oh, you’ve got health fund cover, Newcastle Private,” which is what happened. Long story short is, he had had that cut out. Intensive care one day, normal ward the next day, the day after I took him home and he had no pain. Really weird, because you could still see where they’d cut the bone out there.

He started chemo, that’s the normal thing, and radiation. Radiation for six weeks, chemotherapy, and come five months and they were still doing the scans. “Oh, there’s another little one trying to grow.” Go another month with the same chemotherapy tablet, “No, it’s still there, switch.” So, two different types of tablets. Two years of that. Well, within a few weeks of the second lot of chemotherapy (the two tablets), the little tumour started disappearing. All of a sudden, he was left with no tumours at all.

Brilliant, we thought. At the end of two years of that chemotherapy (two tablets), they said “Well, you haven’t had anything

for a while, we won't do anymore." And Eddie says "But I'm exhausted." Oh well, let's see what your bloods are like. "Hmm, you are not making red blood cells very well." Bone marrow biopsy. You need transfusions every two weeks. So, started that!

And then, within 18 months, "It's not working anymore, it's not working anymore." Alright, another bone marrow, "You're not making white blood cells anymore." Ok, he was still riding his mountain bike, still having fun. Port To Port, he'd done that, parts of it. And then, April this year, he got sepsis, and within a week he was dead. So, that's the story of my husband, but 14 months before he had his brain cancer, I was listening to my body. And the only reason I knew is because, 20 years before I'd worked a decade or more for a urology specialist, something was not going right.

Every time I emptied my bladder there was a pulling sensation, what was it? GP listened that I went to, good man. And, the scans didn't show anything, and he was not happy, and he sent me to a specialist who operated straight away, because there was a little bit of fluid in there (in the belly). That specialist had been working on this rare cancer for the last 6 months.

Now the urologist, I used to type all his two-yearly specialist reports up of all his special studies that he was doing every two years. So this guy here in Newcastle, he knew exactly what he was looking at, and he got me down to Royal Prince Alfred pretty quickly. Within about six weeks I was being operated on again, that's unheard of, totally unheard of. It's months usually.

"You have a rare cancer." This is 2018. "But it's the lowest grade we've ever seen. We've done all the studies on the fluid and everything that came out. Yes, you lost your appendix because it was attached to the appendix. The other end of the tumour was attached to your bladder, that's why you got that pulling sensation." Ok, what do we do with this type of cancer? Pseudomyxoma Peritonei, I had to go and do some study and thought about it. The Royal Prince Alfred said, "We want you back here in three months." And, so every three months for a while, I was going back.

There were little holes everywhere and they kept checking and taking scar tissue and little bits out. But they were very happy. And the first time I went there, they said, "You will never lift anything heavy again when you get home, that's it, not even put your clothes on the line." I went "Ok, how do I look after everything." When I worked at the Uni, it means part time now, not full time. Ok, that's alright, we can get by. So, do listen to your bodies, and get it early, because this March, this year, they sent me home and said, "We don't need to see you for another 12 months." That's it, unless you listen to your body and find something's not quite right.

So what are the things that are causing this? With a great lifestyle, we believe. Working hard, good exercise, plenty of water. I always drink at least 2 litres of water a day. Having worked for a urologist, yes. And then I thought, after people had been talking about the water here (the urologist was going to retire at the end of 2006). We'd been to a party (a wedding), and I was drinking my normal amount of water and everything. The next day I started vomiting and diarrhoea, and for seven weeks I was more in hospital. Only two long weekends home and I'd be rushed back to hospital. I had copped, with the pathologist who did all my bosses work, and all his pathology reports. He said "I have not seen this in our water for 10 years." You have (if I remember rightly from that long ago), pseudomonas, a bug in the water, and it damaged me from the intake to the output. The whole gut was totally ruined. So, they had sent me home at the end of that seven weeks to die. And the specialist, when I went back two weeks later, he was shocked to see me. And you could see it all over his face, "You're here"? And I said "Yes." He said "We sent you home to die." I went from 60kg down to 50.2 the last time I came out of hospital. And, I did not expect anything, what he said. So, is that what is in our water today, still? Poisons, from everything?

In 2020 my rare cancer, there were only 89 people who had it. My next door neighbour had a nephew die of brain cancer and next door to that, Victor, he died of brain cancer 10 years ago and they all live in my area of Wangi Wangi.

Witness 3 – Douglas Williamson

My name is Douglas Williamson. I'm 61 years old. I live at Wamberal, that's approximately 54km from Eraring Power Station by the shortest road route according to Google Maps. I've lived here for about 13 and a half years, after growing up in Epping, in Sydney.

I was formerly a Secondary Science Teacher, I was also a Soil Scientist, a laboratory manager and a scientific officer for a number of organisations. Although I've only been living here a short amount of time, and I can't claim to be a 'teetotaller', although I am a non-smoker.

Since I've moved up here, I've developed Stage 4 Metastatic Hormone-Sensitive Prostate Cancer, and that may have been starting to develop when I moved here but it certainly hadn't been picked up by annual PSA Tests, which was the normal way of diagnosing that condition.

I've developed Hyperthyroidism, which, I've got no idea why that has occurred. It is an auto-immune illness. I've also got rheumatoid and osteoarthritis, which according to my rheumatologist, is extremely unusual. And, I've got cardio-vascular disease. I've only had one heart attack, so far, but, yeah, anyway.

I already had insulin dependent diabetes. My life before I became unwell, I was an extremely fit, healthy person. I'd been a keen cyclist and bushwalker since I was a teenager. I've played high level junior and adult hockey for over 17 years, from my early teens.

It just occurred to me this morning, after listening to the other speakers, not only do I have cancer myself, but the woman across the road (I think she's been living there, for about 7-8 years), she's in her late 30s and she's just recovering from her first bout of chemotherapy for breast cancer.

I don't know what the cancer cluster is like in our area, but we're only 600m from the beach, so it's quite possible that any air pollution that gets blown out to sea from Eraring and Munmorah then blows down the coast and lands in our lungs, and presumably, in the water supply that I'm taking from the rain water tank on my roof. So, that's just another example of the sort of, rubbish we have to deal with here on the Central Coast.

Where, as was pointed out earlier, we came here for the lifestyle and we're being 'done over' by the health authorities and the state government, who are supposed to protect us from this rubbish, but all they're worried about is 'Not letting the lights go out, because people might not vote for us'. Well, personally, I don't see why we should now be subsidising foreign multi-national whose job is just picking up distressed power assets all over the world and driving them into the ground. And, as was pointed out earlier by Gary, you wouldn't be allowed to run a car for 60 years. It'd be taken off the road quite readily.

Anyway, I'm five years surviving, but I'm having monthly injections for prostate cancer, which is extraordinarily painful. I'm developing breasts, putting on lots of weight and the treatment I've got has led to impotence, which is part of the deal. But I'm still alive, and I'll keep fighting until they put me in the ground. Thank you for listening.

Witness 4 – Steve Hassen

My name is Steve, I am a resident of Budgewoi. I live on the main road right next to one of the canals. My story started when my nan moved up to Budgewoi (1990), she was reasonably fit and healthy her whole life, she died of emphysema 15 years later. Never smoked a day in her life. Doctors put it down to her having smokers 'around'. She'd never allow anyone to smoke in her house, it was a 'no, no'.

My dad moved up when she got sick, another fit healthy man, athlete most of his life, he did smoke a little bit. He moved up, he has had prostate cancer, he's got emphysema really bad, developed epilepsy (don't know if that has anything to do with anything). These kind of things can be anecdotal, now since then, my Dad also looks after my aunty, she has had (in the last 12 months) she has had an oral cancer removed from her mouth.

I moved up when they got sick to look after them, I've been an athlete my whole life. I've eaten extremely well, I've taken pride in the way I look after myself. I'm 42 now, never been sick a day in my life. I don't get flu. Since I've been up here, I've developed an auto-immune disease, the doctor doesn't know why. I should preface this with: I live right on one of the waterways. The waterway runs right next to my house. Before I put a fence up, I could just run and jump over the waterway.

Why I have an oral cancer in my mouth is, I don't know what's going on there! Some of the stuff with my family can be put down to genetics, anecdotal stuff like smokers/age. Where my senses started going 'Ok, this is wrong', since we've been up here, I've had 4 dogs. My Dad and I had 4 dogs, all of them have died of rare (don't know what's going on) brain, liver, lung cancers through their entire bodies. They die in excruciating pain!

Now, when it happened to my first dog (this hurts me a lot), when it happened to my first dog I said "I'm never allowing this to happen to one of my dogs again." So, I said "It's got to be something I'm doing with the food." I made sure that they ate nothing but the best, the most expensive food I could find them, freshest ingredients. They get walked every day, they're healthy dogs. They all died with tumours.

Before I met Mike (Future Sooner) and read all this stuff, on that pamphlet that day, about a month before, I read something that happened in America, and it was something called the East Palestine, where a train derailed and all these chemicals flooded through their water system. Now, what happened is the government came out and the local environmental agencies came out and said they'd checked the waterways and the levels are fine for humans.

But, people's birds, cats, dogs were just dropping dead within days of this accident. And they said, "Why are the dogs and cats dying"? It's because they are a much smaller organism and they toxify much quicker. So these cancers and all these things happen much more rapidly. When I heard that I was like "That's what's happening to my dogs." That is what's happening to my dogs! That's what's happening to me and my family while we're living in this paradise. What I thought was paradise, that's why I bought up here. Apparently, paradise is killing us, and someone needs to do something.

And another thing, my next-door neighbour's dog died 18 months ago of a rare brain disease with tumors all through.

Witness 5 – Wolf Messthaler

My name is Wolf, I'm here to tell the story of a neighbour. I have asked his wife for permission to tell his story here. Let's call him 'Terry'. He was born in Canada, in Vancouver in 1946 and worked as a construction worker on big projects like installing bridges across rivers to connect islands before he moved to Australia.

We met him in 2006 walking his lovely Kelpie (red) dog, my kids had never seen before, that we'd just arrived, coming from Europe. Of course, that friendly dog got a lot of attention, so we met most days and chatted, and we turned into friends, sharing the knowledge of ice high mountains, frozen lakes and freezing winters.

He was a keen race track cyclist and surf club rower and beach goer. One day he told me he'd just returned from a follow-up doctors appointment with Charlie Teo, in regards to his brain cancer, he had been treated for with chemo and radiotherapy before we met him.

The doctors had told him his cancer was most likely related to his work as a Boilermaker at both Eraring and Vales Point Power Stations, where he worked for over six years. Some of his workmates had similar health issues. He had been diagnosed with Small Cell Carcinoma in his Ethmoid sinuses (the small cavities up in his nose) around the 2000s. This cancer is very rare and has very bad predictions. The Small Cell Carcinomas respond very quickly and well to chemo and radiation treatment, but can return very quickly again. He survived until 2015, when he died of sharp decline in his consequential liver problems.



Written submissions to the Citizens' Inquiry

Submission 1 – anonymous

<https://www.sciencedirect.com/science/article/abs/pii/S2387020619302669>

As an ANONYMOUS witness for the Future Sooner Citizens' Inquiry, may I submit: I know two consecutive Coronary Artery Bypass Graft patients from the Central Coast living in post code areas 2259 & 2261. Neither had cholesterol elevated. Neither had a family history of heart disease. Both had serious heart arrhythmia after surgery requiring other interventions.

Both were exposed to PM particles, NOx, SOx & heavy metals from Munmorah and Vales Point Power stations over many years. This 2019 European paper shows extensive research pointing to power station emissions - particularly the PM 2.5 particle which can affect the lungs, and can enter the heart and coronary circulation, and in some cases has caused sudden deaths.

This seriously affects the residents on the Central Coast. How long until Australia adopts the safety standards of the European Union? Thank you for accepting this submission.

Submission 2 – anonymous

Near Tuggerah Lake, friends and neighbours within 800m have been treated in 2023-2024 for: lung cancer (not sure if they had been a smoker in the past but not smoking now); Leukemia in a non-smoker; bilateral breast cancers needing surgery and chemotherapy in a non-smoker; prostate cancer in an older man; another rare cancer who also has asthma; quadruple coronary artery disease without any other vessels affected. There was no raised cholesterol. (This was a mystery to the specialists & was the second such case in the theatre that day). Two severe cases of Insulin Dependent Diabetes with other complications. There may be other illnesses in this street that have not been shared.

I am concerned for the welfare of a brand new baby born in our street this week, and for school children with asthma who live in this area.

Are there common risk factors for all these health conditions?

Thanks for the opportunity to ask.

Submission 3 – anonymous

My husband worked for Eraring and Vales Point power stations for decades. My son also worked for the power stations for many years. As a teenager our son was diagnosed with asthma that worsened when he started working for the power stations. There is no history in our family of any respiratory problems.

Recently my husband was diagnosed with a blood cancer and also severe asthma that hospitalises him at times. Both my husband and son aren't smokers, don't drink much, surfed and played a lot of sport. We eat well and there is no history of respiratory or cancer in our family. Therefore, I can only point the finger at the power stations, that even our doctors have advised that what comes out of their stacks is dangerous to people's health.

Then I found out about a number of children in the area who are suffering with the same diseases, and some have died from their cancers. We have lived on the Central Coast for over 30 years. There was always grey dust settling over everything. Everyone complained about it, but we didn't think much other than it was a nuisance.

But it wasn't until our young grandchild was diagnosed with severe asthma that the whole family decided to up and move away but still staying on the Central Coast. However, even moving further away from the power stations we found that many people here have cancers and respiratory diseases like our family. One of the locals said it was because the wind carries chemicals from burning the coal across to here. It seems we can't escape.

I am writing this anonymously with the approval of my husband who would like to tell his story to the Inquiry, but we are

both concerned about repercussions from the power stations as everyone had to sign a confidentiality agreement. It seems everyone in our community feels the same.

As far as my husband and our son and grandchild's health goes, we just don't know. The government needs to make sure the power stations are cleaned up or closed. They need to do this for all our sake.

We need to get the government to clean up the power stations and make sure they don't stay open past the date they are scheduled to close.

Submission 4 – anonymous

My postcode is 2262. I have Stage 4 non-Hodgkin lymphoma.

I have lived on the Central Coast for over 30 years, a non-drinker, non-smoker, who regularly exercised and ate healthy.

I was diagnosed in 2020 with throat cancer that had metastasized to lymph nodes and lungs.

My health journey has obviously involved seeing numerous medical practitioners where there was always the same question, was I a smoker? Never a smoker but lived and worked within a few kilometres of Munmorah Power Station where previously, depending on prevailing winds, our house would regularly be covered with coal ash.

Add to this a very sporty daughter who developed asthma as a teenager and there are certainly questions to be asked about the health of our environment that we live in.

I would like to see WHO and United Nations recommendations adhered to.

Submission 5 – anonymous

I present this evidence to the Citizen Inquiry and extend my sincere gratitude for their efforts in highlighting these potential cancer clusters on the Central Coast.

My husband has resided on the Central Coast for many decades. A number of his former colleagues have succumbed to or undergone treatment for cancer. The first to pass away had cancer, a diagnosis of which I was unaware. He left behind a young widow who has since remarried.

Two other colleagues faced serious cancer diagnoses requiring significant medical intervention. Another colleague tragically passed away unexpectedly just days after feeling unwell. Additionally, a colleague is currently undergoing ongoing treatment for liver cancer.

My husband was also diagnosed with bowel cancer and underwent surgery to remove a portion of his bowel. All of these men held white-collar government positions on the Central Coast.

There were only two other individuals who worked in the same building, and we are unable to ascertain their health status as they did not reside on the Central Coast, and we have lost contact since their retirement.

Despite the fact that these men all worked in the same building, there has been no investigation into the unusually high rate of cancer diagnoses and unexpected deaths among this small group of colleagues.

I provide this information and verify it to be true and correct yet request my details are kept confidential.

Submission 6 – anonymous

I provide this information as evidence to the Citizen Inquiry and thank those facilitating this event. I prefer to keep my information confidential.

I haven't had a nose bleed for many decades, and I wasn't the type of child that had nose bleeds. When visiting Mannering Park recently I felt an unusual feeling in my left nostril. I used a tissue to blow my nose as I felt I needed to blow my nose. When I blew my nose I realised my nose was bleeding, not a lot but enough for me to feel uncomfortable visiting the person I was going to visit. I had to sit in my car and wait until my nose stopped bleeding and it took much longer than I expected it to. Since leaving the Mannering Park area I have not had another nose bleed.

Submission 7 - anonymous

Thank you to those who have organised this Citizens' Inquiry. Thank you for giving us a voice. I respectfully request my details are kept confidential.

My father was a remarkably fit and healthy 87-year-old. Despite his age, his energy level was astounding, and many people found it hard to believe his true age. Last year, he began experiencing severe chest and side pain. For months, doctors were unable to pinpoint the cause of his discomfort.

He would retreat to his bedroom and pace in circles, trying to alleviate the pain. He was reluctant to let us see him suffering, and our concern grew with each passing day. His once active lifestyle dwindled as he increasingly preferred to stay at home. The wait for diagnostic tests was agonizingly long, and it seemed unfair that he should endure such suffering after a lifetime of contributing to society. He had always been diligent about paying taxes and volunteered countless hours to various sports groups when we were young.

Born into a family of very modest means, he worked tirelessly to achieve a professional career and continued his education to advance his opportunities. Tragically, he was diagnosed with mesothelioma and endured a slow and painful decline. I felt a profound sense of sorrow and regret, recognizing that he didn't deserve to suffer in such a way.

I learned from someone in the field that access to treatment for mesothelioma can vary significantly depending on one's location and proximity to medical universities. My father's final months were marked by unnecessary pain, and I still grieve deeply for his suffering.

Submission 8 – Water For Rivers NSW, Elena Garcia

Re the continuing problem of PFAS contamination

The fact that PFAS chemicals are highly dangerous to health in a variety of ways has long been understood, as this quote makes clear. (see link below for the full article)

As early as 1970, researchers for DuPont found that some PFAS were highly toxic when inhaled and moderately toxic when ingested". The company said nothing and continued to produce the chemicals.

In the late 1970s, 3M scientists found that a relatively low daily dose of PFAS—less than most people consume today—administered to monkeys could kill them within weeks. This would put the chemicals in the highest of five toxicity categories recognised by the United Nations." Again, as with many other corporations producing toxic substances, the company said nothing while ramping up production.

In fact, "90 percent of PFAS have been produced in the time since 3M and DuPont knew how dangerous the chemicals are."

Link - <https://redflag.org.au/article/how-a-giant-corporate-cover-up-poisoned-the-planet-and-everyone-on-it>

In the past few years, PFAS chemicals became associated with the foam used in fire-fighting equipment at military bases in Australia, and other venues where fire is a significant risk, including coal-fired power stations. In 2024, the NSW EPA announced that it had found "historical" PFAS (and petroleum hydrocarbon) contamination at the site of the former Lake Munmorah coal-fired power station. It seems PFAS chemicals had been used over many years in fire-fighting training, and perhaps some fires (also at Eraring and Vales Point power stations on Lake Macquarie).

According to an EPA media release: The site has been fenced off and inaccessible to the public since 2016, limiting potential contamination exposure ... We know the community will be relieved the clean-up process can finally get underway" and much more in triumphalist bureaucrat speak. Even claiming that "Removing contaminants like PFAS and petroleum hydrocarbon from the land will better protect the environment and people's health for current and future generations. This allows the site to eventually be redeveloped for another use, opening up opportunities for new jobs and investment in the local economy.

The EPA indirectly admitted that there might be contamination other than that of the land but reassured the community that "It is important to note, testing found seafood from the Tuggerah Lakes system remains safe to eat as part of a balanced diet (no more than 2-3 serves of seafood a week)."

See this link for the full media release in the EPA's calm, optimistic but rather uninformative, even misleading, statement - Link - <https://www.epa.nsw.gov.au/news/media-releases/2024/epamedia240503-next-steps-for-contaminated-land-at-lake-munmorah#:~:text=Land%20at%20the%20former%20Lake%20Munmorah%20Power%20Station,Environment%20Protection%20Authority%20%28EPA%29%20and%20will%20be%20cleaned-up>

Interestingly, the EPA did not comment on the use of fire-fighting equipment at the nearby Eraring and Vales Point coal-fired power stations, both of which would have poured PFAS laden foam into Lake Macquarie.

Response to the EPA Statement: Environmental and health defenders were quick to condemn the EPA for its failures over a

long period to protect the community's health from the environmental destruction caused by PFAS leaking into the lakes.

A leading Central Coast environmental defender and Lake Munmorah resident, Gary Blaschke OAM, has long been aware of the problem of PFAS – and other contaminants – emanating from the Central Coast coal-fired power stations. As early as 2017 he made known to the EPA his views about the dangers of PFAS to the health of the community. Here is his long and comprehensive response to the EPA media release in May 2024. For Gary, seven years after his warnings, the EPA had been asleep at the switch:

ERIN BROCKOVICH, WHERE ARE YOU?

The NSW Environmental Protection Authority in May 2024 has identified the land at the former Lake Munmorah Power Station to be declared as a significantly contaminated site and will be cleaned-up. This ought to have never happened. It was in late September 2017 when Holly Love, Unit Stakeholder Engagement Team of the EPA in Sydney revealed that the EPA had found PFAS (per-and polyfluoroalkyl) substances in Lake Munmorah and Colongra Bay on the Central Coast. Holly Love proclaimed that the EPA intended to conduct a series of fish tests to see the extent of the contamination problem, especially in the lakes (lagoons), as they are regularly used for fishing and recreation purposes. The EPA put out two Media Releases both on the same day in September 2017, one indicating that the investigations were underway, the other regarding Munmorah and Colongra Bay information for residents, both very limited in their distribution.

Both reports either stated that sampling would include areas around the power stations and in the wider Tuggerah Lakes System, plus the undertaking of a survey of nearby residents to gain a greater understanding of the impacts and that of the key exposure pathways, as PFAS can contaminate seafood, and/or drinking water.

The second report went on to say 'to date, sampling has been limited and the NSW Government considers that further testing is required to determine if PFAS has migrated offsite, and if there are any potential health impacts to the surrounding areas and local community'.

The same report indicated that studies conducted were looking at impacts on cholesterol levels, male hormones, heart disease, liver changes and other effects, including cancer. To date, the community has not seen nor been privy to the findings.

