

Western Sydney Energy & Resource Recovery Centre

Air and Health Citizens Panel

Report of discussions

May 2020

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1. Introduction

1.1 Background

The Western Sydney Energy and Resource Recovery Centre, proposed by Cleanaway and Macquarie Capital, is a proposal to build an energy-from-waste centre at 339 Wallgrove Road, Eastern Creek. The Centre would accept up to 500,000 tonnes of residual red bin waste from households and businesses, diverting this non-recyclable waste from landfill and using it to generate energy to power over 65,000 homes.

The proposal is conducting the consultation and assessments required by the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Industry and Environment (DPIE) in consultation with agencies. These assessments will be included in the Environmental Impact Statement (EIS), which is expected to be exhibited in 2020. DPIE will place the EIS on display for review and comment by community and agencies.

During consultation with community, comments around the impact of the proposed Centre on air quality and human health were raised, including requests for additional information. This led to the establishment of the Air and Health Citizens' Panel to achieve a longer, more detailed discussion.

There were four Air and Health Citizens' Panel sessions held on:

- Saturday 15 February 2020 at the Atura Hotel Blacktown;
- Saturday 7 March 2020 at the Atura Hotel Blacktown;
- Saturday 28 March 2020 using an online tool (Recollective); and
- Saturday 4 April 2020 using online tools (Recollective and Zoom).

Note: Due to the 2020 COVID-19 pandemic and government restrictions, the third and fourth Air and Health Citizens' Panel sessions were efficiently moved from face-to-face to an online environment. Participants and panel members were invited to continue with a new format in an online space, and the move was willingly accepted.

1.2 The use of a deliberative style of community engagement

To satisfy the requirement for early and high-quality community engagement in the EIS process, the Citizens' Panel was formed to deliberate on the air quality and health risk assessment methodologies for the environmental studies.

Typically, deliberative engagement methods are ones in which participants:

- agree on the questions to be resolved;
- have a say on the engagement process and their access to information as part of that process; and
- can suggest information be returned to; or new information be presented in the discussions.

The deliberative panel process focusses on making people feel comfortable enough to consider new ideas and curious enough to want to gather additional information. The process included:

1. An understanding of people's initial, top-of-mind views as they started the discussions.
2. Providing information and access to experts for increasingly informed discussions.
3. People adopting considered opinions and holding a thoughtful discussion on priorities and concerns.
4. At the conclusion of the process the participants consider their conclusions on the questions and the process itself.

This tool is effective in gaining information and ideas from geographically and demographically dispersed citizens who present a variety of opinions and perspectives, allowing for rich and detailed information to be exchanged. The community panel involved recruited people that represented the demographics of a wider community, including hard-to-reach audiences such as young people. Details of the recruitment participants are in Appendix A.

This Air and Health Citizen's Panel convened in February 2020 and had the objective of providing a thoughtful discussion and consideration of the air quality and health risk assessments being conducted for the WSERRC EIS. A key question was, will the process assess all the necessary aspects important to the community?

1.3 Panel objectives

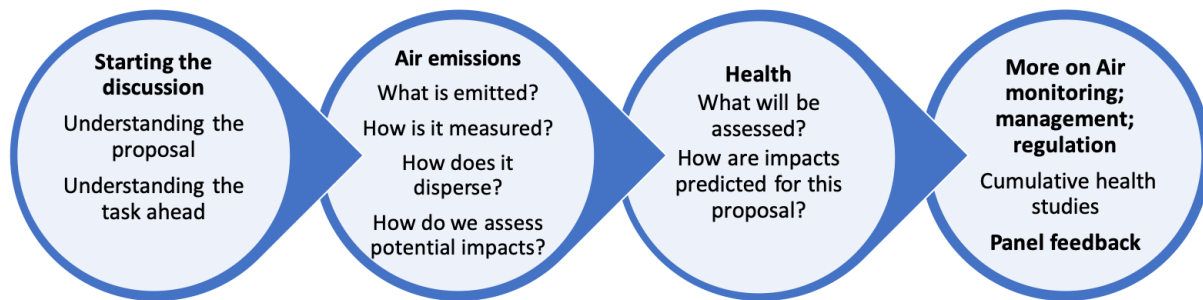
The Citizens' Panel had the following objectives.

