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Submission on Cleanaway Development Licence Application for MERC (APP024914)

Climate Action Merri-bek is a grassroots based non-profit organisation active in lobbying in the Merri-bek municipality and surrounds for climate action at all levels of government and internationally since 2008.

Our members have come together out of concern about the lack of meaningful political action on climate change, and a recognition that we need to take responsibility for our future. We need a rapid transition to a zero carbon society to prevent severe climate change that will have a devastating effect on our lives and those of future generations.

This submission has been prepared by Pauline Galvin and John Englart on behalf of Climate Action Merri-bek Inc.

Executive Summary

While our essential concern is the need to reduce greenhouse gas emissions to address the climate emergency, we have related interest in reducing air pollution to improve health, and general environmental protection in embracing sustainable solutions and moving to a circular economy in minimising waste.

Cleanaway intends to operate the Melbourne Energy Recovery Centre (MERC) Waste to Energy Plant for 30 or more years. We do not believe the applicant has demonstrated the project will contribute to meeting the legislated Victorian climate targets of net zero by 2045, but will substantially add to the state's emissions.

Cleanaway has not demonstrated that this plant is at the very end of a waste processing hierarchy, and considered the possibility to do further waste stream separation and recycling.

After separation of waste into recycling streams, pre-sorted landfill with bio-stabilisation provides the best option for Australia's residual waste in terms of climate, air quality and public health costs as part of a circular economy.

We argue that the development licence for Cleanaway should not be approved in our submission and that the EPA should deny the development licence.

We also comment on the Planning process and the minister's decision to deny an Environment Effects Statement, and the consultation process.

We note part of Cleanaway's CEO Mark Schubert vision for the Melbourne Energy Recovery Centre (MERC) is "feeding waste CO₂ to 'protected cropping' in closed hydroponic and greenhouse

crops.”¹ Yet the Cleanaway licence argues that air pollution to the surrounding area, which includes residential areas and agricultural production, will be minimal.

We also note the statements by Marcos A. Orellana, UN Special Rapporteur on Toxics and Human Rights, who visited Australia from 28 August to 8 September 2023. In his End of Mission Statement released 8 September one of the areas he highlighted was Waste Incineration, and he also noted Air quality standards in Australia are less protective than in other member countries of the Organization for Economic Cooperation and Development (OECD).

*“Waste incineration is the end of the line for fossil fuels. It reflects a linear process that is incompatible with a circular economy. Incineration imposes heavy health and other costs on local communities, and it is a significant source of greenhouse gases. It has been reported that even the most modern incinerators produce dioxins, furans and toxic ash.”*²

Climate Action Merri-bek gives our thanks to the Anti-Toxic Waste Alliance and Environmental Justice Australia for permission to use their submission to the EPA consultation on the Prospect Hill International Pty Ltd as a resource to inform this submission.

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1 Ben Potter, Australian Financial Review, 8 January, 2024, Five ways to get Australia’s waste problem under control <https://www.afr.com/policy/energy-and-climate/five-ways-to-get-australia-s-waste-problem-under-control-20231108-p5eikh>

2 UN Human Rights, 8 September 2023, Australia: Deep divide between Government and community narratives on toxics fuels anger and distrust, says UN expert <https://www.ohchr.org/en/press-releases/2023/09/australia-deep-divide-between-government-and-community-narratives-toxics>

B Comments on Application number: APP024914

B1 Toxic Emissions and Waste Residue

1. We submit that the EPA should not be satisfied with Cleanaway's analysis of the risks their project poses by the creation of toxic air emissions and toxic waste residues such as bottom ash, fly ash and Air Pollution Control residues (**APCr**).
2. All waste incineration technology produces pollution and relies heavily on extensive air pollution controls and regular maintenance to reduce emissions.³ Incineration of mixed waste streams from municipal solid waste (MSW) and commercial and industrial waste (C&I), such as that proposed in this Application, is a source of a host of air borne pollutants. The production of air pollution cannot be eliminated, only managed subsequent to production.
3. Older waste incinerator technology has been associated with considerable toxic emissions.⁴ Proponents of newer incinerator technology have claimed that the air pollution can be effectively managed and minimised.⁵ It is our submission that these claims have been overstated and do not adequately recognise scientific doubt about the level of safety that is possible to achieve in incinerator technology.
4. In the Netherlands, an incinerator built as recently as 2011 and announced as 'state of the art' at the time, has been found in 2018 to be emitting dioxins, furans and other pollutants well above EU limits.⁶ Further monitoring published in 2024 highlighted eggs of backyard chicken, at location Wijnaldum, 2 km distance from the REC incinerator exceeded the permissible EU limit for dioxins (PCDD/F/dl-PCB) in eggs by a factor of nearly 300%. PFOS in this egg analysis exceeded the EU limit for PFOS by a factor of more than 38. High levels of aluminium were also detected in eggshells.⁷

The failures of that incinerator to control emissions were largely occurring during start up and shut down procedures and were hidden by the lack of continuous monitoring. The study of the malfunctions of this incinerator show that even facilities built to the best available standards at the time may operate in a manner that exceeds air pollution limits, and are difficult to address in an ongoing fashion over time. This should raise substantial concern about the ability of Cleanaway to improve air pollution mitigation measures to address environmental health and the health of those living near the incinerator.