The EPA, taking some period of time to catch a fish or a prawn to be tested, although there was continued pressure on them for the results and, after threatening to involve the Minister, surprisingly they had caught five species of fish and some prawns, carried out their studies and put out a fact sheet in December 2018.

The fact sheet went on to disclose that the testing of seafood in the Tuggerah Lakes System was undertaken to determine if exposure to PFAS from consumption of seafood is a risk to the community. It had found that the contaminated groundwater was generally moving towards the centre of Munmorah and Colongra sites, meaning that exposure to PFAS from the groundwater is limited.

It is alarming that the EPA then went on to say that there is no current evidence to suggest an increase in overall health risks related to PFAS exposure, however their Expert Panel also said health effects cannot be ruled out at this time. We hope the same Expert Panel did not audit the Wreck Bay and Williamstown contaminated sites.

We can only hope that the EPA Expert Panel has told the fish and crabs not to visit the lakes until remediation is completed and have informed the professional fishermen that they potentially could be part of the problem.

In January 2023 after four meetings with a team from the Central Coast and Hunter New England Public Health Unit, NSW Health, NSW EPA and Planning NSW, plus many emails to and from Clarence Brown (EPA Manager of Policy, Major Projects and Initiatives Regulatory Policy, Initiatives and Advice) who was appointed to oversee the implementation of the NSW Government response to the inquiry into power stations and their coal ash repositories, it all became too much for Clarence and he had his supervisor Ms Nancy Chang (EPA Executive Director Regulatory Policy Initiatives and Advice) aggressively respond by email.

Ms Chang proclaimed that NSW Health advises that the aim is to further consult with relevant groups of the community at an appropriate time. She went on to say, please note that the Government, in its response to the Inquiry's sixteen recommendations, did not commit to specific timeframes for Health Studies and actions to be completed.

"It is disappointing that a Director of the EPA when responding to the community's concerns can make such comments when Recommendation Number 6 from the government inquiry states - 'that NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022'.

Ms Chang went on to say complaints about the behaviour or conduct of an EPA officer can be sent to the EPA website, even though the EPA had ignored complaints regarding these power stations since 2017, and now in 2024 the complaints and cautions have come to fruition.

'We are disappointed' is an understatement, especially when the same Government Inquiry chaired by the now NSW Treasurer Daniel Mookhey, commented in their report

'...that the committee agrees with the Inquiry participants that little research, if any, has been conducted on the impacts and long-term consequences in relation to the health of communities residing near coal ash dams. We are disappointed with the response by the NSW EPA and NSW Health to community concerns about a potential link between the circulation of additional metals in the air and waterways and impacts on health outcomes for the community. This response, in conjunction with the lack of research on health outcomes on this matter, demonstrates

a complete disregard by the government towards the health of its Citizens”.

The issue of PFAS contamination was raised with now Central Coast Minister David Harris MP on 10-10-2017, who passed on an EPA Media Release in July 2019 stating that the Tuggerah Lakes had been given the ‘all clear’ after PFAS testing, which was obviously flawed with what we now know in 2024.

In the same Media Release the EPA Manager of Strategic Regulation, David Gathercole said: ‘a rigorous PFAS testing regime had been completed and the results were good news for the community’.

After years of neglect and cover-ups by consecutive governments we now find in May 2024

“that the EPA has declared the Munmorah site as a significantly contaminated site. PFAS, the forever chemicals, are flowing down the channels into the Tuggerah Lakes System, having Lake Munmorah taking 520 days to circulate, 460 days for Budgewoi Lake and 220 days for Tuggerah Lake. The cumulative impacts must be devastating for both the environment and human health alike.”.

Adding to the problem, we now have a recent development application being submitted to Central Coast Council for a water treatment plant, being simply a PFAS treatment plant which will operate for the next ten years, if approved.

To make things worse, proposals for a completely new suburb at Doyalson with over fifty’s housing, a housing estate, childcare and medical centre, fast food outlets and a service station has been identified, which will be sandwiched between the Munmorah PFAS and coal ash dump and the Vales Point coal ash dam which has potentially caused many chronic health and environmental issues for the region.

Gary Blaschke’s response, edited down, was printed in the Central Coast Community News:

Link - <https://coastcommunitynews.com.au/central-coast/news/2024/05/erin-brockovich-where-are-you/>

Heard it on the Grapevine:

This story in The Grapevine newspaper took up Gary’s criticism of the EPA:

“Since 2018 if not before, the general community have been told by the EPA that there was no per and poly-fluoroalkyl (PFAS) substances in Lake Munmorah or Colongra Bay which could cause human health issues. We were told by the Federal Minister for Health in 2018 that there is no evidence to suggest an increase in overall health risks related to PFAS exposure. In fact today in 2024 we are told by Central Coast Council that the water quality in our lakes is excellent, that is only if you swim close to shore, as the EPA reports indicate that PFAS is generally moving towards the centre of the Munmorah and Colongra sites, says community advocate Gary Blaschke.

Like Williamstown to our north, Wreck Bay to our south and sites around the United States of America, legal actions have been and are currently being pursued. For close to fifty years on the coast, all power stations used PFAS products as fire-fighting foams. The contamination of groundwater, stormwater and freshwater pond running down the canals and into our lakes, is now coming back to haunt us.

In 2023 the Government engaged General Property Management (GPM) to decommission and remediate the former Lake Munmorah power station. GPM recently applied to Central Coast Council for a development application to build a water treatment plant on site. Due to further investigation the water treatment plant was in fact a PFAS treatment plant which would operate for a further ten years (DP1201414 301 Scenic Drive Colongra 2262).” said Blaschke.

Their previous Statement of Environmental Effects (SEE) states that “to date, sampling has been limited. The NSW Government considers that further testing is required to determine if PFAS has migrated offsite, and if there are any potential health impacts to the surrounding areas and local community”.

Effectively we now know that PFAS has migrated into the Tuggerah Lakes system. Certainly not recorded by Council in water samplings, yet knowing that the amount of PFAS on the land of the former power station site would take ten years to treat and remediate.

We know that the 2021 Legislative Council Public Works Committee (now known as the Public Accountability and Works Committee) Inquiry found sixteen recommendations to be conducted.

Recommendation No.6 “that NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022”. To date this report has not been completed along with many of the other recommendations.

Council records show that Lake Munmorah takes 520 days to fully circulate its waters. Budgewoi Lake some 460 days and Tuggerah Lakes 220 days. The lakes are not technically lakes, they are simply shallow coastal lagoons which are stirred up by storms and wind gusts, which effectively stir-up the sediments and accumulated PFAS in the middle of our lakes, said Blaschke.

To make the situation worse, adjoining businesses have had freshwater dams become toxic, possibly by the leaching of toxins from the Vales Point and or Lake Munmorah unlined coal ash dams. Proposed housing developments for the Doyalson RSL site are potentially sandwiched between the leaching, stormwater and ground water problems, yet the EPA say there is no concern for the public.

Court actions in Australia: The Commonwealth Government was hauled into Court by about 30,000 claimants in a class action as detailed in the link below. Here is the punchline: “The Federal Government has settled a class action over PFAS contamination from firefighting foam at seven sites across the country, but residents are calling the amount “atrocious”. The result: a settlement for 132 million dollars.

Link - <https://www.abc.net.au/news/2023-05-15/pfas-class-action-commonsettlement-reached-with-30-000->

claimants/102346274

See also on legal action concerning groundwater contamination and consequent decrease in land value.

Link - <https://www.abc.net.au/news/2020-02-27/pfas-federal-class-action-settlement/12006184>

And see

Link - <https://www.abc.net.au/news/2019-10-21/erin-brockovich-sounds-alarm-over-pfas-as-new-qld-sites-emerge/11606772>

Conclusion: In failing to deal with the PFAS problem in a timely and comprehensive manner, including warning the residents adequately of the dangers they faced, the EPA has failed in its duty to protect the health of Citizens' of the Central Coast, and allowed harm to the environment through contamination of lakes and very likely to the groundwater.

Recommendations:

1. A Royal Commission should be established to investigate the failures of the EPA and the relevant corporate owners of the three power stations on Lake Munmorah and Lake Macquarie, to protect the health of residents from the negative impacts of PFAS as indicated above.

Such a Commission should also be charged with investigating other alleged sources of harm to health arising from the operation of the power stations, including but not limited to, the coal ash dams. Negative impacts on property values should also be investigated.

2. The NSW government should provide compensation to all residents suffering ill health from the PFAS contamination of Lake Munmorah and Lake Macquarie and any loss of land value.

3. Legislative reforms to protect the health of NSW residents should include measure to provide a safe and healthy environment as now recognised as a right in international law:

1. the Rights of Nature must be recognised;
2. Legal personhood must be recognised;
3. Ecocide should be recognized as a crime in New South Wales.

4. The Environmental Defenders Office should consider legal actions against the NSW government and/or the relevant corporations, officials, for the harms to: the health of residents of the Central Coast; and harms to the environment caused by their negligence or violation of their statutory duties and loss of property values.

Other Citizens', lawyers and the Environmental Defenders Office (EDO) should also consider such actions.

5. The NSW Government should immediately legislate to ban any industrial or agricultural process or developments that poison our rivers, lakes and artesian waters and the catchments that feed them, and make that industry liable for full remediation expenses for any past damage, as:

- 1) how our artesian basins work and connect is not fully understood and we have no way of removing toxic pollution from the artesian basins, which are now our only dependable sources of water for our waterways, communities, and farmers and all the life that depend on them;
- 2) Protecting clean water for the environment may be a federal obligation under Section 100 of the Australian Constitution, but State Governments also have an obligation to protect the water on which their Citizens' and crucial biodiversity depend, and allowing and regulating the operations of industrial and agricultural developments is a State responsibility. Where those responsible for the relevant development may have become bankrupt or unavailable, an industry levy should be made to cover the expenses of restoring clean water.

Submission 9 – Elizabeth Orgin

Are you completing this form for yourself or someone else?

Someone else

If someone else, who is it?

My dad

Have you been diagnosed or experienced any of the following conditions?

Breathing problems

Anxiety

Other symptoms or conditions?

Severe coughing

Share your story in your own words:

My parents bought the house on Scenic Drive, Budgewoi in 1998. I believe my dad started to show symptoms in 2015, due to the power plant. He finally died due to respiratory failure in 2022.

What do you want to see done to better protect public health?

Stop using the power plant and shut it down.

How long have you lived in the area?

25 years

Submission 10 – Elizabeth Riley

My name is Elizabeth Riley and I have been living in Murrays Beach in NSW for the last eight years. I live close to the lake on the east side of Lake Macquarie. My house faces West, and the prevailing winds are Westerlies.

On the Western shore and clearly visible is the Eraring Power Station. Debris, generally in the form of a dirty grit or dust, is common on our outdoor furniture and deck area which faces Eraring.

Approximately five years ago I developed a persistent cough, initially just annoying, and sought medical advice. This led me down a path of multiple ‘possible’ diagnoses which ranged from changes to blood pressure medication to several exploratory interventions of the x-ray, cat scan variety.

None of these interventions provided any conclusive results and the cause of my cough is still undiagnosed.

Over the ensuing period my cough has become much more significant. I frequently cough up a seemingly endless amount of phlegm and find myself unable to control the cough which can strike at any time of day and on occasions last for several hours. If this occurs in the middle of the night, I am generally obliged to retreat to another bedroom to not disturb my partner’s sleep. I have become a regular user of Ventolin which is the only product that ultimately loosens the phlegm and provides me with some relief.

More recently, perhaps in the last few months, I have become aware of increased breathlessness with even minor exertion. I attribute this to the phlegm in my lungs/throat, but my doctor has subsequently set me on a course of heart examinations under the care of a cardiologist. These are ongoing and, as yet, I don’t have the results, but it represents a new phase in seeking a diagnosis. In the meantime, the ever present, and uncontrollable coughing and throat clearing, has a major impact on my wellbeing.

Despite all the above interventions it occurred to me some time ago that the proximity of Eraring Power Station, and the prevailing westerly winds potentially driving mini particles of who knows what across the lake, may be a factor. I can’t categorically say that Eraring is the cause of my chronic cough, but the time frame is cause for suspicion. When I first came to Murrays Beach I was in my mid-sixties. Now I am approaching my mid-seventies. I accept that as I age, I become more likely to experience an increase in health issues. But given the evidence of built-up dirty debris that gathers on our deck I must believe that every breath I take is potentially depositing particles in my respiratory system.

In conclusion and given that I have no prior history of respiratory conditions, the timing of the onset of my chronic cough and the proximity of the Eraring power station, would suggest to me that, if not the cause of my cough, pollution from Eraring is highly likely to be a contributing factor.

Submission 11 – Gill Boehringer

I have seen evidence from a wide range of sources-published material and research data gathered by Future Sooner members. This material was gathered by Gary Blaschke OAM, Dr Merlene Thrift, Mike Campbell and others, and includes my own study of available relevant material including stories from residents living near the power station. Answer to the question “Are coal-fired power stations making us sick?”

I strongly believe they are, but if the government agencies can provide studies tending to show they are not, then I will reconsider. Such evidence has not yet been produced and the Report from Doctors for the Environment Australia, suggests that it never will be.

See:https://www.dea.org.au/doctors_call_code_red_new_report_warns_climate_pollution_is_our_biggest_killer and <https://www.abc.net.au/news/2024-08-14/fossil-fuels-report-health-risks-doctors-for-the-environment/104222818>

Pollution directly from the stacks of coal-fired power stations is widely accepted here and overseas as dangerous to those living within the wind patterns of such stations. Why else would there be regulations regarding such emissions!

Of course those regulations are inadequate in Australia especially when compared to countries such as Japan, the USA and those of the EU, nor are they enforced effectively. In truth, no one believes they protect everyone 24/7. Indeed, they do not intend to do so. Those regulations represent a trade-off between the health of the residents and the economy the government sees as necessary, and corporate operators’ profits.

My answer to the question has another dimension: those residents on the Central Coast are being made sick through the negative impact on the environment from indirect processes connected with getting energy from the burning of coal which is what these stations do, and for huge profits.

Much of the negative impact on health, physical- and mental (for such there is, although seldom recognised by those affected I suspect, nor governments) does not occur directly from the stacks of the power stations, but from other processes mediated through the local ecosystem, e.g contamination of the lakes (by PFAS for instance), and contamination of the ground

water (by unsealed coal ash dams for instance) and air pollution from all the toxics in coal ash dams inadequately covered. These processes have been studied and identified. There is plenty of evidence from various government and other sources. However, the negative impacts on the health of those affected may not immediately be recognised due to the “slow violence” of the damage and the nature of the causation not being recognized.

See for example from the Coal Ash Dam Inquiry by the Public Works Committee: ‘1.11 In its submission, the NSW Government acknowledged that contamination from these sites ‘may threaten human health and the environment, limit land use or increase development costs’.

I also believe common sense tells us what is happening here on the Central Coast. Imagine if – there were no coal-fired power stations on the Central Coast: no local coal mining with associated health problems; no contamination of lakes and soil surrounds; no incidents of massive fish kills; no contaminated fish and other creatures to eat from lakes; no contamination of land, underground water and the air from unsealed and inadequately covered coal ash dams; no PFAS in the lakes or soil. What a paradise this would be.

What is to be done? Organise! Demand government action to stop the poisoning of the people on the Central Coast!

Why a Citizen’s Inquiry? Citizens’ Inquiries are established by people who realise there are serious issues negatively affecting them and their neighbors. Issues that their government has not adequately responded to, if at all. Their calls of distress and entreaties to protect them, unanswered.

Future Sooner, after several years of research, listening to people in the community and educating themselves as to the history, nature and extent of the impact of coal-fired power stations on the health of the Central Coast residents and our environment, constituted a CI.

Establishing a CI, as Future Sooner has done, is then, inherently a political act, not an academic exercise. One purpose of a CI is to ensure that the voices of the community can be heard through witness testimony and submissions to the CI.

A second purpose is to gather relevant information from other sources that will provide additional perspectives on, and the context of, the concerns of the community

A further purpose of the CI is to seek to ensure that the concerns of the community are made public, loud and clear. To speak truth to power on their behalf. Finally, to provide the community with material for developing their capacity to work towards bringing about the changes necessary to avoid the existential threat facing them.

One of the most important tasks of a CI is to provide a Report with Recommendations that will, in the short term or a longer term, likely make a difference. Some of those Recommendations can be foreshadowed. Those I am presenting below are based on the obvious fact that coal fired power stations cause damage to the environment, and therefore to health. These are violations of international law and of moral and domestic duties.

Conclusion: To have healthy people the need for a healthy environment has been widely recognized and is now supported by International Law. Governments have a duty to protect the health of their Citizens’.

Recommendations: I would hope that consideration be given to the following three Recommendations.

ECOCIDE: To guard against destruction of the environment, local ecosystems, and therefore protect the health of people on the Central Coast-and of course elsewhere- I will Recommend that Ecocide be made a criminal offense in NSW. It has been recognized in Constitutions and legislation in a number of countries to date, so why not here?

It is a method, one of many, for protecting our international right to a clean and healthy environment, and of course our right to life recognized in the foundational International “Bill of Rights”. (BTW we might even suggest the adoption of a Bill of Rights such as Victoria and the ACT have done, but I am not going there at this C I. Others may wish to, including the right to a clean and healthy environment.)

“By destroying the ecosystems on which we depend, we are destroying the foundations of our civilization and mortgaging the living conditions of all future generations,” said Valérie Cabanes, a French lawyer and one of the panellists who worked on the 2021 ecocide proposal. “This is no less serious than war crimes, crimes against humanity, or the crimes of genocide or aggression. As well as being a major issue of global socio-environmental justice, is it not ultimately the survival of the human species that is at stake?”

From: <https://www.weforum.org/agenda/2021/08/ecocide-environmental-harm-international-crime/>

Ecocide is now recognized in 15 countries, Belgium being the latest to adopt it into law at both the Federal level and below. See <https://ecocidelaw.com/existing-ecocide-laws/>

What is the definition of Ecocide?

Below is the model Definition adopted by the Independent Expert Panel for the Legal Definition of Ecocide on behalf of Stop the Ecocide. It would be included in the Rome Statute. A number of other definitions have been adopted in the 15 countries. Our legislators in NSW should develop our own definition. See <https://www.stopecocide.earth/legal-definition>

“Ecocide

1. For the purpose of this Statute, “ecocide” means unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts.
2. For the purpose of paragraph 1:
 - a. “Wanton” means with reckless disregard for damage which would be clearly excessive in relation to the social and economic benefits anticipated;
 - b. “Severe” means damage which involves very serious adverse changes, disruption or harm to any element of the environment, including grave impacts on human life or natural, cultural or economic resources;
 - c. “Widespread” means damage which extends beyond a limited geographic area, crosses state boundaries, or is suffered by an entire ecosystem or species or a large number of human beings;
 - d. “Long-term” means damage which is irreversible or which cannot be redressed through natural recovery within a reasonable period of time;
 - e. “Environment” means the earth, its biosphere, cryosphere, lithosphere, hydrosphere and atmosphere, as well as outer space.”

Ecocide was considered by the 2019 *Citizens’ Inquiry into the Health of the Barka/ Darling River and Menindee Lakes* See their Report. Download at <https://tribunal.org.au/sessions/2019-barka-darling-inquiry/>

See at p. 215: Recommendation 25 That civil society groups (non-governmental organizations and community groups) (i) investigate whether government policies and laws have created environmental destruction in the Barka/Darling river system on such a large scale that they meet the standards of ecocide, and (ii) provide a report to the community and Basin governments about how to ameliorate the damage already done, avoid committing further ecocide and undertake restoration.

Recommendation 26 That the Commonwealth government should take the lead in amending the Rome Statute to include ecocide as a crime under International law.

Recommendation 27 That Commonwealth and state laws be enacted making ecocide a crime and establishing appropriate penalties to be imposed for committing ecocide, including revocation of permission to carry out commercial activities within the Basin, together with forfeiture of lands and machinery associated with activities constituting ecocide.

On the history of ecocide from an Australian perspective see: <https://www.earthlaws.org.au/2023/02/the-history-of-ecocide/>

LEGAL OR ENVIRONMENTAL PERSONHOOD: An important, legal concept that is developing recognition around the globe in the fight to save the environment. By granting environmental entities legal/environmental personhood, we can provide a system whereby they can be protected through legal action brought by a Trustee or Guardian. There is a good brief discussion of its use at national level (India, New Zealand) and local level (especially in the USA). https://en.wikipedia.org/wiki/Environmental_personhood#:~:text=As%20of%20June%202021%2C%20at%20least%2053%20initiatives,the%20concept%20of%20%27person%27%20in%20their%20legal%20text.

Something similar in some respects has been legislated in the Protection of Yarra River Act 2017 in Victoria.

RIGHTS of NATURE: A more comprehensive approach to protecting environmental entities is that of Rights of Nature. As of 2021 there are 39 countries that have enacted legislation or placed in their Constitution the Rights of Nature, including local government units and cities in the USA.

A useful, brief introduction to this concept is to be found in this article, from which a quote follows: https://en.wikipedia.org/wiki/Rights_of_nature#:~:text=As%20of%20June%202021%2C%20rights%20of%20nature%20laws,of%20cities%20and%20counties%20throughout%20the%20United%20States.

“Rights of nature or Earth rights is a legal and jurisprudential theory that describes inherent rights as associated with ecosystems and species, similar to the concept of fundamental human rights. The rights of nature concept challenges twentieth-century laws as generally grounded in a flawed frame of nature as “resource” to be owned, used, and degraded.

Proponents argue that laws grounded in rights of nature direct humanity to act appropriately and in a way consistent with modern, system-based science, which demonstrates that humans and the natural world are fundamentally interconnected.” NOTE Seeking Recommendations to deal with potential harm in the future and to seek new laws to protect the health of residents who are my neighbors cannot be an indication of bias. Rather it is responding to a moral duty by a member of the panel.

Submission 12 – Healthy Futures

Healthy Futures expresses grave concern over the detrimental health impacts of coal-fired power stations on the Central Coast community.

The scientific consensus is clear: the air pollution generated by these power stations contains a cocktail of hazardous pollutants, including particulate matter, sulphur dioxide, nitrogen oxides, and heavy metals. These pollutants have been linked to a wide range of adverse health outcomes, particularly respiratory and cardiovascular diseases. The long-term exposure to these pollutants poses a significant risk to the health and well-being of communities living in proximity to these power plants.

