



CLIMATE^{AND}
HEALTH
ALLIANCE

Submission to Victorian EPA Review of Brown Coal-Fired Power Stations Licences

February 2018

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About the Climate and Health Alliance

The Climate and Health Alliance (CAHA) is a national alliance of organisations and people in the health sector working together to raise awareness about the health risks of climate change and the health benefits of emissions reductions.

CAHA's members recognise that health care stakeholders have a particular responsibility to the community in advocating for public policy that will promote and protect human health.

Membership of the Climate and Health Alliance includes a broad cross section of the health sector with 27 organisational members, representing hundreds of thousands of health care professionals from a range of disciplines, health care service providers, institutions, academics, researchers, and health consumers.

The Climate and Health Alliance, as its name suggests, is concerned with the health threats from climate change, and the organisation works to raise awareness of those risks and advocate for effective societal responses, including public policies, to reduce risks to health.

The Climate and Health Alliance has produced a significant number of reports and publications to assist policymakers and inform and engage health stakeholders and the wider community. These include the [National Strategy on Climate, Health and Well-being for Australia](#) in 2017; the preceding [Discussion Paper](#) in 2016; the joint report [Healthy Investments](#) (with Doctors for the Environment) in 2016; [Coal and Health in the Hunter: Lessons from One Valley for the World](#) in 2015; the multi-stakeholder [Joint Position Statement and Background Paper on Health and Energy Choices](#) in 2014; the joint report '[Our Uncashed Dividend](#)' (with The Climate Institute) in 2012 on the health benefits of reducing greenhouse gas emissions; conducted a national [Roundtable on the Health Implications of Energy Policy](#) prepared a [Briefing Paper](#) on the same topic.

CAHA produced a film on the risks to health and climate from coal and gas, [The Human Cost of Power](#) in 2013; and has conducted many innovative and ground breaking public events, including the [Healthcare Environmental Sustainability Forum](#) (with Western Health and Institute for Hospital Engineers Australia) in 2017; the [Our Climate Our Health Seminar](#) in 2015, featuring an innovative thought experiment: [Imagining 2030 as a healthy low carbon world](#); a [Public Seminar on Protecting Health from Climate Change](#) in 2014 (jointly hosted with University of NSW); and the national [Forum on Climate and Health: Research, Policy and Advocacy](#) in 2013. CAHA also contributes to many conferences, community dialogues, and forums, both nationally and internationally on these issues.

For more information about the membership and governance of the Climate and Health Alliance, please see Appendix A. For further information see www.caha.org.au

Overview / Introduction

CAHA thanks the EPA for the opportunity to articulate our concerns regarding the licenses of brown coal-fired power stations. We have followed the suggested format with a list of issues we would like taken into consideration in the review process, ordered as we deem priorities.

List of key issues

1. The prohibition of any new, and the rapid phase out of existing, coal projects in the Latrobe Valley

The evidence of total cumulative local, regional and global effects of the coal industry on health and wellbeing of humans and other species now outweighs the benefits of this industry to society. To protect human health and wellbeing from further dangerous climate change and prevent immediate harm to communities in proximity to coal production and combustion, it is essential to stop expansion of this industry, and to begin to phase out all coal fired power. This must be accompanied by a concurrent effort to transition regional and national economies to ones powered by renewable energy, complemented by increased energy efficiency, and accompanied by an overall reduction in demand for energy.

Climate change – in large part a consequence of a global reliance on the coal industry – poses the greatest global health threat of the 21st century¹. Australians are particularly vulnerable to the changing climate. Our communities (urban, rural and remote) are increasingly affected by the increased risk of heat-related illnesses and deaths, impacts from food and water insecurity, occupational health impacts, mental illness and stress associated with environmental damage and concern about climate change, domestic violence following disasters, and increased respiratory and cardiovascular diseases^{2, 3, 4, 5}.

CAHA is adamant that the Victorian Government should not approve any further coal developments and should implement measures to encourage the rapid phase out of coal for electricity production in the state. This needs to occur within a broad national approach to a 21st century energy policy and reflect Australia's obligations to contribute to the international effort to limit greenhouse gas emissions.