- Engaging the community on an issue that requires a lengthy and detailed conversation (i.e. a deliberation).
- Undertaking a fact-based examination of the project and its potential to impact air quality and human health.
- Examining the community response to the air quality assessment considerations – does it assess factors important to the community?
- Examining the community response to the health assessment methodology – do they feel it is adequate?
- Demonstrating to the wider community the results of a deliberative process regarding the proposal, air quality and health.

2. The panel process

2.1 Overall process

As shown to the participants, the following is the flow chart of the panel process.



2.2 Panel participants

The following attended the discussions.

- 23 residents – recruited from a broad cross section of suburbs surrounding the proposed project site. Appendix A describes the recruitment specifications.
- Western Sydney Direct Action representative.
- Blacktown District and Environment Group representative.
- Independent observers.
- Newgate Engage (meeting facilitator and table facilitators).
- Representatives of Cleanaway and Macquarie Capital.
- Technical experts, with specialties in the area of air quality and health:
 - air emissions expert Aleks Todoroski (Todoroski Air Sciences)
 - health assessment expert Therese Manning (EnRisks)

The CVs for the WSERRC project team air and health specialists are in Appendix H.

2.3 Independent observers

The independent observers to the process were:

- Kishen Lachireddy – representing NSW Health;
- Bertha Gunawan – representing Blacktown City Council; and
- Julia Thompson – representing Blacktown City Council

2.4 Independent experts

During session one, the Panel requested that they have access to independent experts to increase transparency of the information provided during sessions two and three. Subject matter experts were recommended by the technical experts, and panellists were able to recommend their own independent experts.

One panellist requested Professor Lidia Morawaska, a Professor in the School of Earth and Atmospheric Sciences, Faculty of Science and Engineering at Queensland University of Technology. Professor Morawaska declined the offer, citing a busy schedule.

The agreed independent experts that assisted the Citizens' Panel process were:

- Geordie Galvin – an expert in air quality; and
- Professor Brian Priestly – an expert in human health.

A further opportunity arose for a presentation by an overseas expert, Herman Huisman. The CVs for these three independent experts are in Appendix I.

2.5 The meeting objectives of each session

For each meeting a range of objectives were created with the aim of providing a structure for the content of each panel session. The meeting agendas are listed in Appendix B.

These meeting objectives were shaped in order to address participants' questions and they follow Session One in which the panel was asked to nominate their areas of concern. In this way, the participants helped to shape the meeting agendas for the panel.

SESSION 1	SESSION 2	SESSION 3	SESSION 4
<ul style="list-style-type: none"> ▪ Ensure participants had a similar level of understanding of energy-from-waste and the proposed Centre. ▪ Capture the specific areas of air and health that the community was interested in to inform the agendas for the following sessions. 	<ul style="list-style-type: none"> ▪ Discuss the methodology for modelling the expected emissions from the Centre ▪ Capture the specific areas of air quality assessments that the panel was interested in (to make sure it is covered in the EIS) ▪ Capture questions around potential health impacts of the proposal to inform the agenda 	<ul style="list-style-type: none"> ▪ Discuss the legislation, and health assessment in relation to the proposed Centre. ▪ Capture the specific areas of health assessment that the panel was interested in (to make sure it is covered in the EIS). ▪ Capture final questions and comments on all aspects of the 	<ul style="list-style-type: none"> ▪ Provide an international perspective on energy-from-waste ▪ Outline the approach to operational redundancies and accountability ▪ Examine the disposal of the fly ash ▪ Examine long-term monitoring of the Centre and penalties for non-compliance

- | | | | |
|--|------------------------------------|---|---|
| <ul style="list-style-type: none"> ▪ Enable technical experts to provide responses to core questions in the following sessions. | <p>for the following sessions.</p> | <p>proposal to inform the agenda for the final session.</p> | <ul style="list-style-type: none"> ▪ Capture any final areas of the air and health assessment process that had not yet been discussed. |
|--|------------------------------------|---|---|

Based on the objectives, the presentations covering the following topics were given across the four sessions.