The health burden extends beyond physical ailments. The constant stress and anxiety associated with living in a polluted environment, coupled with the uncertainty about the long-term health consequences, have a profound impact on the mental well-being of individuals and communities.

Healthy Futures calls for urgent action to phase out coal-fired power stations and transition to clean, renewable energy sources. The health of the Australian people must take precedence over the short-term economic interests of the fossil fuel industry.

We urge the inquiry to lobby for stricter emission standards for existing coal-fired power stations and legislation to enforce these standards rigorously. This would be in addition to asking for a clear roadmap for the phase-out of coal. Public health must be prioritised in all decision-making processes relating to energy policy, and we hope that the inquiry can take this message to the NSW Government.

The transition to a clean energy future is not only an environmental imperative but also a public health necessity. Healthy Futures calls for a swift and just transition away from coal. The health and well-being of future generations depend on it.

Submission 13 – Ian McKenzie

Postcode 2264. Diagnosed with asthma and reduced lung function. Polluted air will always have some impact upon health. Close coal-fired power stations

Submission 14 – Jacqui Mills, NSW Nature Conservation Council

Nature Conservation Council of NSW is concerned with the ongoing detrimental human health and environmental impacts of coal-fired power stations in NSW. We commend Future Sooner on setting up this Citizens’ Inquiry to hear the stories of those impacted locally. Coal-fired power stations are responsible for significant carbon pollution, exacerbating climate change. Nitrogen oxides and other pollutants are linked to serious health impacts.

We hold serious concerns on groundwater and water pollution from coal ash dams. It is regrettable that the NSW state government has signed an agreement with Origin Energy to extend the lifetime of Australia’s largest coal-fired power station, Eraring, in Lake Macquarie. This will release an extra 9 million tonnes of greenhouse gas emissions over a two-year extension as well as result in an extra 900,000 tonnes of toxic coal ash being dumped into ash dams.

The exemption to NSW Clean Air laws enjoyed by Delta Electricity, operator of Vales Point power station, should not be renewed upon the expiry of the current exemption in October 2024. The operators should be required to invest in proven technology known to substantially reduce toxic pollutants. This technology is commonly used in other countries and has been for decades.

Other countries have stricter limits for nitrogen oxides, sulphur dioxides, mercury and particulate matter from coal fired power stations than NSW including US, EU, South Korea, China and Japan. The NSW government should strengthen pollution limits for NSW’s remaining coal-fired power stations.

Ultimately, the best way to address toxics and carbon pollution from ageing coal fired power stations is to plan for staggered closures of NSW coal-fired power stations. This will provide certainty for investors to bring more renewable energy into the system so we can all enjoy cheap, clean energy.

Success: Due to the campaigning by Future Sooner, Environmental Justice Australia and the NSW Nature Conservation

Council, Delta Electricity has not applied for a further exemption to its Vales Point coal-fired power station licence.

Submission 15 + comments from the floor – John Shiels

From: John Shiel PhD(Eng) Date 27/8/24 Subject: Experience as a Pacific Power Worker & Living around Newcastle

Pacific Power Experience: Pacific Power began a large power station development program (660MW units for Eraring, Bayswater & Mt Piper) to counter blackouts in the Eastern grid in the late 70s. This is when I began working for it as a Civil and Structural Engineer at the head office in Sydney. I was employed to design various buildings and structures across NSW, and worked in its Structural section (steel framed buildings), Civil section (roads, hydraulics and foundations) and Contracts sections (creating and managing large contracts).

Munmorah Lake Pollution: I was tasked with cleaning up the coal storage area at Munmorah Power Station because it was encroaching on neighbours. So I ringed it with canals for bobcats to be able to clean out, and placed 2 deep settling basins at the ends to catch the coal before it went into the outfall canal.

When I tested the water coming out of the settlement basins coming out of the system in the outfall canal, it exceeded the World Health Organisation (WHO) requirement. I took this to my senior engineer who told me not to worry, since it would be combined with the outfall canal and diluted as it went into the lake ie. the same amount of pollution but at a lower concentration. However, these coal particles could be ingested by any animal drinking this water, including dogs, cats and birds. If the same amount of pollution from the coal dust is going into the lake, it is just at a lower concentration and therefore gets through the regulation. It was a bit of a dodge. So when you think about it backwards, being an Engineers Australia sign up I should have used my code of ethics and resigned from Pacific Power but I didn't.

Myuna Bay Ash Dam & Recreation Area: There was an occasion when there was high rainfall just as the recreation area at Myuna Bay was building a swimming pool, and the 2-way valve was not put into the pool. This meant that when the water table rose, it pushed the swimming pool shell out of the water, and I wrote a report on why it happened, and how to stop it happening again. However, it was only in 2019 that the recreation facility was closed on the risk of earthquake damage but not from flooding risks. It has never been sealed with clay or anything. It is a big threat. You get the seepage through with heavy metals.

Vales Point Chimney Particles: The Eraring and Bayswater smoke chimneys had one of the best fabric filters in world at the time to stop smoke particulates except for PM2.5. A question for the EPA and state Environment and Health Ministers is why the old power stations were not asked to install these modern fabric filters to at least reduce the larger particulates e.g. when Trevor St Baker bought Vale Pt power station for \$1m, with reduced liabilities on disposing of the flyash, selling it for \$200 million a few years later.

Coal Train Pollution: When we lived in North Lambton from 2011-2021 we were 800m from the coal train corridor, and we used to get coal dust on our window sills and paving. A group of independent researchers with Climate Action Newcastle found out that the coal wagons 1) were uncovered, 2) overfilled so the coal could tip onto the tracks, and 3) when the empty trains sped along they threw up the coal dust into the air. After the report was published, 1) the trains slowed, 2) they filled the wagons less, and 3) they cleaned up the coal on the tracks.

Relative's Health: A relative has lived at Rathmines on the lake for the last 20 years, and was a keen fisherman, eating fish from the lake. He was diagnosed with prostate cancer recently and is undergoing treatment. Myuna Bay ash dam is leaching into the lake and if you read any literature at all on that the advice is never eat the fish in Lake Macquarie because of the heavy metals.

School Naplan results: As a researcher, I analysed the data that showed that Naplan results were lower for schools closer to power stations. The results suggested that students attending these had lower scores, in line with similar school student research overseas on heavy metal contamination.

Coal ash: The problem with recycling fly ash is a legal problem. Boral has actually cornered the market there and I don't know why but I think Origin has somehow got a deal. I know that because MCI, the guys who are trying to sequester carbon, they went to see if they could get hold of the fly ash and basically it is locked up and Boral only wants to use it every now and then. I stipulated in my concrete for my slab, and I had to wait an extra two or three weeks so it is available but they don't widely publicise. I know they have got Envirocrete, they have got Invisia and Invisia costs a lot of mone. They've got all these products. Envirocrete you can get 5%, 10%, 20% so they are starting to promote it now but it is locked up.

POWER STATION EXPERIENCE OF JOHN SHIEL

- Pacific Power (formerly Electricity Commission NSW) 1978 – 1989
- Professional Engineer (Civil and Structural) (1978 to 1984)
- Designed power station buildings and structures including:

- settlement basins with canals surrounding the coal storage area of Munmorah including monitoring the water
- many Eraring power station structures designed for 25-year lifespan after liaising with architects, and engineers, and supervising draughtsmen and technical officers
- the 50yr lifetime Eraring power station Simulator Building with First Aid room,
- hydraulic structures such as spillways,
- a special concrete floor for Munmorah power station for the workers' change room which was heated by-passing low-cost power through the reinforcement of bridge foundations – piles needed to prevent sway,
- buildings and fan foundations at Bayswater power station

Researched the:

- chimney stack materials for Bayswater power station
- the holes in the Liddell power station generator roof allowing rust to develop
- Managed the construction contract for the \$2m Eraring Power Station large water tanks,
- Led a specification team to prepare the \$20m Mount Piper power station Site Preparation contract, and assisted with tender negotiations,
- Supervised the \$1m site clearing contract of the Mount Piper power station Senior Programmer (1984 to 1989)
- Evaluated PCs for a bulk purchase to stock Pacific Power divisions
- Managed IT applications for staff
- Consulted and trained staff on the design of database, Engineering and Computer
- Aided Design systems

i <https://www.originenergy.com.au/about/investors-media/update-on-myuna-bay-recreation-centre/>

ii <https://www.science.org/doi/10.1126/science.aax1927>

iii <https://www.originenergy.com.au/about/who-we-are/what-we-do/generation/eraring-environment/>

Submission 16 – Mike Campbell OAM

“Why Kassy Fights for Breath” headlines the Sydney Morning Herald, 31st October 1985 where an early campaign asks authorities to investigate pollution from power stations on the Central Coast of NSW.

As public interest in health and power station emissions built over the ensuing years, authorities dug in their heels. Governments began to deny public outcries for deeper investigation into many health statistics around the power and coal industry in NSW.

Public calls for a study of Cumulative pollution from concentrated emissions in the Hunter and on the Central Coast fell on deaf ears, where both sides of politics refused to debate or even acknowledge, that any problem existed.

Rather they formed an iron ring around the power and coal industry where pushback against community enlightenment about air, water and ground contamination became entrenched.

And so it comes to the year 2024 where anecdotal evidence on severe health issues, including the abnormally high statistics of various cancers in adjoining communities, trigger no response from government in NSW, nor any local representatives or health bureaucracy.

The community group Future Sooner, following a sympathetic groundbreaking meeting on the Central Coast with a visiting United Nations delegation late 2023, decided it was time for the community itself to enact a “Citizens” Inquiry” into health issues within communities near to power station and coal complexes on the Central Coast.

Following is an array of anecdotal expressions of health problems in the Hunter and on the Central Coast from press sources along with researched evidence to various government bodies that will add to other submissions and spoken evidence before the Inquiry panel of academics.

1985: The massive battle to save lower Wyong Shire from the Electricity Commission’s plans to develop two more power stations and 10 coal mine complexes triggered an appeal to Government and Elcom to look at pollution in the Shire’s north from the overwhelming effects from Eraring, Vales Point and Munmorah complexes. Thanks to a concerted effort by people and organisations over four years the plans were thwarted. It was the evidence of broad health effects of air pollution in the community of Lake Munmorah that hit headlines Australia wide, which generally, shocked people.

Dr John Vaughan and Associates, Lake Munmorah GPs at the time, issued a public statement to the Commission of Inquiry into Electricity Planning in NSW indicating child asthma at twice the national average and recurrent bronchitis in adults who do not smoke “greater than one would expect” and was probably attributable to the power stations in the area. This was a significant statement and one that would help halt the progress of coal fired power in NSW. These figures were confirmed by parents at Lake Munmorah in press articles. Of the 258 children at the local school, 103 had respiratory problems with 76 classed as having asthma.

The Editorial column of the Central Coast Express 30/10/1985 stated..."If these figures are available they have been kept secret" ... "However it shocks us", the editorial said, "it must shock every resident that such a tragedy could occur and nobody knew about it." ... "It would be even worse if people in power actually knew what was happening but decided to cover it up" the editorial claimed.

The following day the national headlines included a front page photograph of a young girl in a gas mask on the shores of Lake Munmorah (Sydney Morning Herald 31/10/85) with headlines..."Why Kassy Fights for Breath".

1987: Following the abandonment of the proposed Mardi and Olney power projects in Wyong the Electricity Commission (Elcom) placed a half page advertisement in local press saying "We are Giving Up Smoking". Elcom were now retro-fitting both Eraring and Munmorah stations with fabric filter technology to help constrain particulate matter from the stacks as part of a \$121 Million upgrade program. Interestingly, Vales Point station did not receive fabric filters until 2007, exactly 20 years later, according to Delta's Steve Gurney recently. Perhaps they relied on electrostatic pollution control which they perceived was sufficient at the time.

2009: Another Editorial from the Newcastle Morning Herald stated..."Hunter people have been asking for years what impact the particle emissions of coalmines and power stations may have on their health. NSW health authorities have shown no inclination to seek answers to that question".

At Planning and Assessment Commissions Hearings in both 2008 and in 2010 at Wyong, a call for an investigation into cumulative air pollution in the region received no support from the Panels. Singleton Shire Councillor and local nurse Lyn McBain went to the press stating that 90 people attended a meeting where there was an outpouring of statements about health in the community.

"People complain of mysterious illnesses, of headaches and tiredness, of lethargy, aches and pains... Lyn McBain said.... "Singleton appears to have more than its fair share of cancers, in particular a higher incidence of pancreas, bowel, kidney and melanoma. One questions the incidence of childhood cancers and it seems many younger men and women are dealing with cancers of various kinds. We appear to have increased incidence of brain tumours. There have been rare cases diagnosed in Singleton of which the world has fewer than 1000 cases."

2010: Frustrated by the Government's failure to investigate asthma levels in children in Singleton, local GP, Dr Taun Au set about testing lung functions of children at the 10 local schools. He found one in seven children had low lung capacity at 14.3 per cent of the population. His claims were rejected by the Government dismissing any claim that the coal/power industry was part of the problem. One month after Dr Au's press article appeared a claim of a cluster of brain tumours in Singleton appeared in the Newcastle Herald on the 12th April. Five residents within a residential block had been struck with brain tumours. They were literally neighbours. Two people died, another was on a course of drugs and two others recovered after intervention.

"There are quite a few more cases we know about in Singleton. If they did a study at least we would know what was going on," said Narelle McMahan, wife of Peter who was diagnosed with a tumour.

Dr Au also was concerned about the number of young women he had seen with breast cancer.

Sydney University professor of public health Bruce Armstrong, who investigated the cancer cluster scare at ABC's Brisbane studio in 2007 said that given the rarity of brain tumours, this case might warrant further investigation.

Dr John Drinan, environmental scientist, claimed that for 20 years, governments of both sides of politics had ignored requests to investigate community health issues in the Singleton area. He claimed that the community were kept out of meetings between NSW Health and Hunter New England Health at the time despite them having sent requests to be involved.

2011: The Medical Journal of Australia of September 2011 under a heading titled "The Mining and Burning of Coal: Effects on Health and the Environment" stated that "...While there has been no Australian overview of the health effects of coalmining on inhabitants of coalmining areas, evidence from the United States indicates....lung disease and kidney disease...The limited evidence on the impacts of air pollution from burning coal in Australia suggests that the health impacts are similar to those reported from other developed countries".

2012: In the Government's "Clean Air for NSW" campaign – The sources of PM2.5 particulate matter in their "The Coal Chain" document indicated that wood smoke (mainly from home wood heaters) in Singleton amounted to 14% and 41% from the coal industry.

Then in the “Air Quality in NSW” document Government concentrated on how to reduce the impact of wood heaters in Singleton and Muswellbrook but offer no solution attempting to contain fallout from the coal/power industry. The Government effectively wanted people to concentrate on the former, once again deflecting interest in pollution from coal and power stations.

Yet the 2013 Federal Senate Standing Committee on Community Affairs, in “The Impacts on Health of Air Quality in Australia” found that...”coal mining (fallout) levels in the Upper Hunter are higher at 66% of PM2.5, and 87% of PM10 emissions”.

These figures, of course, required further investigation, comparing the NSW data above and those of the Federal Senate Inquiry which offer wildly different outcomes. This has never been investigated.

2017: The Federal Senate Inquiry into the “Retirement of coal-fired power stations” hearing in Sydney was addressed by Dr Ben Ewald and Dr John Van der Kallen from Doctors for the Environment and Environmental Justice Australia (EJA). They talk about the large numbers of premature deaths likely to occur in the ensuing years of continuance of coal fired power in Australia. Using data from known outputs from National Pollution Inventory (NPI) annual reports, the likelihood of hundreds of premature deaths, diseases and low birth weights in children were given to the Federal Senators. The Inquiry failed to get traction or have any consequential debate in Parliament. The fact that the whole Inquiry was assisted by a “Dissenting Report” from Liberal Senators aided its failure. Here alone is an example of throwing “the baby out with the bathwater”, meaning the total lack of empathy for the Doctors for the Environment input.

This sends a signal of disregard for children’s health from disgruntled and narrow-minded Liberal Senators, one of whom, dismissed our input in Sydney as being politically motivated. Environmental Justice Australia (EJA) launched a major report titled “Toxic and Terminal”. Page 12 of the 83-page report indicated that the World Health Organisation regarded “all particulate matter can trigger heart attacks and strokes and is deemed carcinogenic”. The report also highlighted the incredulous self-reporting data of the National Pollution Inventory.

Power stations annually report without any authority oversight or analysis resulting in wildly fluctuating reports of outputs of toxic gases and heavy metals. Somehow Federal and State Governments fail each year to question these important outputs that clearly affect community health.

2018: Dr Ben Ewald and EJA continued a public campaign addressing statistical data on asthma and associated diseases resulting in hospitalisation and early death rates likely attributed to the power and coal industry in NSW. Dr Ewald, using statistical data, said that in the remaining 12 years of operation of Vales Point Power Station, it would result in 547 additional deaths, 475 lower birth weight babies, and 709 additional cases of onset diabetes.

In ensuing years groups became active again around Lake Macquarie and northern Central Coast. The Coal Ash Community Committee raised the problems of ash dam leaching and suggested NSW EPA took action as a matter of urgency. The formation of Future Sooner Group highlighted the health effects evident in local communities.

Future Sooner members gave evidence before the NSW Public Works Committee Inquiry into the Costs for Remediation of Sites Containing Coal Ash Repositories. Among the 16 recommendations of the inquiry, subsequently ratified by the NSW Parliament, was recommendation 6 stated.... “That NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022”.

Since then there has been silence. No communication from NSW Health or any member of parliament has ensued. Inquiries have been met with “pass the parcel” syndrome where authorities refer it on to another.

Hunter Community Environment Centre produced the “Dirt File” into the poorly performing Vales Point Power Station including two major fish kills in Wye Bay in 2022.

September 2023 saw a visit to the Central Coast by the United Nations Special Rapporteur on Toxics and Human Rights, Dr Marcos Orellana. Dr Orellana and assistant Ms Halida Nasic, spend several hours listening to a packed Chain Valley Bay Hall on problems of the power industry and health. No government representatives or delegates attended despite much front page media well in advance of the scheduled meeting. There has been no evidence of local politicians meeting with the UN delegation.

Alerted to the new online tool “Australian Cancer Atlas” Future Sooner driver Gary Blaschke OAM discovered worrying levels of cancer rates, particularly in Budgewoi, as apart from adjoining suburbs which too have elevated rates of some cancers. Rates of various cancers in Budgewoi:

Head and Neck Cancers	102%	Above Australian Average (AAA)
Liver Cancer	73%	AAA
Lung Cancer	90%	AAA
NeuroTumours	54%	AAA (Neuro endocrine)
Oral Cancers	87%	AAA
Rare Cancers	59%	AAA

These rates each raised a red flag. Budgewoi (east of Doyalson) is an isolated suburb situated directly east of airflow influence from Vales Point station, and the previously operating Munmorah station, but also the ash dams of both Vales and the old Munmorah site.

In 1985 for the then Inquiry we cited the study by Newcastle University academics, Drs Bridgman, Kalma and Chambers: "The Contribution of Industrial Fossil Fuel Use to Ground level Sulphur Dioxide Concentrations in the Lower Hunter Region" (Research paper No 8 1983).

They pinpointed Doyalson as the most SO₂ polluted area in the whole of the lower Hunter region. The study went on to say ... "In July, the major (air influence) problem areas remain the same but are shifted eastward ... both models showing potentially very high concentrations to the east of the power stations under unstable conditions."

It might well be suggested that Budgewoi has suffered decades of extreme deposition of smoke stack emissions, coal dust pile and transport emissions, as well as heavy metal and chemical airborne particles blowing eastward from the vast ash dam surfaces particularly in winter air influences from the west, as indicated above.

Water Pollution and Public Health: Throughout the last 10 years the environmental groups have been highlighting the leaching of toxic metals and substances from the unlined ash dams into Lake Macquarie and into Lake Munmorah (from the old Munmorah Power Station).

These unlined dams contain heavy metals such as arsenic, lead, selenium, aluminium, copper, zinc and amounts of mercury. These leachings become constant sediments in the receiving waterways and pose problems for particular bottom feeding sea life including mud crabs, and accumulation has occurred since the 1960s.

Not only do these ash dams hold the deposits from burning coal, under licence from the NSW EPA, Vales Point is allowed to dump, either on the ash dam itself or in the dam catchment, (which in itself is a huge worry), detergents, oil sheens, chemical cleaning solutions, oil and chemically impacted soils, dredge spoil, polisher plant effluent, spent exchange resins, fabric filter bags, chemical spill residues etc...literally a dumping point for all waste from the plant. (EPA Licence VP 761 Sect.L5.2).

Control over the ability for the public to fish from Wyee Bay, which is the receiving body of VP's water discharge and ash dam leaching point, is haphazard. Delta Electricity do have a warning sign on a small walking track adjacent to the discharge point. At the public recreation area at the mouth of Wyee Bay at Mannering Park, NSW Fisheries warn of fishing prohibition during some months of the year.

At all other public access points along Wyee Bay/Mannering Park there are no warning signs of contaminated sediments. The public can access and fish, without clear warnings, any of the waterside reserve areas between the VP canal discharge point and the Mannering Park picnic area and boat launching ramp at the mouth of Wyee Bay.

Central Coast Council in their joint publication with the NSW Government of the Central Coast Waterways Report Card show clearly an "A" Grade waterway report for Wyee Bay, with no warnings about fishing or possible ingestion of toxins via mud crab or bottom feeding fish.

I raised this at the Catchments Committee of Council recently. In the report they clearly separate the disciplines of "Ecological Health" and "Environmental Health". Council and Government prefer only to assess the waterway on general water quality and seagrass coverage. The Report states..."Ecological Health does not refer to environmental health issues such as drinking water quality, safety for swimming, heavy metal contamination, disease, bacteria, viruses or our ability to harvest fish".

Despite recognising these dangers associated with ash dams and our waterways, nowhere in the Report Card do they refer people to other Council or Government documentation that addresses this in public. There has been no attempt by any level of Government to discuss or alert the public to these dangers.

A local academic, defending the basis of the Waterways Report Card, said....."Heavy metals and seafood contamination is not a Council responsibility". He goes on to say.... "Waterway health is likely to mean something different for each person".