5. A 2022 study of the comparative air emissions of waste-to-energy and landfill in Australia states:

Incineration makes a more significant negative contribution to local air quality than landfill where facilities only just meet the emissions limits defined by the European Industrial Emissions Directive. Even where best available techniques are used, incineration is anticipated to perform worse than landfill in this respect.⁸

3 Peter W. Tait, James Brew, Angelina Che, Adam Costanzo, Andrew Danyluk, Meg Davis, Ahmed Khalaf, Kathryn McMahon, Alastair Watson, Kirsten Rowcliff, Devin Bowles, 'The Health Impacts of Waste Incineration: a Systematic Review', *Australian and New Zealand Journal of Public Health* (2019) (online) 47.

4 Peter Tait, above n 1, 1. See also Zero Waste Europe, 'Hidden Emissions: A Story from the Netherlands' (November 2018).

5 The Application.

6 Zero Waste Europe, 'Hidden Emissions: A Story from the Netherlands' Report, November 2018.

7 Zero Waste Europe, 'The True Toxic Toll / Netherlands – Biomonitoring research on persistent organic pollutants in the environment of the REC Waste Incinerator in Harlingen' April 2024.

6. This Application proposes to incinerate a mixed commercial, industrial and municipal waste stream. Mixed waste streams, such as that proposed to be accepted by Cleanaway, contain wet organics, plastics, heavy metals, a suite of chemical compounds and a wide range of moisture contents. Such a heterogenous waste stream dramatically increases the risk of producing persistent toxins when combusted. The solution of mixing a number of loads in the waste bunker and by crane does not inspire confidence.
7. This Application proposes a regime of sampling received waste twice a year and once a year after the first two years of operation, of which one sample per year will be analytically tested. In no way does this testing regime allow meaningful monitoring of the incoming waste. Yearly sampling does not “allow seasonal variation to be accounted for”, it ignores seasonal variation. Best available techniques include regular sampling and analysis of incoming MSW.⁹ Even with constant surveillance of the waste stream, it is unlikely that Cleanaway can effectively remove contaminants from the waste stream to a satisfactory degree, given that contaminants such as paints and batteries may be easily hidden within MSW. This failure will lead to greater concentrations of toxins in air emissions and residual waste.

B2 Climate Impacts

8. This proposed waste incinerator will be a source of scope 1 greenhouse gas (‘GHG’) emissions directly from the combustion of waste, ancillary diesel burning and the use of a diesel generator onsite. In total, the proposed facility is expected to produce between 170 and 190 thousand tonnes of carbon dioxide equivalent (tCO₂e) each year from scope 1 emissions alone.¹⁰
9. The state of knowledge about GHG emissions, which is relevant to the application of the General Environmental Duty (addressed in section C.2 of this submission), must include the foremost international authority on anthropogenic climate change: the Intergovernmental Panel on Climate Change (‘IPCC’). The IPCC’s 6th Assessment Report, a document that now partially supersedes or updates the EPA’s guidance in Publication 2048, provides the most accurate and authoritative guidance on energy generation and climate implications. The IPCC’s findings in relation to GHG emissions are that to limit warming to 1.5 degree or even 2.0 degrees Celsius ‘involve[s] rapid and deep and, in most cases, immediate GHG emissions reductions in all sectors this decade’.¹¹ Cleanaway’s proposal is inconsistent with that state of knowledge, including Australia’s international commitments based on that knowledge. Similarly, Cleanaway’s proposal is inconsistent with IPCC expression of the state of knowledge that ‘Net zero CO₂ energy systems entail: a substantial reduction in overall fossil fuel use, minimal use of unabated fossil fuels, and use of carbon capture and storage in the remaining fossil fuel systems; electricity systems that emit no net CO₂; widespread electrification; alternative energy carriers in applications less amenable to electrification; energy; conservation and efficiency; and greater integration across the energy system...’.¹²

8 Anne Ballinger, William Shanks, Tamsin Miles, Sophie Degagny, ‘Greenhouse Gas and Air Quality Impacts of Incineration and Landfill’ (January 2022), 41.

9 Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (*notified under document C(2019) 7987*) BAT 11.

10 The Application, Appendix J, 19.

11 Intergovernmental Panel of Climate Change (IPCC) 6th Assessment Report, Summary for Policymakers, B.6, 20.

12 IPCC 6th Assessment Report, Summary for Policymakers, C.3.2, 28.

10. A recent study of the climate impacts of waste management of different forms of plastics showed that both waste-to-energy and incineration without energy recovery are highly carbon intensive processes, well above landfill and recycling (both chemical and mechanical) in their contributions to detrimental climate impacts.¹³
11. Cleanaway's argument that the facility will have a net climate benefit is deeply flawed and is intended to conceal the fact that waste-to-energy is a fossil fuel based form of energy generation.
12. The Application attempts to downplay the enormous generation of GHGs by arguing that the GHGs produced during the operational lifetime of the facility will be cancelled out by:
 - the emissions avoided by redirecting waste from landfill, and
 - the emissions avoided by generating electricity from waste incineration instead of by other means such as the burning of coal or gas (grid displacement).
13. We note that this approach is analogous to offsetting. The EPA Guidelines for Minimising Greenhouse Gas Emissions, Publication 2048, states that offsetting or a compensatory approach generally is not suitable for eliminating the risks of harm from GHG emissions from a specific activity and 'will rarely be an appropriate mechanism to comply with the GED'.¹⁴ This approach should underpin assessment of the state of knowledge on managing GHG emissions. Without these 'offsets' that Cleanaway is claiming, the enormous volume of projected scope 1 and scope 3 emissions from the proposal cannot be concealed.
14. Even if the offsetting approach is accepted, there are a series of miscalculations which result in fundamentally misleading statements as to the climate impacts of the proposal.
15. Firstly, Cleanaway's calculation of the emissions avoided by reducing landfill may be overstated. Poorly managed landfills do produce methane which, if it escapes into the atmosphere, will have a detrimental climate impact. However, landfills in the waste catchment for the MERC facility are expected to meet standards of methane capture and use. The implementation of these standards can be expected to increase over the 30 year lifespan of the facility, reducing the overall GHG emissions from landfill. Additionally, with the increase in separation of organics from MSW, landfill emissions will decrease.
16. Secondly, calculated avoided methane emissions do not consider the timeline of the appearance of the gas in the atmosphere. Carbon dioxide from incinerated matter appears in the atmosphere as soon as it is combusted, methane from landfill may not appear in the atmosphere until decades after the waste is deposited.
17. Thirdly, the Application's calculations of grid displacement is based on an emissions intensity figure equivalent to average coal electricity generation.¹⁵ The proportion of the state's electricity that is generated by genuinely renewable sources is increasing. Within the next 10-15 years we may see dramatic changes in the Victorian electricity grid composition including the end of coal fired power generation. Alongside the forecast increases in renewable sources of energy, it is very probable that the carbon emissions of this waste-to-energy facility per kWh of energy will start to be greater than those produced in aggregate statewide electricity generation.
18. Further, this facility has been designed to operate as baseline generation with near continuous operation¹⁶ Clean renewable energy generation already displaces coal fired generation during