- Waste in Australia and around the world
- The explanation of the proposal and how it is similar to other facilities
- What is proposed for the Western Sydney Energy & Resource Recovery Centre
- The planning process for this Centre
- Sydney's air quality
- The proposed air emissions management system, controls and dispersion
- How do we measure and monitor air emissions?
- How do we assess community health?
- How we conduct a health risk assessment?
- Legislation, regulation and compliance
- Other health matters
- Regulating industrial process
- What's already in the environment
- Safety
- Operational accountability
- The overseas perspective
- Planning process, where to next?

3. Panel outcomes

The summaries produced after each session, containing questions asked and answers provided, are contained in Appendix C. The questions and issues raised by participants in-between panel sessions are listed in Appendix G.

3.1 Did we meet the engagement objectives?

The citizen's panel had the following objectives.

- Objective: Engaging the community on an issue that requires a lengthy and detailed conversation (i.e. a deliberation)
 - The group met for a total of 16 hours
 - All participants reviewed the summaries for each meeting in between sessions
 - 16 presentations were provided
 - 154 questions were submitted and responded to throughout the panel process
 - At the conclusion of the process, 95.7% of the panel respondents noted that at the end of the sessions they felt they understood the process to manage air and emissions in the Centre
- Objective: Undertaking a fact-based examination of the project, and its potential to impact air quality and human health
 - There were 16 presentations, of which five were on air emissions and air quality, and 2 were on human health aspects of the assessment methodology
 - The facts as they were discussed with participants were verified if required by the independent experts
 - At the conclusion of the process, 95.7% of the panel respondents felt that they received the right/sufficient information for them to participate meaningfully
- Objective: Examining the community response to the air quality assessment considerations – does it assess factors important to the community?
 - Participants recorded their views in the final survey that the panel process gave them a better understanding of the project, the management of air emissions and the process to consider its impacts on air and health. There were comments from participants that they would like more information to be included in the relevant EIS assessments on the areas of:
 - a comparison of the air quality management systems for both the proposal and the Dublin reference facility
 - existing toxins in the local air in the Western Sydney Region
 - studies on the air quality specifically in the Western Sydney region
 - At the conclusion of the process, 87% of the panel respondents noted that at the end of the sessions they felt they understood the process to consider what the air impacts of the centre would be

- Objective: Examining the community response to the health assessment methodology – do they feel it is adequate?
 - Participants noted in the final survey that the panel process gave them a better understanding of the project and its potential impacts on health. 21% of the panel thought the health assessment was very comprehensive, 47% of the panel felt it was comprehensive and 30% felt that it was missing items that are important
 - There were comments from participants that they would like more information to be included in the EIS health assessment on the areas of:
 - A long-term study of the health effects for residents who live within a 5km radius of the facility
 - Any health studies undertaken at the Dublin reference facility
 - Medical data proving that after installing a similar facility, cancer rates did not increase
 - Possible effects on the reproductive system of women
- Objective: Demonstrating to the wider community the results of a deliberative process regarding the proposal, air quality and health
 - This report will be published on the website and the consultation process will be documented in the EIS technical paper on community engagement