This Citizen's Inquiry is simply asking governments and agencies such as NSW Health and EPA NSW to engage with the community. We do not have the answers. Future Sooner uses official data available in statements to the media. The community trusts that government and agencies exist for the interest and protection of its Citizens'. Failure to engage with the community is plain dereliction of duty. The full United Nations Report due soon already presses this very point in its published Interim Report.

Submission 17 – Mark Merritt

Question - Are power plants making us sick?

Answer - Undoubtedly; Not only are they making us sick, they are killing us as individuals and as a species.

For decades, I have been hearing the people's complaints about the Vales Point Power Station; the air, ground and water pollution it is creating now, and ever since it was commissioned.

It seems that everyone in Australia understands the hazards and threats caused and made by this left over of the power industry, and still our so called "leaders" in government choose to turn a blind eye to it all. And as they do, the good people who are living near Vales Point, around Newcastle and the Hunter region continue to suffer illnesses, shortened lives and diminishing prospects of a fortunate future for their families, their ecosystems and wildlife.

Throughout recorded time, great philosophers and writers have pondered what is right and what is wrong. Our great poets and artists have continually struggled to clarify and portray light from dark, good from evil, fortune opposed to misfortune, happiness contrasted with misery and pain. And still after eons of describing and defining "the good" and "the bad", our so-called "leaders" in government fail to understand these fundamental truths, about the human condition and the way families and communities work. They seem to almost completely miss the voices of ordinary people. Instead, the corporate model of profit at any cost would seem to trump any care for us ordinary people, the habitat and good population health. This is not only undemocratic, it's unfair! And fairness is a key and principal pivot of any democratic structure.

If corporate profits are to be made, then let it be so! It seems that people near Vales Point, whether they knew it or not, have been suffering for years from air, water and soil pollution. But now when the facility ought to be closed and taken apart, a wealthy fellow from the other side of our planet sees a chance to make profits by investing large amounts of his wealth, to temporarily partly repair this aging curse to our wellbeing. He wants to keep Vales Point running for profit, selling electricity to the very people who will be killed by the processes of him making it. It all sounds like a futuristic dystopic science-fiction horror story. But it is real!

Especially for those people and animals living near this affliction to our beautiful planet. The very real crime of polluting our water, poisoning aquatic ecosystems and the oceans is bad enough. But the impacts from the Vales Point Power Station and all the coal-powered power stations on and around Lake Macquarie are many, long-lasting and very considerable.

- The residual waste from coal-ash and dust is impacting air and groundwater below the surface through mismanaged settling ponds.
- Lung cancer, stroke, heart-attack, asthma and other respiratory illness rates in people living in the region have statistically been increased and are causing fear, suffering and death.
- Wildlife and pets are also similarly impacted by dust and water pollution.
- Underweight babies are reported in the fall-out area of these polluting coal-furnaces.
- Increased kidney disease is also indicated in local populations around Lake Macquarie, Newcastle and the Hunter River region.

Any one of these problems ought to be enough to stop the continuance of this kind of development in the first place. But the runaway train that is corporatised capitalism has until now been able to have its way by convincing those people in "power" that it was and is a good idea.

So, where do we stand in all of this? Our so-called 'leaders' in government have so far been choosing to mimic corporate values and behaviours in order to perpetuate the myth that corporatised-capitalism is a sound and safe social mechanism to base our future on. The lobbyists are doing their work and the big end of town is continuing to become bigger and bigger; all this at the very real cost of human happiness, lives and a very clear and present threat to our collective futures on Earth, through the continued use of fossil fuels and the loading of our atmosphere with carbon-dioxide. And may I add, our Environmental Protection Authority (the EPA) appears to be supporting the same illogical stance, that of being an apologist for big business's environmental exploitation, altered ecosystems and corporate profits at any cost. (Maybe the lobbyists got to the EPA with 'considerations' too.) But really, all of this is well-embedded structurally within our public services and government agencies.

If it is true we live in a democratic society, why then are people forced to suffer illnesses and shortened lives so that some fat-cat person from the other side of our planet can make more profits. I would expect that very few people in Australia would actually be in favour of that. If the money that is to be spent by this wealthy person attempting to upgrade the Vales Point Power Station, were to instead be spent on building and installing renewable power supplies, we would all be much better

off. This is a clear choice of priorities; happy people, or profits? I vote for happy people.

Planetary warming is *The Kraken*, and *The Kraken is out and about*. We have one chance, and one chance only to survive The Kraken's threat to all that Humankind has created and developed over the past ten thousand years. Imagine losing it all; modern medicine, music and all of the arts, Earth science, space science, air travel, communications technologies and all those great recipes that go down so well.

To ignore *The Kraken* and plead with ignorance when it does come knocking, can never result in a positive outcome. We must face *The Kraken* powerfully, with resilience, good information and a determination to overcome the threat. Part of that resilience is making fundamental changes to our values and aspirations, and the means and methods with which we aspire.

People living near these obsolete malfunctioning leftovers of a bygone era, ought to rise up all together and mandate regulations and statutes that protect them from these and similar threats to their families, their health and wellbeing into the future.

The blight on planet Earth that is corporatised capitalism must be brought to heal, forced by the people through statutes to respect the rights of all living things and the ecosystems that support Life. If corporations, businesses or personal behaviours cause or are seen to be a potential cause of harm to people or natural systems, that behaviour ought to be disallowed or stopped under strong international protective regulations and statutes. These laws must have the power to punish proportionately corporate or business entities and individuals that cause any social or ecological harm.

We are now in "late-stage capitalism" and we are running out of environmental tolerances very rapidly. The very well-understood 'Precautionary Principal' ought to be our default first consideration regarding any major civil or industrial development or undertaking.

Water quality and public health go hand in hand! If our shire councils are to perform their 'duty of care' they will be needing water and soil analysis laboratories within shire infrastructure, or at the very least within arms-reach, as possibly shared with neighbouring shires. The problem of water and soil pollution is now widespread across the state; especially in the shadow or footprint of industry and industrial agriculture. Protective buffer-zones aligned to or around industry and agricultural/horticultural enterprises are largely non-existent, compounding the problem of chemical run-off, highlighting and underscoring the real need for council-run soil and water analysis facilities.

The benefits of these facilities would be numerous; providing employment incomes and training for local residents, potentially building strong collaborations between councils on important research programs (that would draw federal and state funding), importantly the immeasurable advantages of better understanding of what and where the problems are associated with toxic leaching into our waterways, and being able to identify legacy chemical hazards and threats to people and urban expansion processes.

I applaud the Central Coast Citizens' Inquiry hearings initiative taken by Future Sooner and I know these hearings will go far towards helping all of Humankind to better identify and deal with the after-effects of industrialised capitalism and the sad legacies left over from ill-considered extractionism, exploitation and reckless careless profiteering.

Submission 18 – Petter Flack

Growing up in Budgewoi our moms dreaded wind changes on washing day if the wind blows the wrong way they would have to do the washing again because it would have black and grey flecks on it.

Most people grow fruit and vegs, some had chickens for eggs and meat so what affect did the ash have on them and us?

In general, our health was good. My mother did lose two fetuses between my sister and my brother, I do not know why you do not tell children why.

Submission 19 – Wolf Messthaler

All around the world governments have implemented strong legislation to protect the health of Citizens' from environmental pollution which could cause serious health impacts and long lasting contamination of the environment they live in. There is strong evidence that coal fired power stations (CFPS) emit toxic air pollution via their emissions and the depositions of coal ash dams leaking into water systems and spreading via winds across wide areas.

"Airborne particulate matter (PM) is a *Group 1 carcinogen*.^[5] Particulates are the most harmful form (other than *ultra-fines*) of *air pollution*^[6] as they can penetrate deep into the lungs and brain from blood streams, causing health problems such as *heart disease, lung disease, cancer and preterm birth*.^[7]

There is no safe level of particulates.

Worldwide, exposure to PM_{2.5} contributed to 4.1 million deaths from heart disease, stroke, lung cancer, chronic lung disease, and respiratory infections in 2016.[8] Overall, ambient particulate matter is one of the leading risk factor for premature death globally.[9]

Particulate matter like PM_{2.5} are unfiltered by our lungs enter directly our bloodstream via our alveoli ... (<https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health>)
<https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>

CFPS emit PM_{2.5} like NO_x SO_x heavy metals like Lead Zinc Cadmium
PM_{2.5} emissions can be reduced by modern technology like electrostatic precipitators (ESP) by 99.3 % and additional technologies like scrubber bags.

Decades scientific evidence around the world has clearly demonstrated a significant increase of various cancer rates, respiratory and developmental conditions and diseases in the proximity and further distance of coal fired power stations emissions eg
the birth weight of infants born as far away as 36 km can be reduced from CFPS air pollution! <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-022-14971-3>

Conclusions: “Prenatal exposure to PM_{2.5} and SO₂ pollution adversely affected birth outcomes after controlling for other prenatal risk factors. This suggests that local government officials have a responsibility for better control of air pollution and health care providers need to advise pregnant females about the risks of air pollution during pregnancy.”

In line with the protective legal duties modern countries have updated emission reduction requirements for their CFPS, old and new, in line with the technological improvements of emission reduction technologies.

As an example, the most modern waste incineration plant in Copenhagen employs very effective emission reduction technology to enable the sloping roof to be used as a public sporting facility like a ski slope and a 80 m climbing wall!

Exhaust gas from the Amager Bakke incinerator is passed through an electrostatic precipitator (ESP) to remove particulates, NO_x compounds are removed by selective catalytic reduction (SCR) and a scrubber removes oxides of sulfur. High levels of CO₂ remain in the flue gas and the main purpose of the pilot carbon capture plant is to investigate the feasibility of its capture.
<https://www.vaisala.com/en/case/decarbonization-technology-proven-waste-energy-plant>

In 2023, the emissions intensity from electricity generation in Australia still amounted to around 549 grams of carbon dioxide equivalent per kilowatt-hour, in contrast to an industrial super power like Germany 381 gCO₂.

Vales Point on 1 January 2012 had an 5 year exemption licence implemented from the EPA; twice since then the EPA has allowed it to emit maximum limit of 1,500 milligrams of No_x per cubic metre and then on 28 October 2022 a 800gr No_x limit for more years. Densely populated first world countries like Japan have 376gr limit or Germany 200 gr for No_x and reduced now to 150 gr!

<https://www.hsph.harvard.edu/news/press-releases/particulate-pollution-from-coal-associated-with-double-the-risk-of-mortality-than-pm2-5-from-other-sources/>

Jurisdiction	SO₂	NO_x	PM	Hg
EU: from 2023, hard coal	130	150	8	4
EU: from 2023, lignite	130	175	8	7
China: from 2020	35	50	10	30
EU: from 2015	200	200	20	–
U.S.	640	640	23	1.6
China: All plants	200	100	30	30
South Korea	286	308	36	–
Japan	200	376	46	–
India: units installed after 2003* 200	600	50	30	–
Turkey	400	200	50	–
Chile	400	500	50	–
South Africa*	680	1020	68	–
India: units installed before 2003*	200	300	100	30
Indonesia	589	589	107	–

Australia	–	856	109	–
Philippines	1607	1607	214	–
Vietnam	500	1000	400	–

Unit: mg/m³, except Hg as µg/m³, dry STP 6% oxygen.

*limits are technically in force but regulator has delayed or failed to require compliance

Emission limits for new coal-fired power plants

Jurisdiction	SO ₂	NO _x	PM	Hg
China	35	50	10	30
United States – MATS	60	99	13	0.5
EU, hard coal	85	5	2	
EU, lignite	75	85	5	4
India	100	100	30	30
Turkey	150	150	10	30
South Korea	229	164	18	30
Vietnam	350	455	140	30
Philippines	594	1071	161	30
South Africa	680	1020	68	30
Indonesia	804	804	107	30
Australia	–	856	109	30

My big question is, how can the Australian Government and the NSW Government, under the guidance of the NSW EPA, allow old CFPS to pollute our environment causing death and serious health effects when there are affordable modern reduction technologies available today which will, when implemented, significantly reduce these problems? These technologies are affordable in the context of the huge profits these companies make!

What holds the government back to force implementation? How much will the Eraring extension cost?

“That was weighed against costs of \$1.7 billion, including \$1.1 billion for higher emissions. Under the Eraring extension agreement, there will be no up-front payments, but taxpayers could be billed up to \$225 million annually for Origin’s losses if the firm opts into an underwriting arrangement. (5 Aug 2024 <https://www.bordermail.com.au/story/8719929/powering-on-eraring-extension-benefits-outweigh-costs/>)

When will the NSW Government stop the proposed 10-year extension of Eraring and instead invest in building the Hunter Renewable Energy hub Offshore Wind farm in 3 years?

Easy information to be found on

https://en.wikipedia.org/wiki/Particulates#Size,_shape,_and_solubility_matter

Comments from the floor

Comment 1 – resident

My wife has been very concerned about this for many years. She was a child health nurse at Lake Munmorah. She was concerned at the amount of asthma that there was in the children who were representing at the hospital. We more recently made some inquiries because the government came back saying there was no problems with air pollution on that part of the Central Coast, we discovered that was because the only air pollution monitor on the Central Coast was down somewhere near Wyong.

Comment 2 – Ben Ewald, expert panel

Asthma is very common and there is a lot of it everywhere but certainly if there were high levels of particle pollution raining down on the suburb in those days. I read in one of the stories people talking about hanging out the washing and it being covered in coal dust. So certainly, if people were breathing that in, I wouldn’t be surprised if it was causing a large amount of asthma. I gather the power stations were upgraded after that to have better pollution control so it is probably no longer the case at that level of intensity but that sounds a very credible story. The air quality monitor for the region, there is one at Wyong. It has been there for years. I have looked at that data quite often and it never shows anything. I have never been to the site and inspected it but it is probably under a tree or something that shields it from exposures. There is one at Bright Waters near Morriset that has been there 3.5 years and a bit later I can show some of the data from that monitor.

Comment 3 – Thomas Bunn, expert panel

On PFAS: When I was an operator at Munmorah Power Station we used to fight fires on the side of the canal and we would drop the pump in the canal, put the foam in and all the stuff would run into the lake.

Air monitoring: Another one of my numerous jobs was with technical services, and the power stations used to have monitoring sites all around the Central Coast but they have all disappeared. This is my memory a few years ago. There was one at Munmorah Public School. There was one at Wyee near the old people's home and there was another one at the Central Coast at one of the primary or high schools there – they were the ones I visited... The data from the three monitoring sites all disappeared when the plants were privatised...

On Myuna Bay ash dam: I was on the coal dust technical panel for Pacific Power and they changed Eraring Power Station from an open source to a 'recyc' system purely and simply because of the flora and fauna being polluted in Myuna Bay. What they would do then was dump it in the outfall canal. "Dilution is the solution to pollution."

On coal ash: I can tell you about 25% of the coal ash is recycled and it goes to the concrete industry. If you go to the latest power stations built in Australia in Queensland they have lined the ash dams so there is no leakage out of them. What goes in stays in.

The only way to get the industry using coal ash in concrete is to legislate and have a policeman to make sure they do it.

Comment 4 – Merlene Thrift, expert panel

On air monitoring: In relation to the Wyong racecourse monitor, it is 20km away from Eraring and Vales Point and there is a lot of ash that can drop before it gets there. If you look at the prevailing winds, they are mainly North easterly and South easterly. Occasionally we will have a windy westerly come through, but you will find the monitors are not in the sites where the prevailing winds will come through.

On heavy metals: as far as mercury is concerned when it is dispersed from the power stations and goes into the air, it can fall into the environment, the micro-organisms in soil and water take it up, they methylate it and this makes it much more bio-available and it is preferentially taken up in the nervous system and has been shown in previous published medical data that there is a correlation with brain tumours.

Comment 5 – Mike Campbell

On that monitor at Wyong: It happened in about 2015, it was when the Wallarah 2 coal mine was to be established and we said you need a monitor up there where the power stations exist. Then some of the bureaucrats inside the department in Sydney said yes, Wyee would be a good spot, but they decided politically to put it a long way away from Wyee and the power stations. It ended up at Wyong racecourse because that was the political place to put it.

Comment 6 – resident

I'm just wondering if anyone is aware that during very windy weather the coal ash dams are sprayed. Does anybody know what they are sprayed with. The last time was about 12 months ago. I'd like to know what they are sprayed with and isn't this an admission that there is a problem if they feel the need to spray it. I don't know how often the dams are topped up but if you drive down Rutley's Road now there are enormous piles of coal ash sitting there and we have had a lot of windy weather lately.

Comment 7 – Gary Blaschke

On coal ash dams: the actual aeroplane spraying a blue substance on top of the ash dam just across the road from the carpark at Doyalson RSL ... happens probably every six months or so. It is a suppressant to try to hold the stuff together but what you have got to understand... there is an enormous amount, and don't hold me to this but something like 67 million cubic metres of asbestos and other building materials illegally dumped at Vales Point coal ash dam and it has been covered with 650mm of the clean fill from the Connex sites in Sydney; we had thousands of trucks coming up from Sydney to dump the clean fill on top of it and that is classified as remediation by the NSW Government. That leaches back into Lake Macquarie. Whenever we have downfalls the whole of the lake floods and it overflows, it goes north, it goes into Lake Macquarie, but we have evidence now that it has gone under the highway. The highway was acting as a barrier.

Oliveri's flower nursery, I had a phone call from his hydrologist, several years ago now, telling me that all his freshwater ponds had become contaminated. I went down to see the owner, Joe, sat with him, explained the situation about the kids with brain cancer. He teared up. I said are you OK. He said see that house just there on his property, near the entrance. My brother and his wife live there, and she just had her first chemo treatment yesterday for brain cancer... I believe, I don't know that the EPA or Delta have paid him off and the legal action he was following through has stopped now. I don't know what the suppressant is. If you rang Delta up, I am sure they wouldn't give you the name of it but pretty heavy stuff to try to stick it together...

...I sit on the Eraring Community Consultative Committee and have done so for the last 3-4 years. One of the big issues is recycling because they keep putting out media releases saying that they were going to reach 80 per cent of recycling when I turned around and looked into it a bit further, I found the three previous years, don't hold me to it, 20-odd and 30-odd percent had been recycled. And yet they put out the media release saying hey we reached 80 per cent; they even put ads in the Newcastle Herald and when I confronted Tony Phillips, who oversaw the process and said I just do not believe you are telling the truth to the community. I threw \$100 note on the table and said I bet you that hundred dollars that I can prove that you are wrong. For several months following up every time I ever saw him, he would go red. The last meeting we had, he walked in red faced, touched his pocket and said I have got your \$100. I said it has never been about the money Tony, it has always been about telling the truth to the community. What they did was dig up the coal ash and move it to another site at Teralba and dump it at that site and they classified that as recycling.

On air monitors: How do we get more monitoring systems. The EPA came out with what I think they call a blue [purple] monitor which are purple monitors. I have actually written to the EPA saying why don't you put some of these monitors in school playgrounds so at least we get a warning if the air quality becomes poor or worse that the kids can be taken inside instead of running through it. So they have the answers to it. They don't have to build the big super monitors like they have at Wyong racecourse... the other one at Mirabooka... where you place a monitor and which way the wind it blowing will determine what sorts of results you are going to get.

Comment 8 – Lee Rogers, Coal Ash Community Alliance

On the spraying of the ash dam. There was a lot of talk within the last year of Delta flying over and spraying their ash dam and Eraring choosing not to even though they were in the same windy weather because the fine for not doing it is less than it costs them to hire the helicopter and the suppressant to keep the ash from not flying off the ash dam.

Comment 9 – Ian Wright, expert panel

One of my concerns with the substantial fallout from both the power stations and the ash dams, as well as coal and coal processing – a roof is like a catchment of a lot of water and then it gets flushed into tanks. I have done a study recently up at the Orange district where there is a gold and copper mine and some fairly sub-standard testing was done by the Department of Health and the EPA but I believe there is a lot of flushing of contaminants from those operations into water and it particularly collects, there is a layer down the bottom, and most water tank outlets are close to the bottom and then when you get a summer thunderstorm that gets stirred up and I know as a semi-rural area there probably are quite a lot of other water tanks that are exposed.

In response to evidence from Steve Hassen of Budgewoi: I've got two case studies that kind of make me shiver when I hear that. The first one, everyone here would know the name Minamata disease which is mercury poisoning, and a village in Japan after World War II and the first thing they noticed was the cats having unusual behaviour and illness and not being able to balance and then it came to the people afterwards. So Minamata Disease and the Minamata Convention has now been signed and it is all about mercury. Mercury is a big issue here.

Secondly, Esperance and lead poisoning. The first thing they noticed in Esperance, and I am talking in the 2000s I think it was 2005. The first thing they noticed was birds falling out of the sky. It was like a biblical event. The birds they noticed, they did autopsies, had very high levels of lead and it was due to a local industry transporting lead through the town of Esperance and the loading activity, and the birds were warning the people about what was coming to them. It was falling on their soil, on their rooves, it was in their water. It was a massive incident and well investigated by government. So I just want to bring up those points. The animals could be giving us a sign here.

Re ash dams: In many ways ash dams, tailings dams, they sometimes call them storage but they all generally leak and in my area which is water science and water pollution, the smallest particles that come out often have the greatest surface area and often the greatest pollutant load so the leakage and the mobilisation of pollutions is in fact enabled by these when they leak.

On water contamination: how do we treat our water at home to make sure it is safe? First thing, are you connected to Gosford-Wyong town water supply? They are required under the Australian Drinking Water Guidelines to report. And the list of contaminants is as long as your arm. Most of that is pretty good except for PFAS ... the US EPA has much, much, much tougher guidelines than Australia does and in some cases about 140 times tougher. My greatest concern is they don't generally monitor. Sydney Water just monitored and made public last week for the first time across their water districts. The only way you are going to make that happen, every time they send you a bill, write to them, ask for it. Also talk to the Department of Health because they regulate water authorities and most importantly talk to the media about it. What can you do about it? You can't boil it. It generally won't filter out unless you've got fantastic filters and if you reverse osmosis your water that can reduce your mineral density because after desalination they must put minerals back into your water.