13 Report by Blue Environment, 'Carbon Emissions Assessment of Australian Plastics Consumption' Version 3, (28 June 2023), Figure 9, 59.

14 EPA Publication 2048: Guidelines on Minimising Greenhouse Gas Emissions, 20.

15 The Application, Appendix J, 18.

16 The Application, Page 24

the day¹⁷. In the likely event of future curtailment of generation to support the grid, renewable sources are the easiest to switch off. In this case waste to energy facilities would be displacing clean energy and not dirty coal.

19. The Application does not contend with these foreseeable changes in GHG emissions resulting from changes in the facility's waste stream, landfill management practices and the decarbonization of State-wide electricity generation. We submit that their calculations of climate impacts are inaccurate and misleading.

20. A 2022 report by Eunomia states:

*Incineration cannot be considered a 'green' or low carbon source of electricity, as the emissions per kWh of energy produced are higher than CCGT [combined cycle gas turbine], renewables, and the likely aggregated future marginal source of electricity in Australia. The carbon intensity deficit of residual waste incinerators will increase as the electricity grid decarbonises.*¹⁸

21. Given the overall transition away from carbon intensive forms of energy production, waste-to-energy facilities have no part in a low emissions future. Claiming that waste incineration is a renewable energy source is disingenuous given that the calorific value, and hence the electricity generation, derives from the plastic component of the waste stream, essentially a modified fossil fuel, which is set to increase as the separation of organics progresses.

22. This application makes spatial provision for "the potential retrofit of additional flue gas treatment equipment and will leave space outside the development envelope of the Proposal for the potential retrofit of a carbon capture (CC) facility (not part of this Proposal)." Even though this is not part of the development application, EPA needs to take consideration of this in assessing the licence approval. Installation of Carbon capture will increase energy used by the facility and reduce energy exported. A recent 2024 European study compares options: the sorting of mixed waste leftover after separate collection (leftover mixed waste sorting, or LMWS); and the capture of carbon dioxide from incinerator flue gas for underground storage (carbon capture and storage, CCS). It notes as important:

*"the deployment of LMWS is likely to be a 'lower regret' solution with much reduced potential for lock-in. The fact that it seems eminently compatible with CCS suggests, as per our previous paper, a need for a rational scaling-back of incineration capacity in those Member States with too much capacity in place. LMWS can also help support in the phasing down of capacity."*¹⁹

C Environment Protection Act 2017 (Vic)

23. Firstly, we note the obligation on the EPA under section 69(4) to **refuse** to issue the Development License if certain conditions are present, being either that the EPA considers the proposed activity poses an unacceptable risk of harm to human health and the environment or

17 <https://opennem.org.au/energy/nem/?range=7d&interval=30m&view=discrete-time>

18 Anne Ballinger, William Shanks, Tamsin Miles, Sophie Degagny, 'Greenhouse Gas and Air Quality Impacts of Incineration and Landfill' (January 2022), 41.

19 Dr Dominic Hogg, Equanimator Ltd., January 2024, Equanimator Ltd for Zero Waste Europe, 'Materials or gases? How to capture carbon'

that the EPA determines the proponent not to be a fit and proper person to hold a development license.

24. For the reasons stated throughout this submission, we submit that the EPA should consider the proposal to pose an unacceptable risk of harm to human health and the environment. We address the unacceptable harm in section C.1 below.
25. In sections C.2 – C.4 we address several of the mandatory considerations before the EPA in making the decision to grant or refuse the Application under section 69(3). Our submission addresses considerations under the following provisions:
 - Measures the applicant has taken or proposes to take in order to comply with the general environmental duty (s69(3)(a));
 - The principles of environment protection (s 69(3)(c)); and
 - The best available techniques and technologies (s 69(3)(d)).