FIGURE 1 – CITIZENS' PANEL SESSION ONE IMAGES

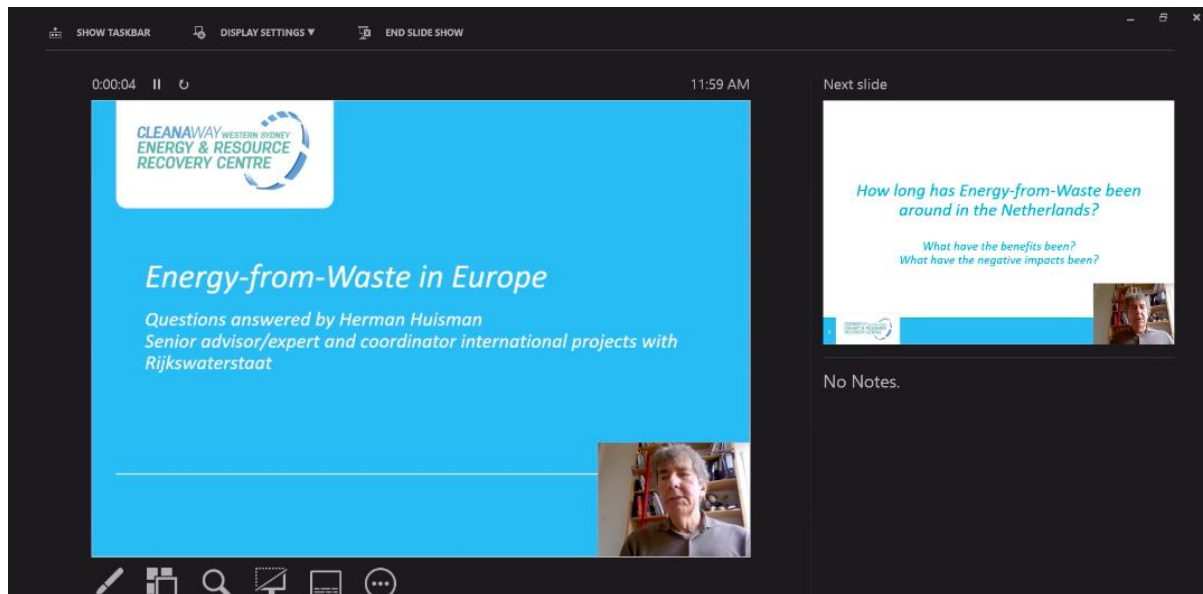


FIGURE 2 – HERMAN HUISMAN ONLINE PRESENTATION, CITIZENS’ PANEL SESSION FOUR

Figure 3 below describes the journey that panellists undertook. This journey map includes the surveys that were undertaken during the process, and a range of sample quotes about how people felt during the process.

Typically, the participants in a complex and detailed discussion such as this find the process engaging and at times challenging – as participants are engaging on topics with only several hours of briefing available.

The journey for most of the panel participants was that they felt the process was robust; and they understood the information sufficiently to engage and respond.