Water running off roofs and from tanks: I am really concerned about it and particularly given the known fallout of metals in this area and particularly mercury. We detected mercury in water tanks around the Newcrest Cadia gold mine. Again

Department of Health did the worst water survey I have ever seen in my life and the EPA marginally better than that. But I am very concerned about mercury levels here because of that fallout and some of the great work done by the Hunter Community Environment Centre has demonstrated that. But there is also lead and just about every other heavy metal will run off, everyone is talking about that dust, it will run off and flush into your tank and then form this layer down the bottom that gets stirred up and enters the system. It is hard to test. I would not recommend drinking it and I wouldn't generally recommend using it on vegetables if you have got concerns because a lot of those metals can bioaccumulate or bio magnify. I don't have an easy answer I am sorry.

Comment 10 – resident

My partner and I live in Lake Munmorah in a small housing estate called Birdy Sands... There are probably about 50 homes in this housing estate. We are aware that we have three neighbours, two of them have cancer, at the moment, are fighting cancer. One about three houses away is also fighting cancer. That is just the ones we know of within this housing estate. I don't know how many others there are. A common thing is a lot of them are using bore water. And I am wondering; I myself was thinking I might use this bore water on my vegetables. Na-ah, I am not going to do it. But I don't know. Does anybody know, can the bore water become contaminated. You see it all over the houses. They've all got bore water stains but I am wondering is that a cancer cluster?

Comment 11 – resident

On the Eraring thing. As the power station is still being used, they are adding to the coal ash so even if they are recycling 25 per cent, they are actually adding the other percent on top of what is already there, so they are adding at least half of what they are getting rid of; that is in addition to what they had before.

Comment 12 – Kim from Coal Ash Alliance

My comment is a quick comment about the recycling of the coal ash and in other countries they routinely expect the coal ash to be recycled that is common around the world but they require the ash to meet certain specifications, so it is safe for reuse. Eraring I believe did investigate that. They went across to Britain to consult with a company there. Then they heard they were not going to be required to do that by the government here so immediately turned around and came back to Australia.

Comment 13 – resident

This is just a consideration for the panel. It is my understanding from some of these submissions, people are saying, who work in the industry, they have signed non-disclosure agreements so they are basically stifled from speaking their truth ... if in fact the powers that be are the executive members of these corporations who are knowingly putting pollutants into the air and toxifying the water and the air. These non-disclosure agreements should be null and void because if they are breaking the law they have no legal standing to enforce a non-disclosure agreement and I suggest to the panel that you seek legal advice and invite people who have something to say to come forward without the fear that they are going to be facing any legal ramifications.



Eraring power station

FURTHER READING

American Lung Association. 'Toxic air, the Case for Cleaning Up Coal-fired Power Plants'. Washington D.C. and New York City, March, 2011.

Asif, Zunaira, Chen, Z, Wang, H, and Zhu, Y. 'Update on air pollution control strategies for coal-fired power plants'. Clean Technologies and Environmental Policy, Springer Nature, published on line 6 May, 2022.

Begert, Bianca. "Coal plant pollution can be deadly-even hundreds of miles downwind" Grist, Seattle, Washington, February, 2023.

Bernstein, Steven, The Compromise of Liberal Environmentalism, Columbia University Press, New York, 2001.

Blaschke, Gary. Presentation to Citizens' Inquiry into Health Impacts of Coal Power Stations, August 2024.

Blue Mountains City Council, "Blue Mountains City Council awarded for innovative Rights of Nature policy" Media Release, available at <https://www.bmcc.nsw.gov.au/media-centre/blue-mountains-city-council-awarded-for-innovative-rights-of-nature-policy>

Broome, R. et al. 'The mortality effect of PM2.5 sources in the Greater Metropolitan Region of Sydney, Australia'. Environment International, Vol. 137, April, 2020.

Brownstein, M. 'It's much more harmful than we thought and its mortality burden has been seriously underestimated'. The Harvard Gazette, Harvard Chan School Communications, 23 November, 2023. This article is a synopsis of a study undertaken by Lucas Henneman, et al entitled 'Mortality risk from United States coal electricity generation'. Science, Vol. 382, No. 6673, 23 November, 2023.

Burke, Anthony, Celermajer, D "Human progress is no excuse to destroy nature. A push to make 'ecocide' a global crime must recognize this fundamental truth" The Conversation, 31 August 2017

Burt, Erica, Orris, P., and Buchanan, S. 'Scientific Evidence of Health Effects from Coal Use in Energy Generation'. University of Illinois at Chicago School of Public Health, Chicago, Illinois, April, 2013.

Campbell, Mike., Presentation to Citizens' Inquiry into Health Impacts of Coal Power Stations, August 2024.

Casey, Joan A, et al. "Improved asthma outcomes observed in the vicinity of coal power plant retirement, retrofit, and conversion to natural gas" Nat Energy 5 (5) 398-408, 12 April 2020.

Commissioned Report. 'The dirty truth. Australia's most polluted postcodes'. Australian Conservation Foundation, November, 2018.

De Polo, Jamie "Long-Term Exposure to Fine Particle Air Pollution Increases the Risk of Breast Cancer" accessed at <https://www.breastcancer.org/research-news/air-pollution-breast-cancer-risk>

Doctrow, B. 'Deaths associated with pollution from coal power plants'. National Institute of Health, U.S. Department of Health and Services, 12 December, 2023.

Earth Justice Australia, "Latest data shows dirty coal should not be extended in NSW". 4 April 2024.

Environmental Defenders Office, Submission to the Special Rapporteur on human rights and the environment: Procedural elements of the human right to a clean, healthy and sustainable environment. Sydney, NSW. 2024

Ewald, B. 'The value of health damage due to sulphur dioxide emissions from coal-fired electricity generation in NSW and implications for pollution licences'. Australian and New Zealand Journal of Public Health 42, No.3, (2018): 227-229.

Ewald, B. 'The health burden of fine particle pollution from electricity generation in NSW'. A Report commissioned by Environmental Justice Australia, November, 2018.

Ewald, B., Knibbs, L., and Marks, G. 'Opportunity to reduce paediatric asthma in New South Wales through nitrogen dioxide control'. Australian and New Zealand Journal of Public Health, Vol. 45, No. 4, August, 2021.

Farrow, Aidan, Anhauser, A. and Myllyvirta, L. Lethal Power: How Burning Coal is Killing People in Australia. Greenpeace Australia Pacific, August, 2020.

Future Sooner, Interim Report of the Citizens Inquiry into Health Impacts of Coal Fired Power Stations, 2024.

Future Sooner, Submission to the Special Rapporteur on Toxics and Human Rights, 2023.

Future Sooner Research Group, Impact of Coal Fired Power stations on Local Environment and the Health of People Within the Wyong LGA, Future sooner, 2022

Gasparotto, J. and Da Boit Martinello, K. 'Coal as an energy source and its impacts on human health'. Energy Geoscience 2, 2021.

Harvard University, 2023, Coal Fired Power Station PM_{2.5} particles are twice as toxic than any other form of PM 2.5 particles. <https://www.hsph.harvard.edu/news/press-releases/particulate-pollution-from-coal-associated-with-double-the-risk-of-mortality-than-pm2-5-from-other-sources/>

Health and Environment Alliance (HEAL). 'The Unpaid Health Bill. How coal power plants make us sick'. 28 Boulevard Charlemagne, Brussels, Belgium, March, 2013.

Health and Environment Alliance (HEAL). 'What does coal cost health in the United Kingdom?' 28 Boulevard Charlemagne, Brussels, Belgium, December, 2013.

Henneman, L. 'Pollution from coal power plants contributes to far more deaths than scientists realized, study shows'. The Conversation, 24 November, 2023.

Hunter Community Environment Centre (HCEC). Delta's dirty deeds done cheap: the Impacts of Vales Point power station on Lake Macquarie. Newcastle, HCEC, 2023.

Kontchou, Julios.
(English translation; original here:
https://www.greenpeace.de/publikationen/PFAS_Meeresschaum_Bericht.pdf

Kravchenko, J. and Lyerly, H. Kim. 'The Impact of Coal-Powered Electrical Plants and Coal Ash Impoundments on the Health of Residential Communities'. North Carolina Medical Journal, Vol. 79, No. 5, 2018.

Kelly, Mathew. "Delta's 'dirty deeds': new research into Vales Point impact" Newcastle Herald, 13 May, 2023.

Langerman, Kristy E. and Christiaan J. Pauw. 'A critical review of health risk assessments of exposure to emissions from coal-fired power stations in South Africa'. Clean Air Journal, Vol. 28, No. 2, Pretoria, 2018.

Lockwood, A.H. and Evans, L. 'Ash in Lungs. How Breathing Coal Ash is Hazardous to Your Health'. Physicians for Social Responsibility & Earth Justice. New York: Earth Justice, 2014.

McKay, Sonya, Presentation to Citizens' Inquiry into Health Impacts of Coal Power Stations, August 2024.

Magnaye, Bella P., Bacal, I.R.M., Balina, A.D.D., De Torres, B.M., and Driz, Ma. C.C. 'Health Effects of Coal Plant among Nearby Residents'. European Journal of Molecular and Clinical Medicine, Vol. 7, No. 2, 2020.

Mahlangeni, Nomfundo, Kapwata, T, Laban, T, and Wright C.Y. 'Health risks of exposure to air pollution in areas where coal-fired power plants are located: protocol for a scoping review'. BMJ Open, 2024, 14.

Malfroy, H., Cope, M., and Nelson P. F. (2005). An Assessment of the Contribution of Coal-Fired Power Station Emissions to Atmospheric Particle Concentrations in NSW, Delta Energy, Eraring Energy and Macquarie Generation

Maloney, Michelle, Boehringer, G, MacCarrick, G, Satija, M, Graham, M, Williams, R, 2019 Citizens' Inquiry into the

Health of the Barka/Darling River and the Menindee Lakes, Australian Peoples' Tribunal for Community and Nature's Rights, Brisbane, Australia, 2020.

Mantalban, Melanie, Hodge, C, "Bold action' required following recognition of the human right to a healthy environment" Environmental Defenders Office. Sydney. NSW. 19 October 2021.

Millington, Ben. 'NSW coal ash dams need better regulation, say environmental groups'. <https://www.abc.net.au/news/2020-10-18/nsw-power-stations-dispute-coal-ash-contamination-claims/12777274>

Mookhey, Daniel MLC, Chair, Public Works Committee, 'Costs for remediating sites containing coal ash repositories'. Legislative Council, Report 4, March 2021, Chair's foreword, vii.

Munawer, M.E. 'Human health and environmental impacts of coal combustion and post-combustion wastes'. *Journal of Sustainable Mining* 17, 2018.

'National Waste Report'. Blue Environment Pty. Ltd., Suite 209, 838 Collins Street, Docklands, 3008, August, 2022, 44.

Newspaper article. 'Environmental watchdog to oversee Munmorah clean-up'. *Newcastle Herald*, 3 May, 2024.

Nichols, Louise. "Better health protection from dust pollution for workers than for local residents". *Singleton Argus*, 4 February 2025.

Nixon, Rob, *Slow Violence and the Environmentalism of the Poor*, Cambridge, Mass. Harvard University Press, 2011.

Packham, Colin. "Australia likely emitting twice as much methane than reported, says Rod Sims-led think tank". *The Australian*, 30 April, 2024.

Parenteau, P. 'New EPA regulations target air, water, land and climate pollution from power plants, especially those that burn coal'. *The Conversation*, 1 May, 2024. This article refers to the EPA in the U.S.A.

Report of the Special Rapporteur on Toxics and Human rights, Marcos Orellana, on the implications for human rights of the environmentally sound management and disposal of hazardous substances and waste on his visit to Australia. United Nations Human Rights Council. 2023.

Reynolds, S. 'Drop in coal power plant emissions associated with asthma improvements'. National Institutes of Health, U.S. Department of Health and Services, 21 April, 2020.

Roy, Eleanor A. "New Zealand river granted same legal rights as human being" *The Guardian*, 16 March 2017

Shearman, D. 'Global heating and fossil fuel burning are the world's greatest health challenges'. *The Hill*, Nextar Media, Irving, Texas, 16 December, 2021.

Shearman, D. 'Clean air is a human right our government chooses to ignore'. *Independent Australia*, 28 August, 2020.
Shearman, D. 'Why coal-fired power stations need to shut on health grounds'. *The Conversation*, 28 November, 2016.

Simelane, S.P. and Langerman, K.E. 'The sensitivity of health impact assessments of PM_{2.5} from South African coal-fired power stations'. *Air Quality, Atmosphere & Health* 17, (2024): 325-340. Springer, <https://doi.org/10.1007/s11869-023-01447-5>.

Speigel Science. "Sea foam in the North and Baltic seas heavily contaminated" 4 February 2025 (English Translation; original in https://www.spiegel.de/wissenschaft/natur/meeresschaum-an-nord-und-ostsee-offenbar-stark-mit-pfas-chemikalien-belastet-a-97e672c4-ac0e-475c-ba6d-e102ef0eec10?sara_ref=re-so-app-sh)

Thrift, Merlene, Letter to the EPA re its failure to take seriously health issues raised by Future Sooner and inaction re causes of ill health such as air pollution. 2 October 2024.

Union of Concerned Scientists. 'Coal and Air Pollution'. Cambridge Mass. First published 28 July, 2008 and updated 17 December, 2017.

United Nations Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, [the Aarhus Convention], 1998
United Nations, Declaration of Human Rights, 1948

United Nations, General Assembly, Resolution 64/292, 28 July 2010 on the Right to [Clean]Water

United Nations, International Covenant on Civil and Political Rights, 1966

United Nations, International Covenant on Economic, Social and Cultural Rights 1966

United Nations Office of the High Commissioner on Human Rights, General Comment 15 The Right to Water, 20 January 2003.

Winn, Paul, Lynch J, and Woods, G, “Out of the Ashes – Water pollution and Lake Macquarie’s ageing coal-fired power stations”. Hunter Community Environment Centre, Hamilton East, NSW, 2019.

Winn, Paul. Lynch, J and Woods, G, “Out of the Ashes II: water pollution and NSW aging coal-fired power stations” Hunter Community Environment Centre, Hamilton East, NSW, 2020.

Zhang, C. H., Sears, L., Myers, J., Brock, G., Sears, C., Zierold, K., “Proximity to coal-fired power plants and neurological symptoms in children” J. Expo Sci Environ Epidemiol 32 (1) 124-134, 13 July 2021.

Zierold, M., Sears, C.G., Myers, J.V., Brock, G.N., Zhang, C.H., and Sears, L. ‘Exposure to coal ash and depression in children aged 6-14 years old’. Environmental Research, Vol, 214,

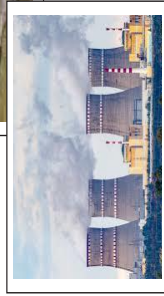
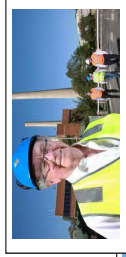
APENDIX 1

Future Sooner Citizens Inquiry

‘Are Coal Fired Power Stations Making Us Sick?’

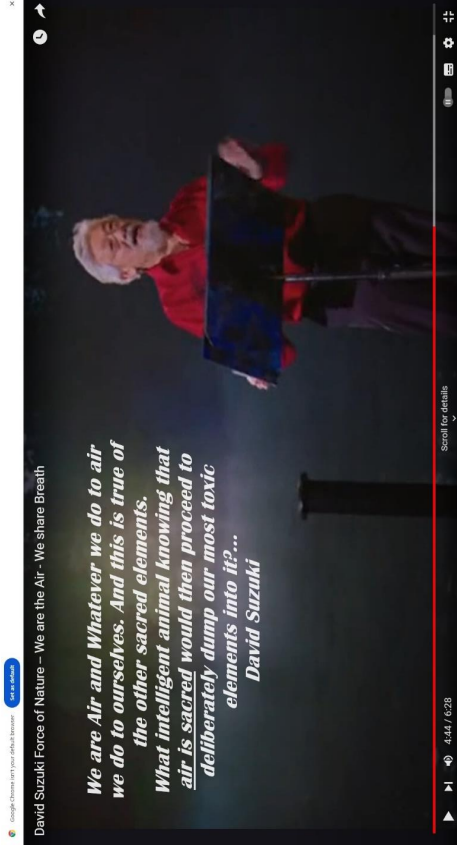
Submission (2024):

Sonya McKay



Sunday 25th August, between 1 pm and 5 pm at the Halekulani Bowling Club in Budgewoi.

CONTENTS



- Coal Fired Power Stations.....3**
- Lack of Protection.....4**
- Health Issues.....4**
- Exemption.....5**
- Legislation.....5**
- Case Law.....5**
- Climate Change.....7**
- Rights of Nature and Environmental Personhood...7**
- Astrobiology and Physics.....8**
- First Nations.....8**
- Conclusion.....9**

Respected Chair and Panellist.

Thank you for the opportunity to lodge a submission to the Future Sooner Citizens Inquiry which is asking the question, 'Are Coal Fired Power Stations making us sick?'

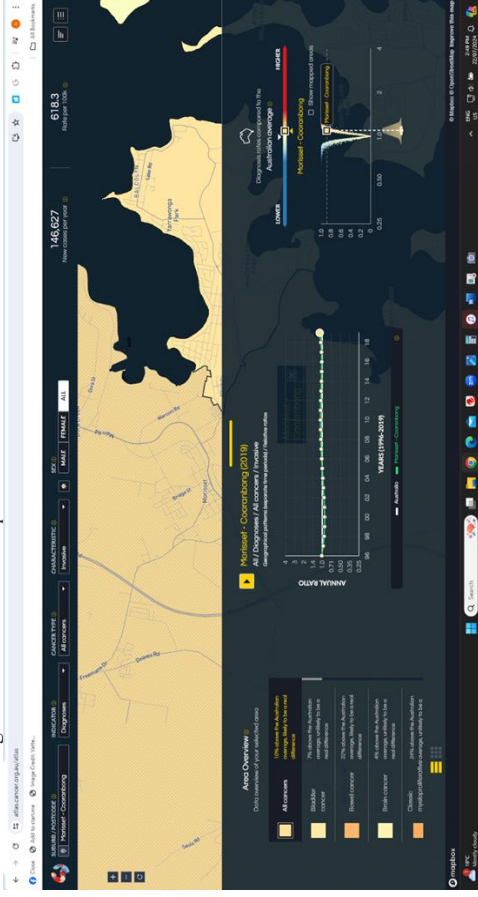
I enclose a academic research documents entitled 'The Technological Hazard of Vales Point Coal Fired Power Station' as well as a research paper focused on Environmental Personhood. Also included is a document entitled 'Vales Point Power station and the rest of the world', which is a summary of health issues from Dr Ian Charlton, Dr Merleen Thrift, and Dr Ben Ewald.

COAL FIRED POWER STATIONS

There are two operational coal fired stations on the foreshore of Lake Macquarie. One at Vales Point under the jurisdiction of Central Coast Council and another at Eraring under Lake Macquarie Council. One study previously promoted by the media from the Torrens University's Public Health Information Development Unit (PHIDU) indicated that central coast suburbs had higher cancer rates than the state average¹. These included suburbs surrounding Vales Point coal fired station. The media stated...

*'Exclusive new data reveals the northern half of the Central Coast is a veritable cancer cluster with rates of all forms of the disease 20 per cent above the state average at Wyang and Watanobbi, 16 per cent higher at Blue Haven, Doyalson and Chain Valley Bay, and 14 per cent at Budgewoi to Norah Head.'*²

When researching into Eraring using the Australian Cancer Atlas the results lead to 'Morrisett - Cooranbong 2019'. Information provided for the area states that cancers are 10% above the Australian average, 'likely to be a real difference'. Bowel Cancer was 22% above the Australian average. This is shown in the photo below.



¹ <<https://www.dailytelegraph.com.au/newslocal/central-coast/the-coast-suburbs-with-above-average-cancer-rates/news-story/710140de4d388796a11fc11c622978be>>

² <<https://www.dailytelegraph.com.au/newslocal/central-coast/the-coast-suburbs-with-above-average-cancer-rates/news-story/710140de4d388796a11fc11c622978be>>

LACK OF PROTECTION

It is a concern, therefore, that not all coal fired power stations along Lake Macquarie foreshores are fitted with necessary infrastructure to mitigate the worse health effects. A further concern relates to waste from the stations being poured into unlined dams allowing them to leach into the environment that includes Lake Macquarie.

In 2021 a report from *The NSW Government Public Works Committee Inquiry into Coal Ash Dams (Report - 4th March 2021)*, recommended 'That NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022'. The deadline has passed without this being realised.

In addition to this the Environmental Protection Authority (EPA) was to 'commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice.'⁴

In 2023 Future Sooner organised a community meeting that included a visit from the UN Special Rapporteur on Toxics and Human Rights. An End of Mission Statement stated that... 'There is a deep disconnect or distance between the government and community narratives concerning toxics.'⁵

*'Coal has fuelled Australia's energy sector for decades. In doing so, coal mining and coal-fired power plants have enabled important economic prosperity. But the environmental health costs have often been externalized on communities, who have paid the price with premature deaths, terminal illnesses, asthma and other serious health problems. Certain air quality standards in Australia are less protective than the World Health Organization's standards.'*⁶

HEALTH ISSUES

One of the main issues with coal fired power stations is the nitrous oxides, P.M2.5 and P.M10 where particulate matter can enter the lungs and lead to chronic childhood asthma as well as cancer.

An article in GeoScience states that...'

*Although coal is predominantly composed of carbon, there are many other constituents including sulfur, nitrogen, organometallic compounds, and minerals, that contribute to the formation of extremely toxic secondary compounds that come in contact with the atmosphere. The continuous inhalation of these hazardous substances triggers many diseases such as respiratory and cardiovascular disease, systemic inflammation, and neurodegeneration.'*⁶

Further information on health can be found in the summary by Dr Ian Charlton, Dr Merleen Thrift, and Dr Ben Ewald entitled 'Vales Point Power station and the rest of the world'.³

³ <<https://www.parliament.nsw.gov.au/lcdocs/inquiries/2556/Final%20Report%20-%20Costs%20for%20remediation%20of%20sites%20containing%20coal%20ash%20repositories%20-%2022%20March%202021.pdf>>. See appendix.

⁴ <<https://www.parliament.nsw.gov.au/lcdocs/inquiries/2556/Final%20Report%20-%20Costs%20for%20remediation%20of%20sites%20containing%20coal%20ash%20repositories%20-%2022%20March%202021.pdf>>. See appendix.