¹ Watts N, Adger WN, Agnolucci P, Blackstock J, Byass P, Cai W, et al. (2015). Health and climate change: policy responses to protect public health. *The Lancet*.

² McMichael AJ, Lindgren E. (2011). Climate change: present and future risks to health, and necessary responses. *J Intern Med*, 270:401-413

³ McMichael A, Woodruff R, Whetton P, Hennessy K, Nicholls N, Hales S, et al. (2002) Human health and climate change in Oceania: A risk assessment. In. Canberra: Commonwealth of Australia

⁴ Smith K, Woodward, A., Campbell-Lendrum, D., Chadee, D., Honda, Y., Liu, Q., Olwoch, J., Revich, B., Sauerborn, R. (2014) Chapter 11. Human Health: Impacts, Adaptation, and Co-Benefits. In: *Climate Change Impacts, Adaptation, and Vulnerability*. IPCC Working Group II Contribution to AR5: Intergovernmental Panel on Climate Change

⁵ Clayton, S., Manning, C. M., Krygsmann, K., & Speiser, M. (2017) *Mental health and our changing climate: Impacts, implications, and guidance*. Washington, D.C.: American Psychological Association, and ecoAmerica.

2. Development of a short, medium and long term social and economic transition plan for the Latrobe Valley

Coal is a sunset industry and will not be viable in the Latrobe Valley in the longer term. The Latrobe Valley community has been obliged to sacrifice environmental value, clean air, and visual amenity to an industry that will not continue to sustain the iconic Latrobe Valley in coming decades.

CAHA urges the Victorian Government and its agencies to work with the Latrobe Valley community and alternative industries to develop a regional plan that will help the region transition away from coal and associated industries, to deliver long term environmental, economic, and social benefits and sustainability. . Phased closures of coal infrastructure that anticipate the negative impacts on the psychosocial wellbeing of workers and communities and plan strategies to mitigate the risks and support communities through the transition are critically important. Such a plan should be developed through participatory consultation with the community, local governments, existing industries and other industries with potential for development in the Latrobe Valley, including the renewable energy sector, tourism and farming.

3. The need for health assessments of current impacts and ongoing risks from existing coal projects in the Latrobe Valley

The scientific literature is unequivocal in its attribution of a massive burden of disease to the mining and combustion of coal. The combustion of coal contributes to the development of heart and lung disease (including lung cancer), kidney disease, impacts on neurological development, affects reproductive health, and leads to premature deaths⁶. There are also significant mental health concerns associated with the burning of coal, and coal-related projects are a source of anxiety and alarm in the communities affected^{7, 8}.

Researching the complexity of the health risks from coal requires a multidisciplinary approach - including epidemiology, toxicology, and sociology - in order to identify threats, exposures and vulnerabilities.

CAHA recommends the review of licenses for coal-fired power stations include Health Impact Assessments (HIAs) and suggest this be extended to all existing and proposed coal projects in the Latrobe Valley would enable a cumulative assessment of the health effects of each project on workers and the local community. Evaluation should include potential psycho-social and physiological health risks associated with: solastalgia, displacement, social conflict, reduced quality of life, as well as symptoms, hospitalisation, illness and deaths attributable to the project.

⁶ Physicians for Social Responsibility (2009) . *Coal's assault on human health*
<http://www.psr.org/assets/pdfs/psr-coal-fullreport.pdf>

⁷ Moffat, J, Baker, P,(2013). "Farmers, mining and mental health: the impact on a farming community when a mine is proposed" *Rural Society*, vol 23, no 1

⁸ Climate and Health Alliance (2015). *Coal and Health in the Hunter: Lessons from one valley for the world*
http://d3n8a8pro7vhmx.cloudfront.net/caha/legacy_url/61/CAHA.CoalHunterValley.Report.FINAL_.Approvedforprint.pdf?1439938124

Health Impact Assessments must be conducted and reviewed by independent, qualified health professionals with specific expertise in HIAs. Consultation with affected communities must be an integral part of the HIA. In order for the research project/s to be effective, it/they should be collaborative and participatory in nature, ensuring that the outcomes address community concerns. The methods and results from HIA must be publicly reported.