C1 Unacceptable Risk of Harm to Human Health and the Environment (section 69(4)(a))

26. Drawing confident conclusions about the harms that incinerators pose can be difficult due to the number of other contributors to ambient air pollution and the time scale required for health impacts to emerge. Despite these difficulties, numerous studies have identified links between negative health outcomes and air pollutants such as those emitted by waste incinerators, similar to that proposed in this Application.²⁰ Over time, the following have been identified as potential harms to human health or the environment from exposure to the pollution and waste created by waste incinerator facilities:
 - Human reproductive impacts including increased risk of preterm delivery, miscarriage, genetic and congenital abnormalities;
 - Increased risk of cancer, cardiac disease, respiratory disease and developmental delay in children;²¹
 - The numerous environmental and human health impacts associated with contributions to climate change.²²
27. One comprehensive study of the literature on human health impacts of waste incineration concluded:

This systematic review highlights significant risks associated with waste incineration as a form of waste management. Many older incinerators were linked with neoplasia, reproductive issues and other diseases. While the results were not consistent across the literature, based on a precautionary principle there is insufficient evidence to conclude that any incinerator is safe. There is some suggestion that newer incinerator technologies with robust maintenance schedules may be less harmful, but diseases from exposures tend to manifest only after many years of cumulative exposure, so it is premature to conclude that these newer technologies improve safety.²³

20 Peter Tait, above n 1 identifies and assesses studies on health impacts.

21 Peter Tait, above n 1, 8.

22 The IPCC 6th Assessment Report notes there is high confidence that there will be an increase in extreme weather events and the associated adverse human health impacts.

23 Peter Tait, above n 1, 8.

28. The 2021 People’s Clean Air Action Plan for Victoria compiles evidence on the adverse impacts of air pollutants on human health:²⁴

A 2019 global review of evidence found that air pollution can damage every organ and every cell in the human body.²⁵ In 2018, the director general of the World Health Organisation (WHO) declared air pollution a “public health emergency”.²⁶ Children and older people are most vulnerable to the health impacts of air pollution. The most dangerous form of air pollution is PM_{2.5}. There is abundant evidence that PM_{2.5} exposure can cause adverse health effects and increased risk of death.²⁷ There is no lower threshold for these effects.²⁸ The science does not support that there is a safe level of exposure, so air quality standards are a reference level, not a safe level.²⁹ Long term exposure is particularly damaging, even at lower levels of pollution. A recent study from Queensland found that long-term exposure to PM_{2.5} was associated with increased all-cause mortality of two percent for each 1 µg/m³ increase in annual PM_{2.5}, even where PM_{2.5} levels were measured well-below air quality standards.³⁰ [...] Children are particularly vulnerable to PM_{2.5} exposure due to the adverse effects on lung development. Australia’s most common cause of general practitioner presentation in children under five is asthma and allergy. [...] Reduced lung health and impaired development in children holds lifelong consequences, including an increased risk of cardiovascular disease and associated mortality as an adult.³¹ PM_{2.5} is not the only pollutant that adversely impacts health. At low concentrations, NO₂, SO₂ and O₃ can cause significant health problems. A number of Australian

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- 24 Bronya Lipski, Bruce Buckheit, Christopher James and Maxwell Smith, *The People’s Clean Air Action Plan for Victoria*, (2021) 10-12.
- 25 Dean E. Schraufnagel, et al., Air Pollution and Noncommunicable Diseases: A Review by the Forum of International Respiratory Societies’ Environmental Committee, Part 1: The Damaging Effects of Air Pollution, February 2019, Volume 155, Issue 2, Pages 409–416, Available at: <https://doi.org/10.1016/j.chest.2018.10.042>; Dean E. Schraufnagel, et al., (2019) Air Pollution and Noncommunicable Diseases: A Review by the Forum of International Respiratory Societies’ Environmental Committee, Part 2: Air Pollution and Organ Systems, CHEST Journal, February 2019, Volume 155, Issue 2, Pages 417–426. Available at: <https://doi.org/10.1016/j.chest.2018.10.041>.
- 26 Dr Tedros Adhanom Ghebreyesus, “Air pollution is the new tobacco. Time to tackle this epidemic” The Guardian, October 27 2018. Available at: <https://www.theguardian.com/commentisfree/2018/oct/27/airpollution-is-the-new-tobacco-time-to-tackle-this-epidemic>.
- 27 Dockery, Douglas W., et al., (1993) An Association between Air Pollution and Mortality in Six U.S. Cities, New England Journal of Medicine, 329(24): 1753-1759. Available at: <https://www.nejm.org/doi/full/10.1056/NEJM199312093292401>; Krewski D., et al., (2005) Reanalysis of the Harvard Six Cities Study, part I: validation and replication. Inhalation Toxicology 2005 Jun-Jul;17(7-8):335-42. Available at: <https://doi.org/10.1080/08958370590929402U>.
- 28 Dockery, Douglas W., et al., (1993) An Association between Air Pollution and Mortality in Six U.S. Cities, New England Journal of Medicine, 329(24): 1753-1759. Available at: <https://www.nejm.org/doi/full/10.1056/NEJM199312093292401>; Krewski D., et al., (2005) Reanalysis of the Harvard Six Cities Study, part I: validation and replication. Inhalation Toxicology 2005 Jun-Jul;17(7-8):335-42. Available at: <https://doi.org/10.1080/08958370590929402U>.
- 29 World Health Organization. Regional Office for Europe. (2006). Air quality guidelines global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/107823>.
- 30 Yu W, Guo Y, Shi L, Li S (2020) The association between long-term exposure to low-level PM_{2.5} and mortality in the state of Queensland, Australia: A modelling study with the difference-in-differences approach. PLoS Med 17(6): e1003141. <https://doi.org/10.1371/journal.pmed.1003141>.
- 31 Ryan G, Knuiman MW, Divitini ML, James A, Musk AW, Bartholomew HC. Decline in lung function and mortality: The Busselton Health Study. Journal of Epidemiology and Community Health. 1999;53(4):230-4; Georgiopoulou VV, Kalogeropoulos AP, Psaty BM, Rodondi N, Bauer DC, Butler AB, et al. Lung function and risk for heart failure among older adults: the Health ABC Study. American Journal of Medicine. 2011;124(4):334-41; Sin DD, Wu L, Man SF. The relationship between reduced lung function and cardiovascular mortality: A population-based study and a systematic review of the literature. Chest. 2005;127(6):1952-9.