⁵ <<https://www.edo.org.au/wp-content/uploads/2023/09/The-UN-Special-Rapporteur-on-toxics-and-hl-Australia-end-of-mission-statement-08-SEP-2023-.pdf>>

⁶ <<https://www.sciencedirect.com/science/article/pii/S2666759220300500>>

EXEMPTION

Despite health concerns the Environmental Protection Authority has continued to provide exemption licences on NOx emissions for Vales Point Coal Fired stations⁷.

LEGISLATION:

In NSW section 4.1.5 of the Environmental Planning and Assessment Act 1979 NSW outlines the matters of consideration for an authority when consenting to a development proposal⁸. This includes likely impacts, suitability of the site, and the public interest under Section (1) subsections (b), (c), and (e) respectively. The objectives of the legislation promotes social and economic welfare, facilitation of ecological sustainable development, protection of the environment, and increased opportunities for community participation in the planning and assessment process in section 1.3 subsections (a), (b), (c), and (j) respectively. Under s.1.4 Ecological sustainable development is said to have the same meaning as s.6(2) of the Protection of the Environment Administration Act 1991 NSW.

Vales Point Coal fired power station, however, was said to be constructed in the 1960's and 1970's prior to the Environmental Planning and Assessment Act of 1979⁹. According to Lake Macquarie City Library work commenced for Eraring Coal Fired power station in 1976 with construction occurring in early 1977¹⁰. Both stations, however, still come under the Protection of the Environment Administration Act 1991 NSW.

Section 4 of the Protection of the Environment Administration Act 1991 NSW states that the objective of the legislation is the constitution of the Environmental Protection Authority to provide administration towards the protection of the environment as well as undertake tasks related to quality of the environment, audits and reports. The objectives of the Environmental Protection Authority are stated under sections 6(1) and 6(2)¹¹. This includes protection and reduction of risks under s.6(1)(a) & s.6(1)(b) respectively. The authorities objectives also includes the 'precautionary principle, intergenerational equity, conservation of biological diversity and ecological integrity, and the polluter pays principle in under section 6 subsection 2(a) through to 2(d) respectively.

CASE LAW:

Under the current circumstances it is questioned whether the Environmental Protection Agency is fulfilling its obligatory duty.

It is noted that the Bushfire Survivors for Climate Action undertook legal proceedings towards civil enforcement action with the EPA. It was found that the EPA failed in their duty 'to develop environmental quality objectives, guidelines and policies to ensure environment protection from climate change and ordered the statutory body to develop such instruments moving forward.' This was said to relate to s.9(2) of the *Environment Administration Act 1991* (NSW) (POEA Act).

⁷ < <https://www.epa.nsw.gov.au/working-together/community-engagement/regulation-of-power-stations/vales-point-power-station>>

⁸ < <https://legislation.nsw.gov.au/view/html/inforce/current/act-1979-203#sec.4.15>>

⁹ < <https://www.db.com.au/about-us/generation>>

¹⁰ < <https://history.lakemac.com.au/page-to-cal-history.aspx?pid=1085&vid=20&trmp=narrative&narid=3893#:~:text=Work%20commenced%20with%20the%20earthworks,Macquarie%20to%20the%20Eraring%20site>>

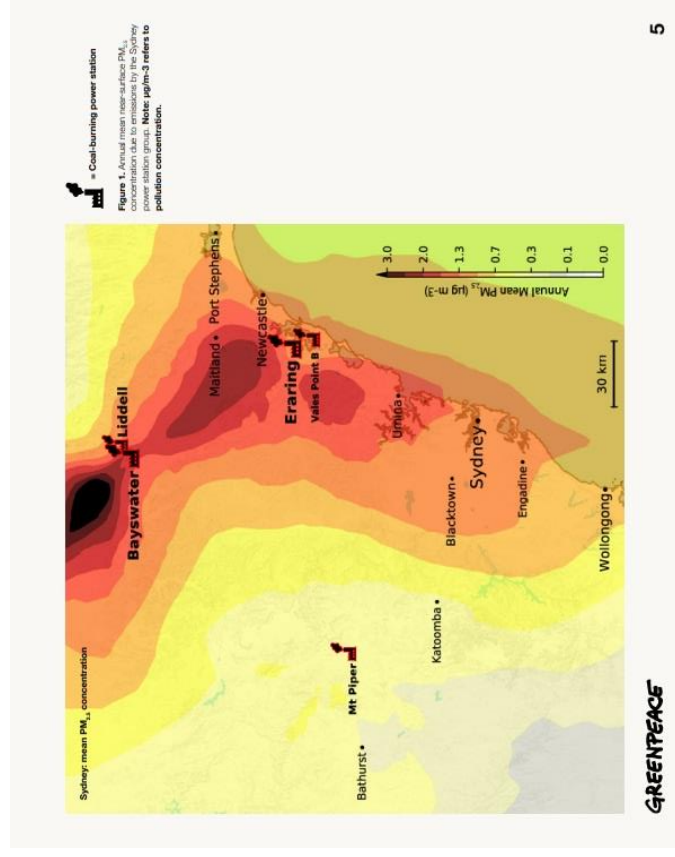
¹¹ < <https://legislation.nsw.gov.au/view/html/inforce/current/act-1991-060#sec.6>>

It was noted in a legal synopsis that this did not include detailed measurements towards this statutory duty, yet at the same time provided an understanding that protection of the environment should be seen in a broad capacity¹².

It is noted by the NSW Health website that there doesn't appear to be safe measurable levels for particulate matter. It states...

*Despite extensive epidemiological research, there is currently no evidence of a threshold below which exposure to particulate matter does not cause any health effects. Health effects can occur after both short and long-term exposure to particulate matter.*¹³

At the same time the Greenpeace report entitled 'Lethal Power' has provided data compiled in diagrams that indicate air flows showing wide ranging pollution impacts over extraordinary distances and geographical locations¹⁴. This is shown in the photo below.



Epidemiologist, Professor Fiona Stanley wrote a Preface for the report stating that:

¹² < <https://jws.com.au/insights/articles/2021-articles/landmark-ruling-against-epa-will-see-change-in-clif#:~:text=In%20a%20landmark%20ruling%2C%20Preston,develop%20such%20instruments%20moving%20forward.>>

¹³ < <https://www.health.nsw.gov.au/environment/air/Pages/particulate-matter.aspx>>

¹⁴

*'Australians need to know that we have 22 active coal-burning power stations, spread across the country from east to west. Whilst most are not in cities they are close enough to them to damage the health of residents. The scarily clear diagrams in this report show how far the particulate matter, nitrogen and sulphur dioxide can travel, with levels way above those considered safe by international standards. And major cities with large populations such as Sydney, Melbourne and Perth with large towns in between have measured unacceptable levels of such pollution.'*¹⁵

CLIMATE CHANGE

In addition to the health effects of atmospheric pollution there is also the climate effects from increasing carbon dioxide concentrations leading to concerns about coal combustion and extraction.

The Rocky Hill Coal Mine decision provided an understanding that the coal mine proposal was seen as the 'wrong place' at the 'wrong time'. The transcript of the case states...

'Wrong time because the GHG emissions of the coal mine and its coal product will increase global total concentrations of GHGs at a time when what is now urgently needed, in order to meet generally agreed climate targets, is a rapid and deep decrease in GHG emissions. These dire consequences should be avoided. The Project should be refused.'

[Gloucester Resources Limited v Minister for Planning [2019] NSWLEC 7, Para 6.99]

The Environmental Defenders Office website also outlines the Bylong decision and states that the 'New South Wales Independent Planning Commission also found the mine [Bylong coal mine] was not in the public interest because," the long-term environmental, heritage and agricultural costs will be borne by... future generations."^{15,16}

RIGHTS OF NATURE AND ENVIRONMENTAL PERSONHOOD

Further to particulate and climate pollution impacts there are also concerns for biodiversity conservation. The attached research document on 'Environmental Personhood' outlines what nature, rights for nature, personhood, and environmental personhood is. Arguing Environmental Personhood status particularly for the Great Barrier Reef allowing it to acquire standing sue for damages in a court of law for climate impacts that include bleaching and acidification to a point where its survivability is in danger.

Under s.24B of Federal legislation known as the Environmental Protection Biodiversity Conversation Act 1999 an action should not be taken outside the marine park that will have an impact or is likely to have an impact on the marines environment. The hunter regions coal fired power stations lead to increased total atmospheric carbon dioxide concentrations which lead to climate impacts noted to be the leading threat for the reef.

Lake Macquarie is under climate stress and sea level rise risk. There is also a contamination risk due to the leaching of the stations waste stored in Ash Dams, and the extraordinary amount of water used in the coal fired power process. The Environmental Protection Authority warns

¹⁵ <<https://nila.gov.au/nila/obj-3179312344/view>>

<<https://www.greenpeace.org.au/static/planet4-australiapacific-stateless/2024/01/7261fa2d-gpap-lethal-power-report-summary.pdf>>

< <https://grist.org/climate-energy/coal-plant-pollution-can-be-deadly-even-hundreds-of-miles-downwind/>>

¹⁶ <https://www.edo.org.au/climate/>

against fishing at water outlet areas and exceeding dietary consumption levels of crabs due to cadmium exposure levels¹⁷.

Case law provides Criteria towards Personhood through the genetic, cognitive, social, sentience, and gradient theories. The case being *Dobbs, State Health Officer of the Mississippi Department of Health, ET AL. v. Jackson Women's Health Organisation ET AL.* This case related to the fetus right to life and the sometimes opposing woman's right to privacy under the constitution to choose.

Criteria included sentience, self-awareness, the ability to reason, or some combination of this¹⁸. Another criteria required one of the following attributes, consciousness particularly the capacity to feel pain, reasoning, self-motivated activity, capacity to communicate, presence of self concepts and self awareness¹⁹.

Aquatic life also has an ability to assess and plan providing awareness. While there has been propositions put forward of memory consciousness within water.

ASTROBIOLOGY AND PHYSICS

As one delves into academic science, it can be found that there is an Inflationary view of the universe which scientifically flows to a backward point towards a Big Bang. Where all occurred at one time and one point as one singularity. Where evolution understands that we originated from star dust. Where energy isn't destroyed just transformed and we exist within electromagnetic fields with frequencies that can cause interrelated interference on a constructive or destructive level²⁰. Were the double slit experiment (where photons or electrons can have two different processed paths as particles or waves depending on whether they are observed) questions the very essence of consciousness at the core level of existence. And where, according to the physics noble prize winners, reality is entangled non-locally providing greater depth and range impacts from actions than what is widely accepted²¹.

FIRST NATIONS

This leads to the most important concluding thought relating to the oldest culture in existence²². Where country is more than mere presence for First Nations. Where obligatory caring

¹⁷ <https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program/pfas-investigation-sites/lake-macquarie#:~:text=The%20NSW%20Government%20has%20updated,cadmium%20above%20health%20screening%20criteria.>

¹⁸ Alito, J. (2022, October). *Dobbs, State Health Officer of the Mississippi Department of Health, ET AL. v. Jackson Women's Health Organisation ET AL.* https://www.supremecourt.gov/opinions/21pdf/19-1392_6j37.pdf, pg 31.

¹⁹ Alito, J. (2022, October). *Dobbs, State Health Officer of the Mississippi Department of Health, ET AL. v. Jackson Women's Health Organisation ET AL.* https://www.supremecourt.gov/opinions/21pdf/19-1392_6j37.pdf, pg. 51.

²⁰ <https://www.forbes.com/sites/startswithabang/2020/08/19/in-quantum-physics-even-humans-act-as-waves/>

²¹ <https://www.scientificamerican.com/article/the-universe-is-not-locally-real-and-the-physics-nobel-prize-winners-proved-it/>

²² <<https://bth.humannights.gov.au/significance/historical-context-ancient-history#:~:text=According%20to%20the%20most%20recent,world%20oldest%20continuous%20living%20culture%20>>

protection is taught instead of exploitation. Where souls and ancestral energy thrives and connect within a oneness with the spiritual nature of the land.

It also leads to nature being more than mere mechanics for the memory of law Professor Christopher Stone, who argued this in 'Should Tress have Standing in 1972'²³. He viewed nature instead as a living organism which could have standing in court to sue under a guardianship arrangement, such as with First Nations.

Lake Macquarie City Library indicates that all of Lake Macquarie's council area geographically 'lies within the traditional country of the Awabakal people'²⁴. Lake Macquarie should be provided a level of respect and Environmental Personhood at least akin to Mount Taranaki in New Zealand²⁵.

CONCLUSION

Under the circumstances there appears to be a failing duty of care regarding coal fired power emissions towards a wide population.

There is also an abundance of biodiversity that requires protection for Lake Macquarie.

In 1948 the United Nations passed the Universal Declaration of Human Rights²⁶. It included the right to 'life, liberty and security'. In 1972 there was the Stockholm Declaration on the Human Environment where the first principal was '*the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being*'. In 2022 the United Nations declared that a healthy environment is a human right. Specifically, a '**clean, healthy, stable environment**'²⁷.

The community have a human right to be free of the impacts of fossil fuels in their air and water and on their climate.

While the commonwealth constitution does not have a 'bill of rights' case law has provided a seemingly expanding implied bill of rights into environmental issues as seen in Brown v Tasmania²⁸.

²³ <<https://igould.usc.edu/news/in-memoriam-professor-christopher-stone/>>

²⁴ <https://history.lakemac.com.au/page-local-history.aspx?pid=1085&vid=20&tmtpt=narrative&narid=3604>

²⁵ <<https://fbth.humanrights.gov.au/significance/historical-context-ancient-history#:~:text=According%20to%20the%20most%20recent,world's%20oldest%20continuous%20living%20culture%20>>

²⁶ <<https://www.1news.co.nz/2023/04/12/taranaki-maunga-to-get-legal-personhood-what-does-this-mean/#:~:text=What%20is%20legal%20personhood,can%20give%20submissions%20on%20o>>

²⁷ <<https://www.un.org/sites/un2.un.org/files/2021/03/udhr.pdf>>

²⁸ <<https://www.unep.org/sites/g/files/zskgk326/files/2023-01/UNDP-UNEP-UNHCHR-What-is-the-Right-to-a-Healthy-Environment.pdf>>

<<https://www.unep.org/news-and-stories/story/historic-move-un-declares-healthy-environment-human-right>>

<<https://news.un.org/en/story/2022/07/1123482>>

²⁸ <<https://www.weforum.org/agenda/2022/08/the-un-just-declared-a-universal-human-right-to-a-healthy-sustainable-environment-heres-where-resolutions-like-this-can-lead/>>

<<https://www.parliament.nsw.gov.au/researchpapers/Documents/The%20High%20Court%20decision%20in%20Brown%20v%20Tasmania.pdf>>

Appendix

PUBLIC WORKS COMMITTEE

Recommendations

Recommendation 1 ¹⁹
That the NSW Environment Protection Authority and Dams Safety NSW establish a Memorandum of Understanding by 30 June 2021 in relation to the management and remediation of coal ash dams.

Recommendation 2 ¹⁹
That the NSW Environment Protection Authority establish air and groundwater monitoring sites surrounding all power stations and coal ash dams, and that current, real time and historical data of these and other existing monitoring sites be published on the Authority's website by 1 July 2022.

Recommendation 3 ¹⁹
That the NSW Environment Protection Authority conduct and publish a study of surface and groundwater around all coal fired power stations and associated coal ash dams, and their potential impacts on the surrounding environment, by the end of 2022.

Recommendation 4 ²⁰
That the NSW Environment Protection Authority publish, in real time, brochures of environment protection legislation.

Recommendation 5 ²⁰
That Dams Safety NSW publish on its website in a timely manner, where practicable, all ash dam assessments and responses undertaken by Dams Safety NSW or submitted to it by power station operators from time to time.

Recommendation 6 ³³
That NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022.

Recommendation 7 ³³
That the NSW Environment Protection Authority commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice remediation.

Recommendation 8 ⁵⁶
That the Department of Planning, Industry and Environment establish a coal ash reuse taskforce composed of state government agencies, unions, industry stakeholders and community groups to lead development of a strategy to achieve at least 80 percent reuse of coal ash produced in New South Wales, and report by 2022.

Recommendation 9 ⁵⁶
That the newly established coal ash reuse taskforce inquire into and review regulations affecting coal ash reuse, including:

- the stability and regulation of ash dams
- waste standards to ensure that coal ash is not contaminated with other waste, and
- land remediation, including the state and effectiveness of current capping, the current and future risk of leakage of contamination into the surrounding environment, and

Report 4 - March 2021

impacts of vegetation cover (including any contaminated vegetation, release of contaminants into the air via transpiration and cracking of capping materials) to ensure the safe and beneficial reuse of coal ash while promoting strong environmental and public health standards.

Recommendation 10 ⁵⁶
That Transport for NSW review its procurement practices to, where feasible, mandate the use of recycled coal ash in government-funded transport infrastructure projects.

Recommendation 11 ⁵⁷
That Infrastructure NSW review its procurement practices to, where feasible, mandate the use of recycled coal ash in government-funded infrastructure projects.

Recommendation 12 ⁵⁷
That Transport for NSW review the construction standards for roads, with a view to ensuring that local government trials the use of coal ash in its road construction.

Recommendation 13 ⁵⁷
That the NSW Government partner with the Ash Development Association of Australia and other interested parties, and support feasibility studies and pilot projects to assess and demonstrate commercial viability of new industries, such as transformation of coal ash into lightweight aggregate or other higher value-add products.

Recommendation 14 ⁵⁷
That the NSW Environment Protection Authority ensure that the quantity of coal ash stored, produced, and the destination and purpose of coal ash reused, is publicly reported.

Recommendation 15 ⁵⁸
That the NSW Government promote circular economy principles when dealing with coal ash waste and promoting reuse, including facilitating consultation between regulatory bodies, electricity generators and key stakeholders in recycling, local government and construction sectors.

Recommendation 16 ⁶⁶
That NSW Treasury immediately publish on their website the baseline environmental studies conducted for each operating power station to improve transparency in terms of the NSW Government's liabilities for remediation at these sites.

3.60 Wallerawang power station ceased operation in 2014, with the site including Kerosene Vale Ash Repository, which 'fills the entire valley of Sawyers Swamp Creek. It is on top of old mine voids and coal chitter from the old Lisdale open cut coal mine'.¹⁸⁴

3.61 According to Ms Liz Hadjia, Climate and Energy Campaigner, Nature Conservation Council of NSW, the coal ash repository at Wallerawang 'to this date remains un-rehabilitated'.¹⁸⁵

3.62 Lithgow Environment Group Inc., claimed that '[b]eavy metals, salts, and other contaminants have been leaching into these hydraulically connected underground mine workings for many decades'.¹⁸⁶ In turn, 'anomalies' in salinity levels were being 'recorded five, six or seven kilometres away from the power stations'.¹⁸⁷

3.63 Further, Lithgow Environment Group Inc., emphasised how important dam safety was, given there was the potential for the 'village of Lidsdale with some 100 houses located 1.4km downstream of Kerosene Vale Ash Dam ...[being] buried under 60 million tonnes of toxic coal ash sludge' if the dam failed.¹⁸⁸

3.64 In terms of the Mount Piper power station, which is still operational, increased salinity levels near the ash repository had been observed. According to Mr Chris Jonkers, Vice President, Lithgow Environment Group Inc., the 'salinity levels have increased eightfold from around 1,000 in 2006 to 8,000 now. If it increases another eightfold over the next 14 years the water here is going to be saltier than the seawater off Bondi Beach'.¹⁸⁹

Committee comment

3.65 Throughout this inquiry, the committee heard that one of the greatest concerns of inquiry participants is community and environmental health impacts resulting from inadequate remediation of coal ash dams.

3.66 The committee agrees with inquiry participants that little research, if any, has been conducted on the impacts and long term consequences in relation to the health of communities residing near coal ash dams. We are disappointed with the response by the NSW EPA and NSW Health to community concerns about a potential link between the circulation of additional metals in the air and waterways, and impacts on health outcomes for the community. This response, in conjunction with the lack of research conducted to date on this matter, demonstrates a complete disregard by the government towards the health of its citizens.

¹⁸⁴ Submission 44, Lithgow Environment Group Inc, pp 2 and 5.

¹⁸⁵ Evidence, Ms Liz Hadjia, Climate and Energy Campaigner, Nature Conservation Council of NSW, 1 September 2020, p 24.

¹⁸⁶ Submission 44, Lithgow Environment Group Inc, p 6.

¹⁸⁷ Evidence, Mr Chris Jonkers, Vice President, Lithgow Environment Group Inc., 1 September 2020, p 43.

¹⁸⁸ Submission 44, Lithgow Environment Group Inc., p 7.

¹⁸⁹ Evidence, Mr Chris Jonkers, Vice President, Lithgow Environment Group Inc., 1 September 2020, p 43.

3.67 Given this, the committee recommends that NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022.

Recommendation 6

That NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022.

3.68 The Committee acknowledges community concerns that the cap and cover method of storing coal ash in unlined dams is resulting in heavy metals and other pollutants escaping from coal ash dams. The committee is concerned by evidence received about the environmental impacts of coal ash dams, in particular, the contamination of Lake Macquarie and its aquatic life.

3.69 We note that the contamination of Lake Macquarie has occurred over many years, and that the 'cap and cover' method will not protect Lake Macquarie from the risk of further contamination.

3.70 The committee is cognisant of the cost implications of excavating coal ash from unlined dams and replacing them with lined dams. It is impractical to simply excavate coal ash and then re-dump it into a new dam with higher environmental controls when, as explored in chapter 4, there are other more beneficial uses of the coal ash.

3.71 While the committee has found evidence about the level of contamination in Lake Macquarie to be persuasive, we are frustrated by the responses of the NSW EPA to health and environmental concerns voiced by the community. As a result, we are of the view that an independent assessment of the environmental impacts of coal ash pollution is required.

3.72 The committee therefore recommends that the NSW EPA commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice remediation.