4. Continuous improvement

Current National Environmental Protection Measures (NEPM) air quality standards are failing to prevent exposure to unhealthy air pollution. CAHA supports the implementation of stricter air quality measures to reduce current and future exposure to hazardous air quality. These should include stricter monitoring and compliance regimes, including improved national air quality standards for PM10 and PM2.5. Air quality standards must reflect the particular risks from point source emissions such as coal fired power stations and coal mining and include monitoring and compliance obligations and enforcement mechanisms, including penalties that create a sufficient deterrent to prevent non-compliance

The World Health Organization (WHO) says there is no safe level of exposure to particulates and yet Australia does not have a mandatory standard for PM2.5. Australia's particulate pollution standards were set in 1998 and are currently under review. Australia's power stations are allowed to emit far more pollution than those in the US and Europe, and operators here are failing to adopt available pollution reduction technologies. The Victorian power stations' particle limits are less strict than the particulate emissions limits of the US, the EU and China⁹. Of particular concern, the particulate limit for emissions by Loy Yang A is eight times China's limit¹⁰. The Climate and Health Alliance supports and endorses the recommendations of the participants at the National Air Pollution Summit in August 2014: *"The current regulatory system for air pollution is failing to protect Australian communities from the harmful effects of air pollution. Sixteen years after Australia adopted our first national air quality standards, the continuing lack of a compliance standard for PM2.5 places Australia far behind world's best practice in air quality regulation."*¹¹

5. Air quality monitoring and reporting –

It is imperative that ambient air monitoring efforts be improved in order to protect the health of the community. Currently, air quality monitoring captures only the average concentrations of pollutants in a specific region¹². Consequently, current air monitoring practices are likely to significantly underestimate real-life exposures for many communities. This limits the ability of communities and local governments to access information about air quality in their own areas.

⁹ Lipski, B., Rivers, N., and Whelan, J. (2017). *Toxic and terminal How the regulation of coal-fired power stations fails Australian communities*.

https://www.envirojustice.org.au/sites/default/files/files/EJA_CoalHealth_final.pdf

¹⁰ *ibid*

¹¹ National Air Pollution Summit 2014. (2014) *Statement by Participants*

https://envirojustice.org.au/sites/default/files/files/NAP_summit_statement_11-08-14.pdf

¹² Senate Standing Committees on Community Affairs (2013). *Impacts on health of air quality in Australia*.

https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Completed_inquiries/2010-13/airquality/report/c03

CAHA notes the suggestion that there should be “Monitoring and reporting on fine particles in at least one location in the Latrobe Valley”. Given the geographic variability of air quality dependent on a range of factors such as proximity to the sources of emissions. CAHA urges the EPA to implement monitoring and reporting on multiple locations in the Latrobe Valley. These locations should include areas of the Valley which are more densely populated.

Importantly, air quality monitoring should be expanded to more effectively evaluate the exposure of vulnerable groups and populations living in close proximity to major sources of air pollution, with data publicly available in real time. These vulnerable groups might include children, the elderly, or those with underlying health conditions.

Initiatives such as the collaboration between the Latrobe Valley Air Monitoring Network (LVAMN) and other EPA monitoring sites should be encouraged. The LVAMN might benefit from funding contributions from the EPA in order to ensure sustainability of its operation. The 2017 Co-Design Panel which invited community members to discuss the strengths and weaknesses of different types of monitors is an initiative that might be replicated to ensure community consultation on the protection of their health and wellbeing.

There would be great value in the design of a particle characterisation study to better understand sources of particle pollution in the Latrobe Valley. Such a study might be expanded to include the epidemiological description of health issues related to exposure to particle pollution in the Latrobe Valley.