studies published in the last decade demonstrate statistically significant health impacts at pollutant concentrations well-below national standards for these pollutants.³² Nitrogen dioxide is strongly associated with childhood asthma and impaired lung development, which can lead to lifelong adverse health effects and premature death.³³ Adverse neonatal outcomes, including preterm birth, low weight at birth and foetal growth restriction are associated with maternal exposures to NO₂, SO₂ and O₃.³⁴ Laboratory testing confirmed paediatric influenza has also been associated with ozone.³⁵ Middle-aged Australians exposed to nitrogen dioxide can experience exacerbations of current asthma, the incidence of new asthma, and atopy.³⁶ Long term exposure to SO₂, even at low concentrations, has been associated with cardiorespiratory mortality.³⁷

29. The proposal is to locate the facility on Summerhill Road in Wollert, a residential growth area within 2km of current residential areas. Wollert is projected to grow from a current 2024 population estimated at 7,843 to 33,726 by 2041.³⁸ Within 10km of the facility there are a number of childcare centres, primary and high schools and aged care residences. Melbourne Polytechnic has campuses on the edge of this radius for cropping, beef and sheep farming, vineyards and a horse stud. There are other agricultural producers within this 10km radius.
30. These are vulnerable populations, with a higher rate than average being born overseas and speaking a language other than english, with lower than average education. This increases their vulnerability to even very low levels of toxic air emissions. The location of a facility that will generate toxic air pollution in this area would be detrimental to the wellbeing of those people and the health of the community more generally.
31. Appendix I Air Quality Assessment ('AQA') to the Cleanaway Application lists in Figure 9 and Table 5 a number of 'discrete sensitive receptors' and sensitive residential zones that effectively surrounds the facility, identifying existing and future vulnerable populations to air pollution.³⁹

32 See Clare Walter, Maxwell Smith et al. (2019) Health-based standards for Australian regulated thresholds of nitrogen dioxide, sulfur dioxide and ozone: Expert Position Statement 2019: <https://www.envirojustice.org.au/wp-content/uploads/2019/11/Expert-Position-Statement-PDF.pdf>, pp.6-7.

33 Knibbs, Cortés de Waterman, Toelle, Guo, Denison, Jalaludin, Williams. (2018). The Australian Child Health and Air Pollution Study (ACHAPS): A national population based cross-sectional study of long-term exposure to outdoor air pollution, asthma, and lung function. *Environment International*, 120, 394-403; Bowatte, G., Lodge, C., Knibbs, L., Erbas, B., Perret, J., Jalaludin, B., Dharmage, S. (2018). Traffic related air pollution and development and persistence of asthma and low lung function. *Environment International*, 113, 170-176; Gauderman WJ, Urman R, Avol E, et al. (2015). 'Association of improved air quality with lung development in children'. *NEJM* 2015;372;10:905-913.

34 Chen, Guo, Abramson, Williams, & Li. (2018). Exposure to low concentrations of air pollutants and adverse birth outcomes in Brisbane, Australia, 2003–2013. *Science of the Total Environment*, 622-623, 721-726; Li, S., Guo, Y., & Williams, G. (2016). Acute Impact of Hourly Ambient Air Pollution on Preterm Birth. *Environmental Health Perspectives*, 124(10), 1623-1629; Pereira, G. et al., Locally derived traffic-related air pollution and fetal growth restriction: a retrospective cohort study. *Occupational and environmental medicine* 2012, 69 (11), 815- 822.

35 Xu, Z. W. et al., Air pollution, temperature and paediatric influenza in Brisbane, Australia. *Environment international* 2013, 59, 384-388.

36 Bowatte, G., et al., (2018). Traffic related air pollution and development and persistence of asthma and low lung function. *Environment International*, 113, 170-176; Bowatte, Lodge, Knibbs, Lowe, Erbas, Dennekamp, Dharmage. (2017). Traffic related air pollution exposure is associated with allergic sensitization, asthma, and poor lung function in middle age. *The Journal of Allergy and Clinical Immunology*, 139(1), 122-129.e1.

37 Wang, X., Hu, W., & Tong, S. (2009). Long-term exposure to gaseous air pollutants and cardio-respiratory mortality in Brisbane, Australia. *Geospatial Health*, 3(2), 257-263.

38 City of Whittlesea Population forecast for Wollert <https://forecast.id.com.au/whittlesea/about-forecast-areas?WebID=160>

39 See Application Appendix I Air Quality Assessment, 20, 25

32. We note further that ‘harm’ includes the ‘cumulative effects of harm arising from an activity combined with harm arising from other activities or factors’.⁴⁰
33. It is prudent to proceed on the basis that the Air Pollution Control (APC) measures will not be entirely effective and will therefore have a cumulative negative impact on the air quality in the surrounding area. As the scientific links between waste incinerator air emissions and the risk of detrimental impacts on human health are well established, it is open to the EPA to decide on this basis that the proposed facility would pose an unacceptable risk of harm to human health or the environment.