Recommendation 7

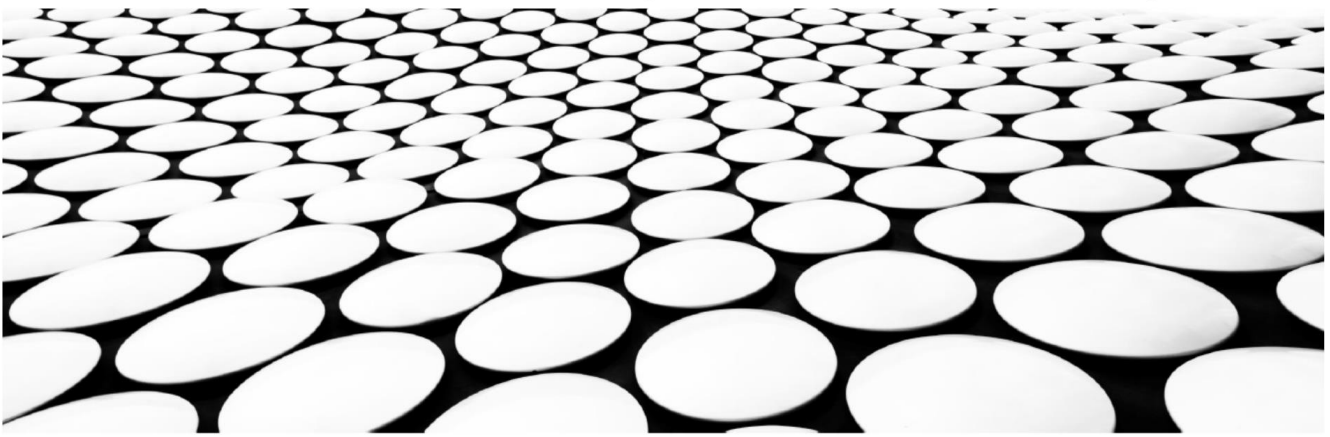
That the NSW Environment Protection Authority commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice remediation.

3.73 In regards to actual and potential risks for both operational and non-operational power station sites located near Lake Macquarie, Wollongong and the Blue Mountains, the committee is very concerned by the risks posed in Lake Macquarie, namely the risks posed by the Eraring ash dam which led to the closure of the Myuna Bay Sport and Recreation Centre. The committee is dissatisfied by the lack of authority exercised by Dams Safety NSW as the regulatory body responsible for dam structural integrity as well as the proper and efficient management in matters relating to dam safety. As a result, the committee is of the view that this situation could have been handled better by Origin Energy, Dams Safety NSW and the Office of Sport.

APENDIX 2

IMPACT OF COAL POWER STATIONS ON LOCAL ENVIRONMENT & THE HEALTH OF PEOPLE WITHIN THE WYONG LGA

By Future Sooner Members, 2022



**WE WOULD LIKE TO ACKNOWLEDGE THE TRADITIONAL
CUSTODIANS OF THE LAND ON WHICH WE STAND,
AND PAY OUR RESPECT TO ALL FIRST NATION ELDERS
PAST AND PRESENT**

**WE RECOGNISE THE QUALITY OF THEIR SUSTAINABLE
LANDCARE OVER THE PAST MILLENNIA**

LACK OF STAKEHOLDER MODEL IN THE COAL ASH RESPONSE TO THE NSW LEGISLATIVE ENQUIRY

Within a supposedly stakeholder model, we have been frustrated by the ongoing lack of commitment for any in-field and in-vivo heavy metal audit studies by the EPA and the Public Health Units of the Central Coast and the Hunter New England Area Health Services within the **CENTRAL COAST** for an epidemiological/health risk exposure report of residents in response to the NSW government its **March 2021 NSW Legislative enquiries due by December 2022**):-

<https://www.parliament.nsw.gov.au/tp/files/80392/NSW%20Government%20response%20Inquiry%20into%20costs%20for%20remediation%20of%20sites%20containing%20coal%20ash.pdf>; and
<https://www.parliament.nsw.gov.au/tp/files/79377/Final%20Report%20-%20Costs%20for%20remediation%20of%20sites%20containing%20coal%20ash%20repositories%20-%202022%20March%202021.pdf>

THE FALLACIES OF RELYING ON DESK TOP QUANTITATIVE AIR QUALITY TESTING DATA

The EPA and the PHUs quote incomplete and scientifically indefensible misleading air quality data -

A) *Current quantitative air quality monitoring are reliable tools in assessing people exposure to harmful anthropogenic air elements/chemicals.* This fallacy has long been buried by the published **2012 Lane Cove Respiratory Health before and after the Opening of a Road Traffic Tunnel: A Planned Evaluation study**
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0048921>

The local councils do exactly the same limited water “quality” test of our lakes – measuring only turbidity and pH – NO heavy metals, chemical assay, bacteriology, virology tests . Notwithstanding the ongoing siltation, smelly and bubbling pollution and known heavy metals leaching into our lakes, the council reports are always “good water quality” **The Wyong air monitor is 20km away and does not measure heavy metals deposition from coal ash and power station air pollution**

B) *All air PM particles are of similar characteristics.* We have already provided ample materials dismissing such false science.

C) *Temporal quantitative air quality readings at the micro local/regional levels which includes regular “poor or worse” spikes of these qualitative parameters can be averaged or smoothed over a month/season/year .* This would be considered criminally undefendable act to lock an animal in a garage with the car running for say 10 minutes and then take the poor animal for fresh air for say a day, week or a month before repeating the same process again, and again and again. Yet this is being done without mercy to defenceless people living close to air polluting coal power stations.

TYPES AND QUANTITIES OF AIR POLLUTANTS FROM VALES POINT IN 2019-20

The following slides present 2019/2020 emission data report for SUNSET POWER INTERNATIONAL PTY LTD TRADING AS DELTA ELECTRICITY, Vales Point Power Station - Mannering Park, NSW was downloaded from the National Pollutant Inventory (NPI) of the Australian Department of Environment & Energy. Publicly available at

<http://www.npi.gov.au/npidata/action/load/emission-by-individual-facility-result/criteria/state/NSW/year/2020/jurisdiction-facility/106>

The annual air pollution ESTIMATES data provided by Vales Point is fascinating not only in the amount of toxic material being emitted onto nearby and distant residents, but also raises questions of its data credibility: how is the release into air of these toxic pollutants being stopped by Vales Point exactly on reaching x 1000 of tons?

Apologies in advance for the small cut and paste picture

Substance	Air Total (kg) ^{[1][2]}	Air Fugitive (kg) ^[1]	Air Point (kg) ^[1]	Land (kg) ^[1]	Water (kg) ^[1]	Total (kg) ^[1]
Ammonia (total) ⓘ	1,300		1,300		14,000	15,000
Arsenic & compounds ⓘ	2.5	0.16	2.3		88	90
Beryllium & compounds ⓘ	0.72	0.080	0.64			0.72
Boron & compounds ⓘ	55,000	3.8	55,000			55,000
Cadmium & compounds ⓘ	4.5	0.0049	4.5			4.5
Carbon monoxide ⓘ	770,000	4,600	770,000			770,000
Chromium (III) compounds ⓘ	48	1.1	47		40	88
Chromium (VI) compounds ⓘ	2.4		2.4			2.4
Cobalt & compounds ⓘ	13	0.32	13			13
Copper & compounds ⓘ	12	1.1	11		12	24
Fluoride compounds ⓘ	47,000	12	47,000			47,000
Hydrochloric acid ⓘ	300,000		300,000			300,000
Lead & compounds ⓘ	22	0.89	21		0.69	23
Manganese & compounds ⓘ	250	9.7	240			250
Mercury & compounds ⓘ	7.5	0.0057	7.5			7.5
Nickel & compounds ⓘ	91	0.41	91		13	100
Oxides of Nitrogen ⓘ	18,000,000	9,000	18,000,000			18,000,000
Particulate Matter 10.0 um ⓘ	86,000	34,000	52,000			86,000
Particulate Matter 2.5 um ⓘ	31,000	930	30,000			31,000
Polychlorinated dioxins and furans (TEQ) ⓘ	0.00075		0.00075			0.00075
Polycyclic aromatic hydrocarbons (B[a]P _{eq}) ⓘ	30		30			30
Sulfur dioxide ⓘ	20,000,000	8.7	20,000,000			20,000,000
Sulfuric acid ⓘ	240,000		240,000			240,000
Total Volatile Organic Compounds ⓘ	93,000	1,000	92,000			93,000
Zinc and compounds ⓘ	110	1.5	110		25	140

THE TABLE BELOW SHOWS AUSTRALIA IS ONE OF THE WORST IN THE DEVELOPED WORLD IN TERMS OF PERMISSIBLE AIR POLLUTION FROM COAL POWER STATIONS AS ALLOWED BY THE EPA

Table-1: Selected countries emission standards for NOX, SOX and PM from coal power plants

Country	Time period	NOx ($\mu\text{g}/\text{m}^3$)		SOx ($\mu\text{g}/\text{m}^3$)		PM ($\mu\text{g}/\text{m}^3$)	
		Existing	New	Existing	New	Existing	New
Australia	--	--	800	--	200	--	80
China	Hourly	100	50	200/50	35	30/20	10
Germany	Daily	200	150	200	150	20	10
India	--	600/300	100	600/200	100	100/50	30
Indonesia	--	850	750	750	750	150	100
Japan	--	410	200	--	200	100	50
South Africa	Continuously	1100	750	3500	500	100	50
Thailand	--	820	410	2002	515	180	80
USA	Daily	135	95.3	185	136	18.5	12.3
EU IED	Continuously	200	150	200	150	20	10

NSW EPA tailor air pollution to pollutant requirements
L. Schneider et al. / Science of the Total Environment 728 (2020) 137398

Characteristic studies of coal power plants ash sample and monitoring of PM 2.5 Thriveri. T, Ramakrishna. CH, Seong Young Nam, Chunsik kim and Ahn Ji Whan (Journal of Energy Engineering, Vol. 26, No. 4, pp.45~56(2017)
<https://koreascience.kr/article/JAKO201717241626653.pdf>

COMPARISON OF LOCAL VS OVERSEAS AIR POLLUTION FROM COAL FIRED POWER STATIONS

- Emission licence limits for our local Coal fired power stations are **decades out of date**
- The EPA permits Vales Point power station to emit up to 850mg of NOx/m³, 99% of the time, and emit up to 980mg/m³ for 1% of the time
- **This is 6 times the EU** annual average limit for existing coal power stations of just 150mg/m³ **AND > 4 times the US** annual average limit
- Even at the lower EU limits, a cross-sectional study from 220,000 adults (18–69 years the French CONSTANCES cohort study 2012-19) showed significantly decrease in cognitive function with increased in NOx, PM2.5, PM10 and black carbon emission from nearby polluting industries
- More concerning, a Jan 2022 Federal Government report showed Vales Point power station emissions for pollutant particles PM2.5 **tripled** and PM10 **more than doubled** during the 2019-20 financial year, even though it had an 8 per cent reduction in energy generation
- Ongoing heavy metals toxicities from the air born particles from the stacks of these coal power stations are also medically known to affect kids' asthma rates, **IQ, school performances and juvenile criminal reoffending**

https://www.nature.org.au/vales_point_submission_guide#:~:text=Vales%20Point%20is%20allowed%20to,are%20decades%20out%20of%20date; <https://reneweconomy.com.au/new-data-shows-big-jump-in-toxic-coal-plant-pollution-even-as-output-falls/>; [https://www.thelancet.com/pdfs/journals/lanplh/PIIS2542-5196\(22\)00001-8.pdf](https://www.thelancet.com/pdfs/journals/lanplh/PIIS2542-5196(22)00001-8.pdf)

NOT ALL PM_{2.5} PARTICLES ARE BORN EQUAL

Globally consistent measurements of airborne metal concentrations in PM_{2.5} are important for understanding potential health impacts

PM_{2.5} filter samples (N ~ 800 from 19 locations) collected from a globally distributed surface particulate matter sampling network (**SPARTAN**) between January 2013 and April 2019 were analysed for particulate mass and trace metals content.

Metal concentrations exhibited pronounced spatial variation, primarily driven by anthropogenic activities.

PM_{2.5} levels of lead, arsenic, chromium, and zinc were significantly enriched at some locations by factors of 100–3000 compared to crustal concentrations.

Levels of metals in PM_{2.5} and PM₁₀ exceeded health guidelines at multiple sites.

Large global variations in measured airborne metal concentrations driven by anthropogenic sources

Jacob McNeill, Graydon Snider and Randall V. Martin (Scientific Reports | (2020) 10:21817)

<https://www.nature.com/articles/s41598-020-78789-y.pdf>

NOT ALL PM_{2.5} PARTICLES ARE BORN EQUAL (SPARTAN)

	PM _{2.5}	K	Mg	P	Ti	V	Cr	Mn	Fe	Cu	Zn	As	Se	Cd	Ba	Pb
Mammoth Cave	14.2	74.8	28.0	55.7	1.01	0.78	1.20	1.84	83.2	3.68	8.5	0.26	0.28	0.05	3.12	0.90
Atlanta	8.6	27.8	11.5	105.3	1.24	0.18	4.20	0.71	51.5	3.67	9.3	0.56	0.54	0.02	5.41	1.08
Bandung	25.1	432.1	18.3	23.9	1.73	0.31	2.12	2.80	78.2	3.28	23.7	0.60	0.23	0.32	2.57	34.62
Beijing	58.1	962.6	177.3	151.1	11.18	2.30	4.39	23.84	394.7	26.73	101.5	7.12	67.40	3.29	21.81	41.30
Bondville	5.7	64.1	34.1	162.3	1.39	0.13	3.77	1.59	37.0	3.11	16.7	0.65	0.55	0.12	2.15	1.54
Buenos Aires	9.6	152.1	30.4	30.3	1.70	2.48	1.10	2.52	94.0	5.17	20.8	0.43	0.36	0.30	5.08	10.47
Dhaka	49.0	876.0	47.9	23.0	3.94	6.98	8.00	25.40	167.7	11.69	498.4	6.33	5.38	7.35	12.53	279.72
Halifax	4.2	40.0	17.8	1.1	0.25	0.23	0.39	0.36	10.8	0.76	3.7	0.14	0.07	0.00	0.75	0.49
Hanoi	47.1	1293.8	84.5	36.6	5.21	2.10	2.28	80.05	282.2	14.10	1178.8	8.11	3.00	4.25	7.13	141.04
Ilorin	16.6	355.6	15.5	5.1	0.88	0.61	47.96	4.51	182.4	0.94	12.9	0.22	0.14	0.06	0.90	4.27
Kanpur	102.8	3047.1	74.4	340.1	5.60	2.21	19.41	9.89	168.0	8.78	119.5	15.29	10.60	12.88	3.99	209.33
Kelowna	3.5	34.1	2.4	1.6	0.32	0.14	0.32	0.41	17.0	0.55	1.4	0.19	0.04	0.01	0.75	0.29
Lethbridge	6.2	56.3	6.4	1.5	0.30	0.03	0.25	0.68	18.5	0.76	1.9	0.17	0.14	0.03	0.85	0.38
Manila	15.4	253.3	20.3	34.4	1.30	2.32	2.97	3.17	111.2	2.93	29.4	0.33	0.96	0.25	2.31	5.89
Pretoria	18.3	220.0	14.8	37.5	1.66	0.44	0.80	5.78	105.2	2.28	27.5	1.00	0.54	0.10	2.54	4.88
Sherbrooke	5.7	48.3	5.0	4.3	0.45	0.03	0.20	0.92	16.7	0.73	4.2	0.26	0.10	0.02	0.58	1.08
Rehovot	15.4	135.2	79.9	11.4	2.18	2.95	1.56	2.82	123.5	3.22	12.8	0.26	0.34	0.09	3.69	4.64
Singapore	17.5	344.9	24.2	13.4	1.66	37.92	0.47	7.76	89.9	5.57	110.1	0.48	0.71	0.12	3.80	3.54
Toronto	6.7	71.0	12.0	9.7	0.83	0.09	0.72	1.59	46.5	2.71	10.7	0.31	0.29	0.04	3.82	1.38

Table 1. Full elemental breakdown of mean mass concentrations of trace metals in PM_{2.5} at SPARTAN sites. Mass concentrations of each trace metal are reported in ng/m³. Total PM_{2.5} mass concentrations are reported in µg/m³. Corresponding standard deviations can be found in the supplemental Table S4.

NOT ALL PM2.5 PARTICLES ARE BORN EQUAL UK

In March 2021 the UK Government Committee on the Medical Effects of Air Pollutants Advice (COMEAP) on health evidence relevant to setting PM2.5 targets was asked to address the question “How strong is the evidence for differential toxicity of particulate matter according to composition, source or fraction (for example, PM10, PM10-2.5, UFP, BC)?”

COMEAP response: *It is almost certainly the case that some components or sources of particles are more detrimental to health than others. Nonetheless, at this stage, the health evidence continues to suggest that a focus on PM2.5 mass remains appropriate”.*

-

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1060968/COMEAP_Env_Bill_PM2.5_targets_health_evidence_questions_responses.pdf

NOT ALL PM2.5 PARTICLES ARE BORN EQUAL FRANCE

The French Government own document Particulate matter in ambient air Health effects according to components, sources and particle size (August 2019)

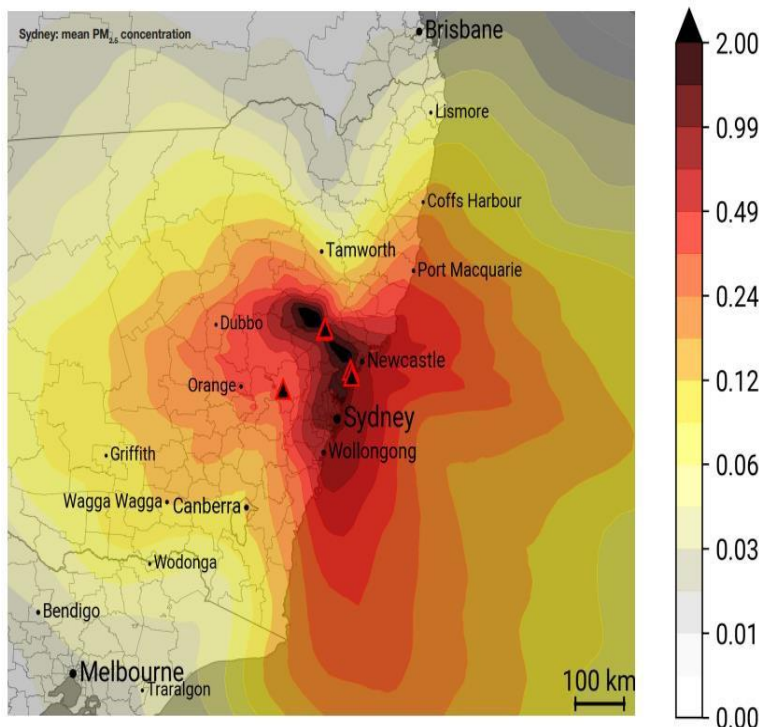
- *Pollution particles from combustion of coal and petroleum products*
 - *The levels of evidence range from high for coal combustion to moderate for petroleum-product combustion. These conclusions are consistent with the health evidence obtained for some components assessed individually: sulphate (coal combustion tracer), nickel and vanadium (petroleum-product combustion tracers). In addition, there is an extensive literature, not assessed here, on the harmfulness of emissions from coal combustion, particularly for household combustion (cooking and heating) in developing countries (exposure classified as carcinogenic by IARC)*

<https://www.anses.fr/fr/system/files/AIR2014SA0156RaEN.pdf>

ESTIMATES OF HEAVY METALS IN UNLINED COAL ASH DAMS ON THE CENTRAL COAST & LOWER HUNTER

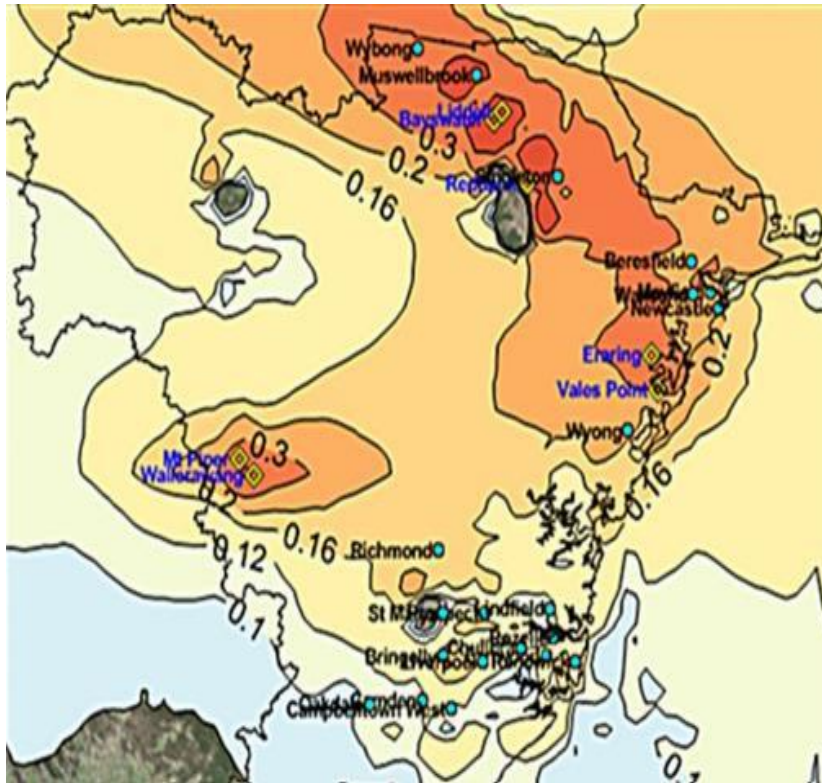
Tons of stored coal ash in unlined dams Munmorah, Vales Point and Eraring	heavy metal in stored coal ash dams in TONS	% of heavy metals in coal ash (link.springer.com/article/10.1007/BF00282962)	Types of Heavy Metals
70,000,000	73	0.00010381%	Mercury
	5,256	0.00750857%	Arsenic
	778	0.00111143%	Beryllium
	500	0.00071429%	Cadmium
	5,873	0.00839048%	Chromium
	6,226	0.00889429%	Nickel
	1,725	0.00246381%	Selenium
	1,063	0.00151900%	Lead
	61,770	(Pond 4 Vales Point Ash Dam)	Special waste Asbestos

Depending on the wind direction and speed, PM_{2.5} emitted from the coal-burning power station group near Sydney can travel all the way up to the Gold Coast in South-East Queensland and down to Shepparton in regional Victoria. Populations living closest to the power stations, such as Sydney, Singleton and Newcastle, are at greatest risk of exposure.