Air quality standards must reflect the particular risks from point source emissions such as coal fired power stations and coal mining and include monitoring and compliance obligations and enforcement mechanisms, including penalties that create a sufficient deterrent to prevent non-compliance

6. Continuous monitoring of emissions

Data records from daily monitoring of key pollutants should be publicly available online in real time, and regular modelling of dispersal from all point sources (e.g. coal facilities) should also be publicly available online. Continuous monitoring is imperative to deducing trends and patterns in emissions intensity, thus enabling the design of public health responses to the health impacts of emissions.

CAHA recommends the EPA amends the licences for all three power stations to require continuous automatic emissions monitoring from all stacks for NO_x, SO₂, PM₁₀, PM_{2.5} and mercury. The data from this monitoring should be released publicly in real time as a requirement. Full datasets should also be made available within 14 days on request. Power station operators should be required to test their air emissions monitoring every year and to ensure the continuous monitors are functioning.

7. Public release of emission data in real time

Real time release of emission data would enable the timely release of health warnings in the instance that either the emissions intensity or air quality in any particular moment posed an immediate threat to human health. Public release of

emission data is critical to accountability in the industry, through monitoring and compliance regimens, and inform decisions regarding risk to the general community.

All monitoring data obtained by the EPA in the Latrobe Valley should be publicly available and downloadable from the website, within 14 days.

8. Support of new and emerging industries

There is abundant evidence that renewable energy sources such as solar and wind power can be developed with minimal negative impact on the health and wellbeing of the community¹³. These industries are likely to be economically sustainable in the long term, able to provide baseload/dispatchable power for our energy grid without compromising human or environmental health. Communities hosting renewable energy installations also enjoy multiple psychosocial and economic benefits like the creation of local ongoing jobs, the development of a positive image for their region, an increased sense of purpose and belonging in their community, particularly if some sense of community ownership and involvement is maintained¹⁴. Supporting the development of vis a proactive step that can be taken to ease the transition of coal affected communities such as the Latrobe Valley to a cleaner, healthier future.

9. Assessment of impacts of coal on the economy and society: greenhouse gas emissions, loss of natural capital and the social cost of carbon

The ongoing development of coal projects at a time that the world should be dramatically cutting carbon emissions and moving to a low or zero carbon economy is inconsistent with the scientific evidence of harm from climate change and the carbon intensive global economy – an urgent threat to all human populations as well as other species. These human, social and environmental costs, as well as the economic costs associated with harm to ecosystems, are not currently being incorporated in cost-benefit assessments of proposed projects.

CAHA thus calls for the assessment and public disclosure of all the greenhouse gas emissions associated with each coal project in the Latrobe Valley to provide transparency with regard to the contribution to global warming. Such analysis would enable consideration of the economic value of ecosystems, and thus contribute to a clear understanding of the value of natural capital that may be compromised by coal operations.

10. Management of dust emissions from the mines (given mines are within licensed premises).

Dust emissions from the mines are largely composed of particulate matter, which has a myriad of health consequences (as outlined above). Stricter air quality measures and enforcement methods in licensing requirements would provide the impetus for brown coal mines in Victoria to minimize their emissions of dust.

¹³ Climate and Health Alliance (2013). *Health and Energy Policy – Roundtable Briefing Paper* http://res.cloudinary.com/caha/image/upload/v1441159937/Health-and-Energy-Policy-Roundtable-Briefing-Paper_120213_final_fk3n5a.pdf

¹⁴ Busch, H., & McCormick, K. (2014) Local power: exploring the motivations of mayors and key success factors for local municipalities to go 100% renewable energy. *Energy, Sustainability and Society*, 4(1), 5.

The 2011 Katestone Environmental report *NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining* provides insights into international best practice measures which should be included in licencing arrangements.

11. The need for coal mines to develop plans to prevent and suppress mine fires

Open cut coal mines in the Latrobe Valley face serious and increasing threats from bushfires. The Hazelwood mine fire in Victoria has demonstrated the potential for serious risks to communities when fire prevention and management plans at coal mines are inadequate. As part of their licensing arrangements, all coal-fired power stations should submit annual work plans that specifically address fire prevention, mitigation and suppression measures.