C2 General Environmental Duty (section 69(3)(a))

34. The EPA must consider measures Cleanaway has taken or proposes to take in order to comply with the general environmental duty (‘GED’). The GED requires that Cleanaway, as a company engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste, minimize those risks so far as reasonably practicable.⁴¹ We note the importance of the GED’s focus on risk of harm as distinct from actual harm.
35. It is our submission that the Cleanaway Application does not meet this duty and that the EPA should consider that as inconsistent with granting the development license.
36. It is not possible to incinerate waste in a manner that adequately minimises the risks to human health and the environment from toxic air emissions, waste residues and APCr, and the harmful effects of climate change. Therefore, we submit that the activity itself, as a method of waste management, is not consistent with the GED, and that the EPA should refuse the Application on that basis.
37. The likelihood of the risks associated with long term exposure to air pollution of the types that will emit from this facility eventuating are probable given that even low levels of exposure can produce adverse health outcomes.
38. The effects on the individuals and communities adversely impacted by resultant poor health could be severe, as discussed in the preceding section of this submission.
39. The state of knowledge on the human health risks associated with waste incineration is sufficient to raise significant doubts about whether the activity can be conducted at all without endangering the local community, even with APC measures in place.⁴²
40. Similarly, the state of knowledge on climate change and the adverse health implications of continuing to produce GHGs is sufficient to conclude that this facility could not meet the GED. Cleanaway should know that their calculations in relation to the overall climate impacts are inaccurate and the EPA should not accept them as sufficiently discharging of Cleanaway’s duties in relation to minimizing GHG emissions.
41. There are further technological measures Cleanaway could take to meet standards of best practice waste incineration (see section C.4 below). More importantly, there are far better waste management practices which should be promoted in preference to risky waste incineration. These include separate collection and management of waste particularly organics, extensive material recovery processes, and improved management of landfill.
42. Some of the specific areas in which we consider Cleanaway’s proposal to inadequately address the risks to human health and the environment and thereby fail to meeting the GED include:

40 *Environment Protection Act 2017* (Vic), s 4(2).

41 *Environment Protection Act 2017*, s 25(1).

42 See, eg, Peter Tait, above n 1.

- a) Cleanaway has not properly considered the state of knowledge on the connection between waste incineration and air emissions that impact the surrounding communities. There are available studies urging caution and noting the serious human health impacts which Cleanaway has not addressed.⁴³ Cleanaway does not adequately address the cumulative impact of air pollution and the adverse health impacts that arise from even low levels of exposure to the air emissions produced by waste incinerators.
- b) The Air Pollution Control methods cannot remove all residual fly ash and rely on high standards of maintenance and compliance, risking cumulative low levels of pollution during standard operation and higher emissions in periods of equipment failure or turning on and off. The proposal does not adequately deal with managing emissions during 'other than normal operating conditions' and the risks these times pose of increased toxic emissions and GHG emissions.
- c) The chosen site is too near to sensitive receptors, sensitive residential zones and agricultural areas. The proponent has not justified the proximity to residences, schools and childcare centers.
- d) Cleanaway has not fully considered the changing demographic in Wollert, Donnybrook and Epping North and the health and disadvantage factors of those who will be impacted by the air emissions of the facility, including future generations impacted by a legacy of pollution residue.
- e) The proposal does not contain an adequate process for pre-sorting waste to remove waste products that are more likely to produce toxins when combusted, risking higher emission levels and greater GHG contributions. Waste acceptance and assessment procedures are lacking in rigor and depend largely on human compliance.
- f) Cleanaway does not deal with the state of knowledge concerning climate change and choice of energy generation technologies.

C3 Principles of Environment Protection (section 69(3)(c))

43. When determining whether or not to approve the license the EPA must take into account the principles of environment protection.⁴⁴ In particular we draw your attention to the principles set out below and submit that genuine consideration of these principles requires the EPA to refuse to issue the Cleanaway Development License.
44. We also note that the consideration of the principles of environment protection is not confined to the 'activity' as defined in the EP Act. Instead, the EPA is obliged to conduct a comprehensive assessment of whether granting the Cleanaway Development License is consistent with these principles.

The principle of primacy of prevention

45. The incineration of waste creates unavoidable toxic air emissions. That impact must then be managed by mitigation efforts to capture and contain the toxic emissions. Even if successfully captured, the toxic substances remain in ash residue posing an ongoing threat to human health and the environment.
46. Prevention of harm to human health and the environment is preferred to remedial or mitigation measures. This principle requires the EPA to place greater value on the prevention of the

⁴³ Peter Tait, above n 1.

⁴⁴ *Environment Protection Act 2017*, s 69(3)(c).

generation of toxic air emissions over the role of Air Pollution Control measures to mitigate the impact or subsequent treatment to permanently contain toxic ash residues. The EPA should consider the Air Pollution Control measures as less favourable method for protection of human health and the environment. In this case, the EPA has an opportunity to prevent the exposure of Wollert and surrounds to toxic emissions by refusing to issue this License.

47. In addition, this principle should be applied to the waste management system as a whole. The licensing of waste incineration facilities raises questions about the extent to which this encourages ongoing waste production to support this industry at the expense of encouraging waste reduction and diversion programs. The waste incineration industry depends on securing reliable high-volume waste streams. This is not consistent with the principle of prevention nor State and Federal circular economy policies focused on waste reduction and reuse.