**MODELLED NEAR SURFACE
CONCENTRATION OF HEAVY
METAL LADEN PM PARTICLES
FROM THE SYDNEY POWER
GROUP SHOWS POPULATION
LIVING CLOSER TO THE
POWER STATIONS ARE THE
MOST AFFECTED**

[HTTPS://WWW.GREENPEACE.
ORG.AU/WP/WP-
CONTENT/UPLOADS/2020/08/
/GPAP-LETHAL-POWER-FULL-
REPORT.PDF](https://www.greenpeace.org.au/wp/wp-content/uploads/2020/08/GPAP-LETHAL-POWER-FULL-REPORT.PDF)



EPA OWN MODELLED NEAR SURFACE CONCENTRATION OF PM PARTICLES FROM THE ERARING & VALES POINT POWER GROUP SHOWS POPULATION LIVING CLOSER TO THE POWER STATIONS ARE THE MOST AFFECTED

EPA NSW: MONETISING AIR POLLUTION BENEFITS OF CLEAN ENERGY REQUIRES LOCALLY SPECIFIC INFORMATION

Energies 2021, 14, 7622. <https://doi.org/10.3390/en14227622>.

NOTE: The Wyong Air Monitor is mostly off-wind 20km away from Vales Point, Yet it used for EPA air modelling!

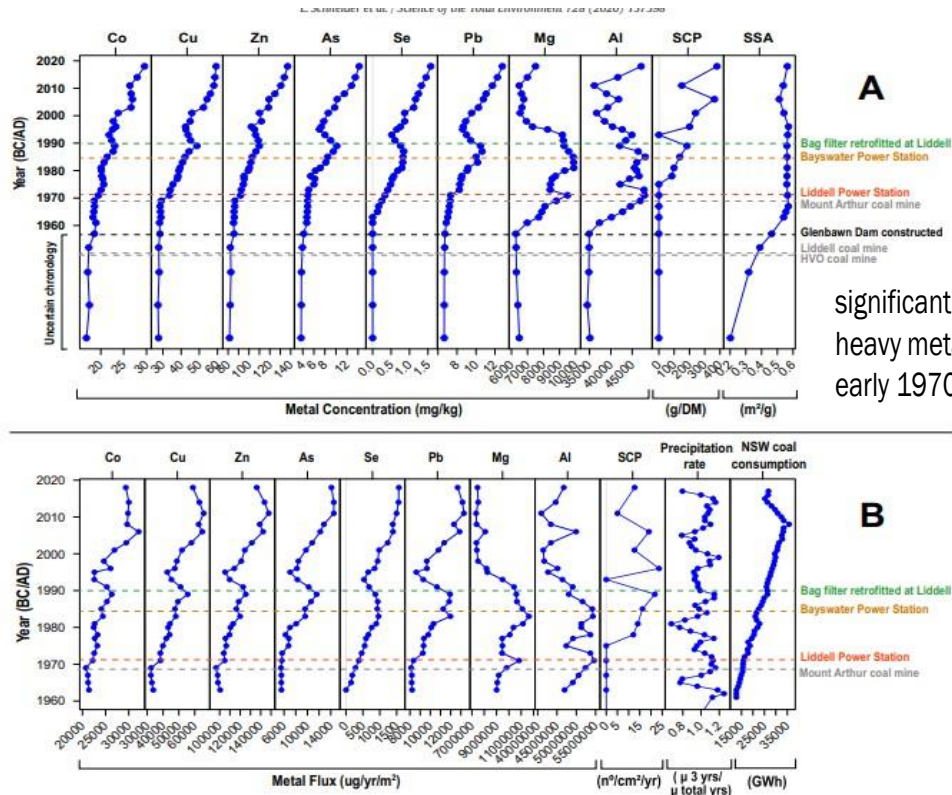
PUBLISHED EVIDENCES OF HEAVY METALS CONTAMINATION FROM LOCAL COAL FIRED POWER STATIONS EVEN IN NORTH WIND AREAS

Peer reviewed published evidences by Larissa Schneider et al 2020 showed significant longitudinal concentration of heavy metals contaminations in Lake Glenbawn which is situated approximately 30 km northwest [which is off-wind] of Liddell and Bayswater coal-fired power stations and open-cut coal mine

Study conclusion: This study highlights the value of dam sediments as a record of past contamination in dry areas such as mainland Australia. Increases in metal concentrations in these dams correlated with the timing of the commissioning of coal mines and coal-fired power stations and the change in technologies employed in the Hunter and Latrobe Valleys. In particular, the significant Enrichment Factors of As and Se make these two elements of particular concern and they should be the focus of metal emission control activities in the two regions

L. Schneider et al. / Science of the Total Environment 728 (2020) 137398 Assessing environmental contamination from metal emission and relevant regulations in major areas of coal mining and electricity generation in Australia

PUBLISHED EVIDENCES OF HEAVY METALS CONTAMINATION FROM LOCAL COAL FIRED POWER STATIONS EVEN IN NORTH WIND AREAS

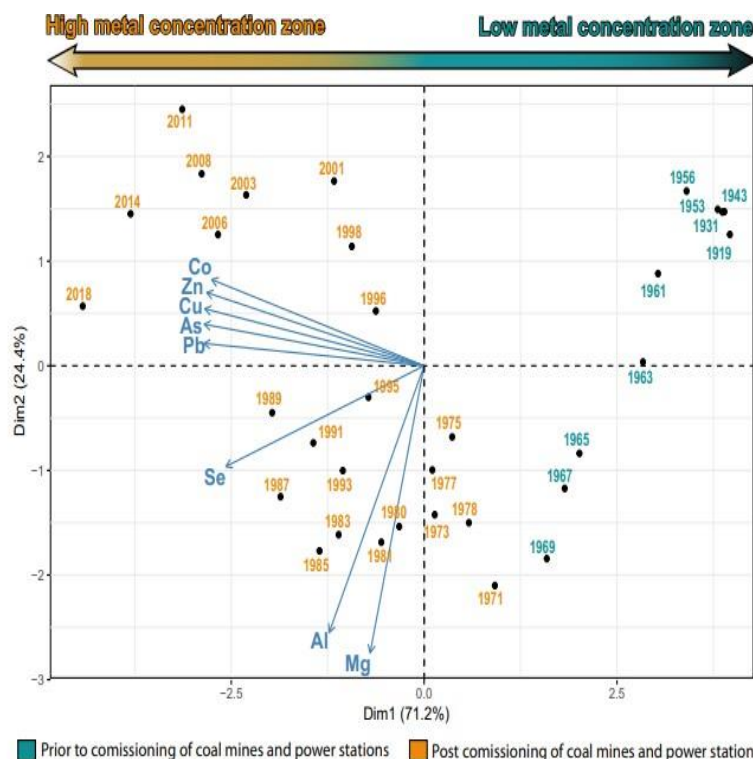


significant longitudinal deposition of heavy metals in Lake Glenbawn since the early 1970's

Intuitively, longitudinal heavy metals deposition down-wind and in close proximity to coal power stations and coal ash dams (Wyang LGA) likely to be significantly more sustained and heavier

Fig. 3. Lake Glenbawn core data: A) sediment metal concentration (mg/kg), spheroidal carbonaceous particles (SCP) concentration (g/DM) and Specific Surface Area (SSA) (m²/g); B) sediment metal flux (ug/yr/m²), spheroidal carbonaceous particles (SCP) flux (n³/cm²/yr), precipitation rate (average annual rainfall for 3 years divided by past 100 years average) and black coal consumption in New South Wales (kt) (source: Australian Energy Statistics, Table P DEE, 2018). Note that prior to 1957 most sediment layers are part of the Hunter river bed sediment and chronology was not considered from this depth down the core.

PUBLISHED EVIDENCES OF HEAVY METALS CONTAMINATION FROM LOCAL COAL FIRED POWER STATIONS EVEN IN NORTH WIND AREAS

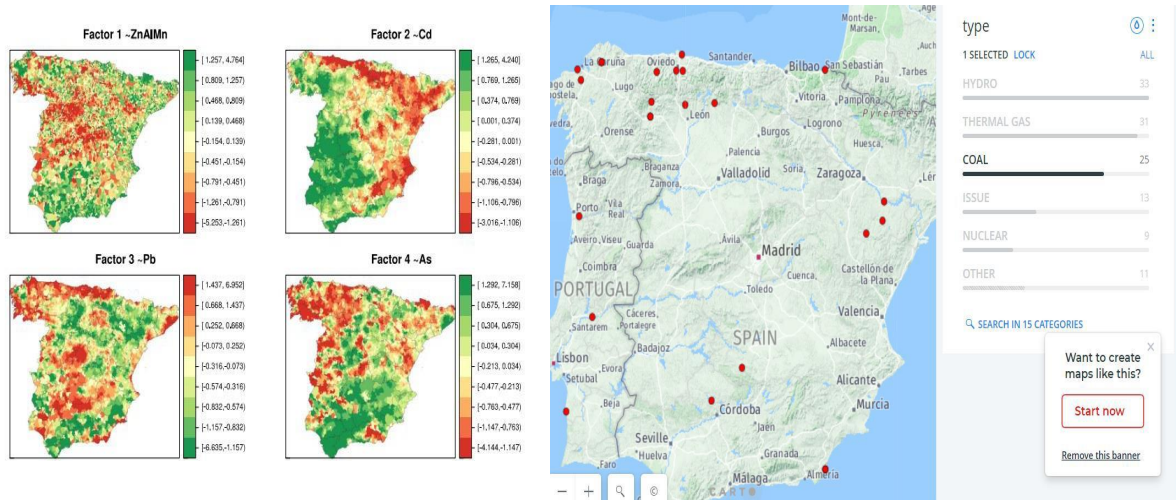


Long term area local residents also accumulate heavy metals in their systems leading to cancers

Fig. 4. Principal Component Analyses for metal concentrations in Lake Glenbawn sediment cores. Dates in blue refers to the time before coal-fired power stations were commissioned, while dates in orange refer to the time after coal-fired power stations were commissioned. Numbers next to dots are the year for a given sediment layer. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

UNDISPUTED ASSOCIATION BETWEEN HEAVY METALS IN TOP SOIL & CANCER MORTALITY

Fig. 2 Municipal distribution of score loads from principal factor analysis of heavy metal concentrations in topsoil in mainland Spain. Factorial analysis performed with clr-transformed data



Association between heavy metal and metalloid levels in topsoil and cancer mortality in Spain Olivier Núñez, Pablo Fernández-Navarro, Iván Martín-Méndez, Alejandro Bel-Lam, Juan F. Locutura Rupérez, & Gonzalo López-Abente (Environ Sci Pollut Res (2017) 24:7413–7421)
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5383678/pdf/11356_2017_Article_8418.pdf

ZONE OF INFLUENCE BY COAL POWER STATIONS & THEIR COAL ASH IMPOUNDMENTS ON THE WYONG LGA



STATISTICALLY SIGNIFICANT ADJUSTED RATE RATIO OF MOSAIC CANCERS IN WYONG VS. OTHER LGAs WITH SIMILAR SMOKING RATE

	Wyong	Kempsey	Tamworth	Gunnedah	Latrobe Valley								
Population (ABS 2016 https://www.abs.gov.au/census/find-census-data/c)	158683	14754	90029		73099								
Median age	41	42	40		41								
Average people per household	2.5	2.5	2.4		2.3								
Median weekly household income	\$ 1,190.00	\$ 889.00	\$ 1,177.00		\$ 1,077.00								
Median monthly mortgage repayments	\$ 1,733.00	\$ 1,235.00	\$ 1,473.00		\$ 1,200.00								
Median weekly rent	\$ 340.00	\$ 230.00	\$ 250.00		\$ 200.00								
Average motor vehicles per dwelling	1.8	1.7	1.9		1.8								
Married	44.70%	40.70%	48%		44.70%								
Attending Tertiary Education	9.10%	3.00%	5.60%		8.60%								
Having a Bachelor Degree level and above	9.90%	6.60%	11.80%		10.80%								
Australian born	81%	84.20%	84.70%		78.40%								
% Indigenous	4.9%	7.00%	7.50%		1.60%								
Full time employed	54.90%	46.90%	59.90%		51.60%								
Aged Standardised smokers 2017-18 (AIHW https://www.aihw.gov.au/rep/)	20.30%	21.10%	18.30%		19.30%								
% with 3 or > co-morbidities total population (ABS 2017-18 https://abssta)	15.10%	16.90%	13.40%	Morewell 18%, Traralgon 12% consistent with BOM western annual prevailing wind									
60 years and older	36.20%	35.40%	27.30%		Morewell 36.5%, Traralgon 30.6%								
70 years and older	38.30%	Aged standardised excess annual cases 37.10%	34.90%		Morewell 38.6%, Traralgon 33.8%								
standardised ratio all cancer combined (95% 2005 to 2015 A)	1.09	1.11	1.13	107	1.04	1.08	1.11	1.05	1.08	1.11	0.99	1.02	1.05
brain	0.79	0.96	1.15		0.54	0.78	1.08	0.96	1.22	1.53	0.86	1.13	1.45
bladder	0.83	0.96	1.10		0.89	0.88	1.11	0.79	0.97	1.18	0.88	1.09	1.33
colorectal	1.08	1.14	1.20	17	1.08	1.18	1.28	1.05	1.13	1.22	0.96	1.05	1.14
head and neck	1.14	1.26	1.38	8	0.95	1.13	1.34	0.96	1.12	1.30	0.88	1.04	1.22
kidney	1.09	1.23	1.38	5	0.63	0.81	1.02	0.63	0.91	1.27	0.91	1.10	1.33
leukemia	0.91	1.02	1.15		0.65	0.82	1.02	0.63	0.77	0.93	0.80	0.97	1.16
liver	1.07	1.26	1.48	3	1.00	1.31	1.68	0.67	0.88	1.15	0.66	0.89	1.18
lung	1.21	1.28	1.36	26	1.09	1.21	1.33	0.85	0.94	1.03	1.22	1.33	1.46
lymphoma	0.99	1.09	1.20		0.78	0.93	1.10	0.73	0.85	0.99	1.11	1.27	1.45
pancreatic	1.04	1.17	1.32	4	0.88	1.09	1.34	0.82	1.00	1.20	0.83	1.03	1.25
stomach	0.89	1.03	1.20		0.74	0.96	1.24	0.66	0.85	1.07	1.06	1.31	1.60
thyroid	0.96	1.12	1.30		0.70	0.94	1.24	0.99	1.21	1.48	0.39	0.54	0.74

Australian Institute of Health & Welfare Cancer Statistics for Small Geographical Areas 2005-2014. Published 10/2019

STATISTICALLY SIGNIFICANT ADJUSTED RATE RATIO OF MOSAIC CANCERS IN WYONG VS. OTHER LGAs WITH SIMILAR SMOKING RATE

On average over the 10 years period 2005-15, Wyong LGA residents have had 107 extra age adjusted mosaic of cancers incidences annually (almost 0.1% of the population annually) which would be typically driven by decades of heavy metals exposures.....

We could not find a match for Wyong's mosaic of 6 cancers: *lung, kidney, head and neck, colorectal, liver and pancreatic*. Latrobe Valley in Vic with several power stations did not show this pattern.

- Only Wyong had 6 types of statically significant cancers vs national background. The three others LGAs had between one and three statically significant cancer ratios vs national background
- None of these 4 selected LGAs shared the same single type of statistically significant cancer ratio, not even lung cancer
- Statically significant colorectal cancer ratio was observed in 3 LGAs – Wyong, Kempsey and Tamworth
- Statically significant lung cancer rate was also observed in 3 LGAs – Wyong, Kempsey and Latrobe Valley
- Looking at this AIHW comparative statistically significant cancer ratio data for the 4 selected LGAs of high population smoking rate, it be would epidemiologically nonsensical to suggest that Wyong's mosaic of 6 cancers are primarily driven by smoking. Smoking is possibly a 4th order variable.
- The high population density of Wyong LGA in very close proximity down-wind to highly polluting coal power stations (for example Vales Point which emits twice the rate of NOx per megawatt than AGL in Latrobe Valley) coupled with documented poorly managed coal ash wind borne exposures from nearby unlined impoundments and leaking toxic heavy metals into the environment are the 1st, 2nd and 3rd order variables, before smoking

LOCAL COAL FIRED POWER STATIONS HAVE A SIGNIFICANT IMPACT ON OUR CHILDREN NEUROBEHAVIORAL HEALTH

Several peer reviewed published studies showed statistically significant association between high values of PM10 (i.e., 3 at the confidence level of 99%, 26 at the confidence interval of 95%, and 7 at 90% confidence level) and neurological behaviours in children living within 10 miles of coal power plants

A study in Kentucky looked at children near Mill Creek and Cane Run coal power stations and showed statistically elevated levels of attention deficit hyperactivity disorder, anxiety, and social problems compared to those outside the 10mile radius. Significant and inverse associations were observed between distance to the nearest power plant and four Child Behaviour Checklist diagnoses (i.e., affective problems, anxiety problems, ADHD, and social problems).

These findings justify our concern about a distance decay effect of air pollution from Vales Point and Eraring power plants on the neurobehavioral health of children in the Wyong LGA

Proximity to coal-fired power plants and neurobehavioral symptoms in children Charlie H. Zhang, Lonnie Sears, John V. Myers, Guy N. Brock, Clara G. Sears and Kristina M. Zierold. (Journal of Exposure Science & Environmental Epidemiology 2022) <https://www.nature.com/articles/s41370-021-00369-7.pdf>

THE IMPACT OF LOCAL COAL FIRED POWER STATIONS ON SCHOOL PERFORMANCE IS > FOUR TIMES GREATER THAN IN THE USA

- In 2019 Vales Points Coal fired Power Station produced a little over 8 million megawatt hours of electricity, and emitted 21 million kilogram of NO_x.
<http://www.npi.gov.au/npidata/action/load/browse-search> . This represents an emission rate by Vales Point of 2.6 Kilograms of NO_x per produced megawatt hour.
- By comparison, the US coal power generation emission rate of NO_x in 2017 was 1.4 pound (0.6 kg) of NO_x per megawatt hour, **less than quarter of Vales Point emission rate!!**
<https://www.eia.gov/todayinenergy/detail.php?id=37752>
- An August 2022 published seminal research by Sydney and NY universities of 2.5m grade 2-8 students (9.5m students years between 2001-16) in North Carolina showed a rate reduction of -0.02σ in school students performance /million megawatt hour in the US
https://www.edworkingpapers.com/sites/default/files/Duque_Gilraine_2020.pdf
- This is likely to be a **SIGNIFICANT UNDERESTIMATE** for Australia's excessively high NO_x emission from our local power stations and given the established linear relationship between emission rate of NO_x/megawatt hour and school student performances.
- The impact of Vales Point Power Station alone on school students performance within 10km is likely to be in the vicinity of an average -0.08σ per million megawatt hours **irrespective of socioeconomic influences**

NAPLAN SCHOOL PERFORMANCES CENTRAL COAST 2019

“ For every one million megawatt hours of coal-fired power production decreases student performance in schools within ten kilometers by 0.02σ [undisputed US evidence-based data]” Coal Use and Student Performance* Valentina Duque University of Sydney Michael Gilraine New York University, August 2020

Local NAPLAN results is consistent with US data:-

The closer the distance to coal power stations, the lower the NAPLAN ranking.....

Tuggerah Lakes Secondary College Berkeley Vale Campus: 540.8 (Rank 18)

Wadalba Community School: 528.6 (Rank 26)

Northlakes High School: 516 (Rank 29)

Lake Munmorah High School: 504.3 (last rank 30)

https://www.edworkingpapers.com/sites/default/files/Duque_Gilraine_2020.pdf

ESTIMATE OF THE IMPACT OF VALES POINT POWER STATION ON LAKE MUNMORAH PUBLIC SCHOOL NAPLAN RESULTS IN 2019

Munmorah public high school is one of the closest school to Vales Point power station being <6km downwind as the crow flies

In 2019, the national NAPLAN data for year 9 in reading was 581.3 (67.2); in writing 548.8 (78.7); in spelling 582.2 (66.8); in grammar and punctuation 573.6 (69.4); and in numeracy 592.1 (63.9)

In 2019, average national standard deviation (σ) across the 5 NAPLAN domains is 69.2

In 2019, Vales Points Coal fired Power Station produced a little over 8 million megawatt hours

Applying Dugue and Gilraine formula of -0.08σ per million megawatt hour x 8 million megawatt hours from Vales Point Power station in 2019 = **0.64σ**

Applying = 0.64σ to NAPLAN's 2019 average standard deviation of 69.2 = - 44.3 points

The impact on Lake Munmorah Public School's NAPLAN results for 2019 likely to be > -44.3 point

https://www.edworkingpapers.com/sites/default/files/Duque_Gilraine_2020.pdf

DECADES LONG IMPACT OF THESE STATISTICALLY SIGNIFICANT RATES OF CANCERS & COMORBIDITIES IN THE WYONG LGA

Continued emission and pollution rates with standards in place for decades for Group 2 industries in high density population areas such as that observed by Vales Point, Eraring and Munmorah power stations will continue to cause unnecessary generational community suffering dealing with highly significant health burden than the general population.

Clearly this lack of social justice and equality to basic clean environment is even more extreme for children in the developing years, the sick and elderly residing in close proximity to these Group 2 industries such as air, ground and water polluting coal power stations and heir associated coal ash dams

RECOMMENDATION TO FULFIL THE EPIDEMIOLOGICAL AND HEALTH RISK ASSESSMENT AUDIT REQUESTED BY THE NSW LEGISLATIVE ENQUIRY INTO COAL ASH

<https://www.parliament.nsw.gov.au/tp/files/80392/NSW%20Government%20response%20Inquiry%20into%20costs%20for%20remediation%20of%20sites%20containing%20coal%20ash.pdf>); and
<https://www.parliament.nsw.gov.au/tp/files/79377/Final%20Report%20-%20Costs%20for%20remediation%20of%20sites%20containing%20coal%20ash%20repositories%20-%2022%20March%202021.pdf>

An informed epidem/health risk exposure report to the NSW Government would require a detailed in-vivo AND in-field topsoil heavy metal audit studies at multiple exposure sites within the CENTRAL COAST.

Anything else is a waste of time & an insult to the coal power pollution cancer victims & their families

'UNTOLD STORIES'

FINAL REPORT AND RECOMMENDATIONS

MARCH 2025