12. Management of waste water discharges

The increased salinity of the Morwell and Latrobe Rivers secondary to waste water discharges has immense implications for public health. The impact of waste-water discharges on the health of river systems must accordingly be considered in any analysis of the health impact of coal fired power stations in the Latrobe Valley.

Perhaps the most immediate consequences of increasing water salinity is evident in contexts where the composition of drinking water is altered by higher concentrations of salts. Evidence from low-lying nations where this is increasingly problematic illustrates higher burdens of hypertension and cardiovascular disease secondary to exposure to more saline drinking water¹⁵.

The impacts of increasing river salinity are broad. Agricultural systems dependent on the affected rivers are likely to struggle with decreased productivity if crops are irrigated with more saline water. Local industries might be forced to employ intensive water treatment strategies in order to render the river water usable in day to day activities. River ecosystems are vulnerable to even the most subtle adjustment in water composition.

12. Contamination of ground and surface water from coal ash

Coal mining produces large quantities of waste products, such as coal 'slurry' which, along with coal ash waste from coal combustion, also pose risks to human health due to the presence of toxic pollutants. Slurry is produced in the process of washing coal prior to combustion. This process uses large quantities of water and creates a liquid waste that may contain heavy metals, and other toxic pollutants. This poses a risk to nearby surface water in the vent of flooding, and creates a toxic environmental legacy that endures long after the plant is closed.

¹⁵ Talukder, M. R. R., Rutherford, S., Phung, D., Islam, M. Z., & Chu, C. (2016) The effect of drinking water salinity on blood pressure in young adults of coastal Bangladesh. *Environmental Pollution*, 214, 248-254,

EPA should include specific licence conditions for ground and surface water contamination monitoring at the ash pond landfill sites and nearby rivers and streams.

EPA should impose specific licence conditions to ensure any sources of ground or surface water contamination are cleaned up.

All ground and surface water monitoring information, including incidents and management of contamination, should also be made publicly available as downloadable datasets.

13. Plant closure and decommissioning

The legacy that coal-fired power stations leave in terms of an environmental hazard is immense. Abandoned mines can leach toxic pollution for decades, posing a significant environmental health threat. For example, the Xstrata mine in the Hunter Valley, the Great Greta Colliery, ceased operations in 1999 after 50 years but in 2012 began leaking highly saline contaminated water into Eui Creek and then into the Hunter River¹⁶.

Further water quality risks are posed by extreme weather events, exacerbated by climate change. Increased intensity of precipitation may lead to flooding of coal mines as occurred in 2011 in Queensland, when around 20 mines were heavily flooded, and contaminated water, thought to contain heavy metals and toxic chemicals, was discharged into local rivers¹⁷.

A further risk is posed by the massive 'voids' that will be left by open cut mines in the land once all the coal is mined. As these voids are rarely filled in, the open pits (some of them hundreds of metres deep and kilometers long) become bodies of water or 'pit lakes' with poor water quality that is highly saline, and which becomes more saline over time as evaporation concentrates the already salty groundwater exposed through the coal seams¹⁸.

The Victorian Government must establish standards and guidelines for decommissioning of power stations and rehabilitation of related infrastructure, including coal ash dams, and hold bonds from generators to ensure these best practices are implemented.

14. Community engagement to guide decision-making

Community engagement should be a cornerstone of public policy development, including regulations and licences for energy infrastructure, particularly when it impacts so consequentially on community health and wellbeing. The development and implementation of regulations for coal-fired power stations in the Latrobe Valley should be informed and guided by community views.

¹⁶Climate and Health Alliance (2015). *Coal and Health in the Hunter*, http://d3n8a8pro7vhmx.cloudfront.net/caha/legacy_url/53/Climate-and-Health-Alliance_Report_Layout_PRINTv2.pdf?1439938112

¹⁷ *Ibid.*

¹⁸ *Ibid.*

The process for this review should include strategic and well-advertised consultation with the local community and community groups with an interest in this issue.

CAHA recommends the EPA conduct an independent evaluation of the community engagement practices utilised in this licence review, with recommendations to strengthen engagement practices in the future, with the evaluation made available to the EPA board for review.

APPENDIX

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