Waste management hierarchy

48. In 2017 the European Commission released a communication on the role of waste-to-energy in a circular economy noting that waste-to-energy refers to a variety of processes and that these can encompass very different places on the hierarchy.⁴⁵ The Communication notes that ‘high rates of incineration are inconsistent with more ambitious recycling targets’.⁴⁶ For those member states with current high capacity in dedicated incinerators, the Commission recommends ‘phasing out support schemes for waste incineration’ and introducing a moratorium on new facilities and decommissioning older and less efficient ones’.⁴⁷ For member states in a similar position to Victoria, having low or non-existent dedicated incineration capacity, the Commission recommended giving ‘priority to further development of separate [waste] collection schemes and recycling infrastructure’ instead of constructing new waste incinerators.

More recently, a report by Zero Waste Europe in 2023 called for a moratoria on new waste incinerators and progress on decommissioning Waste Incinerators, noting “*the hurdle in downsizing incineration capacity arises from its privileged position within the waste hierarchy, a system that sets the order of preference for waste management methods.*”⁴⁸

49. We urge the EPA to consider approval only of facilities which promote the highest possible level of separation of waste and the development of recycling infrastructure. Waste incineration should be a very last resort in the waste management hierarchy.

The precautionary principle

50. This is perhaps the most fundamental principle for the EPA to consider in relation to the entire waste-to-energy industry and specifically this Application. As noted above, one 2019 meta-analysis of the health impacts of incinerators concluded:

⁴⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘The Role of Waste-to-Energy in the Circular Economy’ COM/2017 34, Brussels (26 January 2017) 3-4.

⁴⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘The Role of Waste-to-Energy in the Circular Economy’ COM/2017 34, Brussels (26 January 2017) 7.

⁴⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘The Role of Waste-to-Energy in the Circular Economy’ COM/2017 34, Brussels (26 January 2017) 7-8.

⁴⁸ Zero Waste Europe, September 2023, ‘Enough is enough: The case for a moratorium on incineration’

*...based on a precautionary principle there is insufficient evidence to conclude that any incinerator is safe.*⁴⁹

51. Drawing confident conclusions about the harms that incinerators pose is very difficult. One study noted the complexity in demonstrating linkages between exposure to waste incineration pollution and adverse human health outcomes:

*Unfortunately, precise evaluation of the health impact of waste incinerators can be difficult due to confounding factors, including pollution from industries, automobiles and agriculture chemicals, latency for carcinogenicity, subacute and delayed reproductive/intergenerational effects, mobility of populations and other factors.*⁵⁰

52. The EPA's commissioned literature review of studies of the health impacts of living in proximity to a waste incinerator discounted the findings that some health effects could be associated with facilities that 'are presumed to comply with EU IED or equivalent emission standards' on the basis that it was not possible to be conclusive about the link. That approach is not consistent with a precautionary approach.⁵¹
53. Indeed, the precautionary principle is embedded in the EP Act for precisely this circumstance, to empower the EPA to take measures to prevent or minimise threats to human health or the environment, notwithstanding the lack of full scientific certainty as to nature or extent of the risk of harm.
54. Evidence supports the existence of a risk of serious and irreversible harm to human health and the environment (see section C.1 above). However, even if the EPA lacks scientific certainty that air pollution from waste incineration poses a threat of serious and irreversible harm to human health and the environment, this should not be used as a reason for postponing measures to prevent or minimise those threats. In this case, the EPA has the power to prevent an increase in exposure to several harmful air pollutants by refusing to issue the Cleanaway Development License.
55. To preside over the emergence of a waste incineration industry while there is credible scientific doubt about the safety of these facilities, would be a failure to fully consider and apply the precautionary principle.
56. It is useful to note here that other Australian jurisdictions, acting on the precautionary principle, have seen fit to ban or restrict the development of waste-to-energy facilities because of the risk of harm to human health or the environment. The ACT banned waste incinerators in 2020 stating 'there are cleaner, greener and more efficient ways of managing our waste, than burning it'.⁵² NSW restricted the building of waste-to-energy facilities in the Greater Sydney area to ensure human health and environment are protected.⁵³ Victoria should take an equally cautious approach to waste-to-energy projects.

49 Peter Tait, above n 1, 47.

50 Peter Tait, above n 1, 1.

51 EnRiskS, *A review of the scientific literature on potential health effects in local communities associated with air emissions from Waste to Energy facilities*, Report prepared for EPA Victoria, 8 October 2018, 42.

52 Michael Mazengarb, 'ACT set to ban waste incineration for energy, citing community concerns' *Renew Economy* 29 May 2020 (online) <https://reneweconomy.com.au/act-set-to-ban-waste-incineration-for-energy-citing-community-concerns-33706/>.

53 State Environmental Planning Policy (Transport and Infrastructure) Amendment (Thermal Energy from Waste) 2022 under the *Environmental Planning and Assessment Act 1979* (NSW).

Equity

57. This principle requires that the EPA consider whether this project will disproportionately impact certain communities. It raises the question of whether there are environmental justice elements to the decision, which we assert there are.
58. The MERC facility would be sited in Wollert. The district around Wollert is a growth corridor which will see increasing sensitive receptors such as primary schools, childcare centers, aged care facilities and other vulnerable communities with a diverse ethnicity.
59. The proponent has not adequately addressed the socio-economic, health and disadvantage factors of the present community in the airshed of the facility or the projected population and social demographic factors over the lifetime of the facility. Cleanaway does not adequately contend with the risk that their proposal places an unfair pollution burden on current and future residents. Given the scientific uncertainty as to the degree of toxic pollution that will result from this waste incinerator, it is cavalier to assert that the local community will not be disproportionately burdened by the imposition of a further risk of harm to human health and the environment.
60. Likewise, the risk of burdening future generations with toxic residues in the form of air and soil pollution accumulating over time via the stacks or in bottom ash is not consistent with maintaining and enhancing the environmental benefits for future generations.
61. We note the intention of the applicant to investigate and seek approval at some stage in the future for use of Incinerator Bottom Ash Aggregate (IBAA), as an alternative construction product such as road base. There are risks of widespread longterm contamination of the environment through leaching of heavy metal mobility to undersoil and groundwater and wear of road surfaces containing such Incinerator waste.⁵⁴

We note Bottom Ash (BA) has problems with substantial quantities of heavy metals which may pose an environment and health risk. Researchers in a 2023 study in Nature urged caution in the use of Bottom Ash, that “due to heavy metals, toxic elements, and salts harmful to humans and the environment, Bottom Ash (BA) needs proper treatment before use or landfilling”:

“The average concentration of heavy metals examined in BA particles smaller than 4 mm was compared to ecologically permissible levels for urban and garden uses, parks, open areas, and playgrounds, as shown in Table 2 and Supplementary Fig. S4 online. The results showed that the concentration of Sb in BA was higher than urban use and ecologically permissible levels, the concentration of Ba was higher than human and environmental health limits, ecologically permissible levels, and suitable soil levels, and the concentration of Cr was higher than ecologically permissible levels and suitable soil levels. Overall, the concentration of metals in BA was higher than the appropriate soil levels, indicating a high amount of rubber and plastic in the input waste, which needs to be treated before use in urban construction.”⁵⁵

C4 Best Available Techniques and Technologies (section 69(3)(d))

62. Section 69(3)(d) requires the EPA to consider best available techniques and technologies (‘BAT’). Importantly, this consideration is not confined to the activity that is the subject of the

54 Silva, R.V. et al, (Jan 2019), Environmental impacts of the use of bottom ashes from municipal solid waste incineration: A review

55 Beikmohammadi, M., Yaghmaeian, K., Nabizadeh, R. et al. Analysis of heavy metal, rare, precious, and metallic element content in bottom ash from municipal solid waste incineration in Tehran based on particle size. Sci Rep 13, 16044 (2023). <https://doi.org/10.1038/s41598-023-43139-1>

application. Therefore, the EPA is required to consider not only BAT for waste incineration, but also more broadly the BAT for waste management and whether waste incineration is best practice.

63. We submit that waste incineration, even when meeting EU standards for waste incineration, is not BAT waste management due to the risks it poses of toxic air emissions and GHG emissions.
64. Even if the EPA was to confine its assessment to waste incineration, the proposed moving grate combustion technology is not considered the most efficient process. Grated incineration used to generate steam is generally inefficient and is not best practice thermal energy recovery. Alternate systems that gasify waste to produce bio-gas are more efficient.
65. The waste streams that Cleanaway propose to use should be processed by a materials recovery facility (MRF) prior to incineration to extract metals, e-waste, contaminants, and any other recyclable materials. Such technology is available and could produce a largely biotic organic residual more suited to more efficient and cleaner thermal energy recovery technologies.

D Ministerial Planning Process Decision

66. We think the Minister for Planning erred in the decision of 5 October 2023 to allow the consultation and engagement to go ahead under existing environmental regulations and declining the need for an Environment Effects Statement for a Waste to Energy Incinerator at the stated location in Wollert. Incineration of hazardous wastes are covered under three international treaties with Australia being a signatory: the Stockholm Convention, the Minnamata Convention and the Basel Convention. We note under the Basel Convention, Under Paragraph 50, of the Basel Convention Technical Guidelines on Incineration on land as revised in 2022 (D10 and R1) it says clearly an environment impact assessment for a site is required. The decision would appear to breach the application of an International Treaty which Australia is a signatory to.

“50. For potential sites, an environmental impact assessment should be done to determine the environmental impacts and the environmental technical, legal, social and economic feasibility of establishing a facility.”⁵⁶

67. The Planning Minister’s decision also failed to take into account that Whittlesea Council has been in administration since 2020, so citizens of the municipality have no recourse to local elected representatives to discuss and debate the local planning issues and the health and environmental impacts. This is a denial of basic human rights in the local planning process.

56 Basel Convention, Technical guidelines on the environmentally sound incineration of hazardous wastes and other wastes as covered by disposal operations D10 and R1.
[https://www.basel.int/TheConvention/OpenendedWorkingGroup\(OEWG\)/Meetings/OEWG12/Overview/tabid/8264/ctl/Download/mid/25447/Default.aspx?id=15&ObjID=25696](https://www.basel.int/TheConvention/OpenendedWorkingGroup(OEWG)/Meetings/OEWG12/Overview/tabid/8264/ctl/Download/mid/25447/Default.aspx?id=15&ObjID=25696)

E Consultation Process

68. The consultation process for this development application and licence was flawed.
69. Not enough time for consultations. With so much reading in the licence proposal and submitters needing to get across very technical issues of air pollution, health and environment risks, waste incinerator technology, environmental legislation and regulations, the consultation time should have been much longer.
70. Engagement needed to have outreach to local agricultural producers, schools, aged care centres, and the diversity of communities in the local area and region.
71. Timing of the consultation over Easter and Ramadan. We think having the consultation over major christian and muslim events took away valuable time for people to participate.
72. Likewise the timing of this consultation period to include school holidays would have impacted peoples ability to participate in the process.
73. The submission process with two side by side submission processes for EPA development licence and DTP approvals should have been simplified into one submission process for ease of use by the public. Having two processes acted to discourage participation in the submission process.