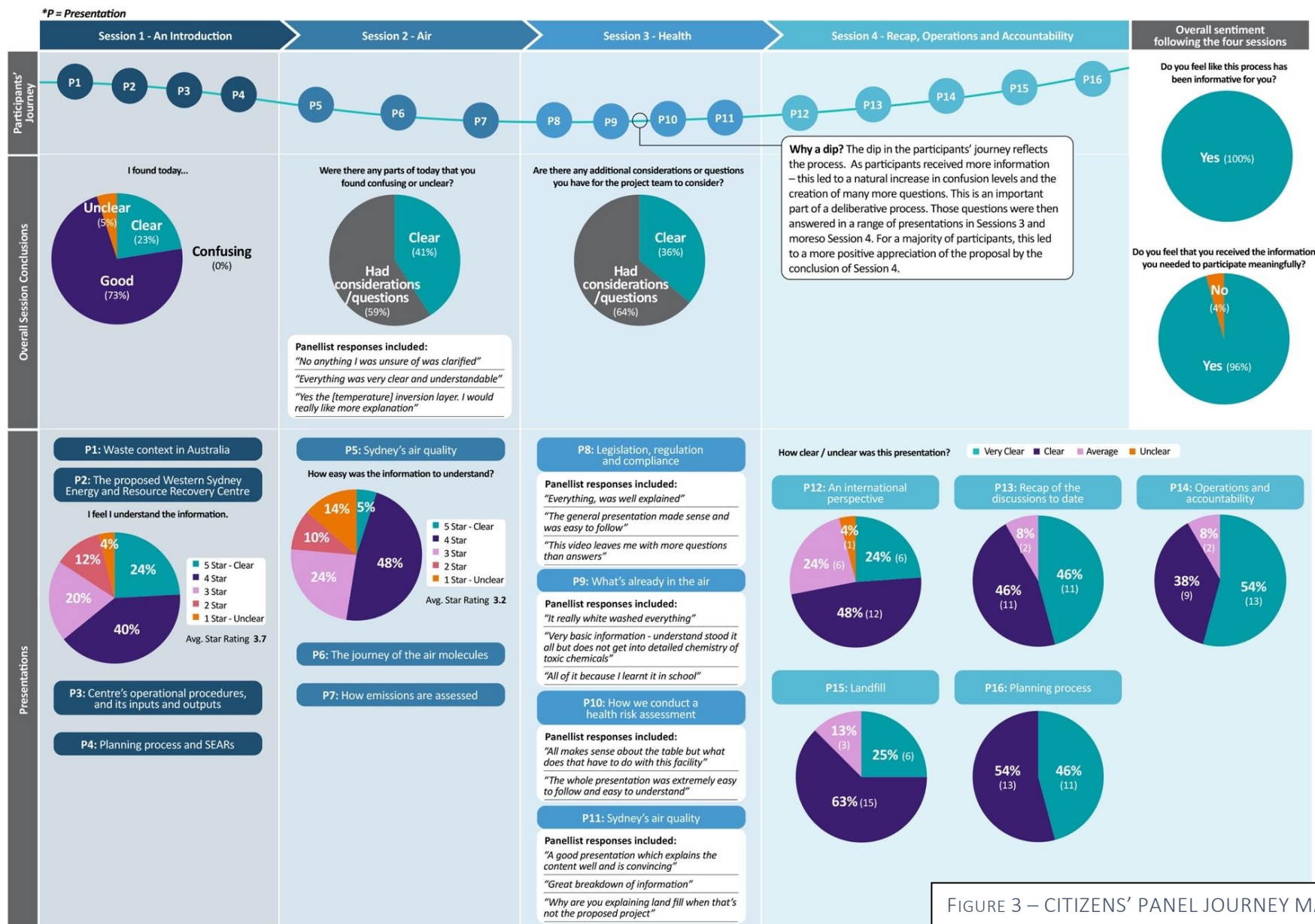


FIGURE 3 – CITIZENS' PANEL JOURNEY MAP

3.2 Questions and issues raised by the Panel

In each session, a number of questions were asked and responded to by the WSERRC proposal team. To capture the breadth of questions asked and the answers provided, a summary report was prepared following each session. The summary reports were sent to the participant to confirm their accuracy and ensure that the participants views were adequately represented. The full summary reports can be viewed in Appendix C.

In panel session 3, the representative of Western Sydney Direct Action requested responses to a series of pre-prepared written questions. The questions were summarised and a response, available in Appendix D, was provided to the participants as requested.

At the conclusion of the process, an exit survey was provided to all panellists following Session 4 (see Appendix F Final Panel Survey). Below are the areas of concern that remained outstanding for different participants. This includes responses given to the question - *If missing items, what else would you like to see considered in the assessments?*

Areas of Concern	Where Concern is Addressed
Confirmation around no health impacts for the proposed Centre	<i>The EIS.</i> A human health risk assessment will consider all potential risks to health. The results of this report will be made available during the EIS exhibition and summarized in the EIS chapter 9.
Results of health studies conducted in overseas communities living in proximity to EfW facilities	<i>WSERRC website.</i> There are a number of studies that have considered communities living in proximity to EfW facilities and the potential health impacts. Links to some of these reports are available on the resources page of the WSERRC website.
Emissions from the facility <ul style="list-style-type: none"> What is being monitored and how? Similarity of emissions to reference facility (Dublin) 	<i>The EIS.</i> What emissions will be monitored and how this occurs will be discussed in EIS chapter 3. The predicted emissions depend on the waste composition analysis and similarity to the reference facility (Dublin). This will be outlined in EIS chapter 5.
Consideration of the impacts of the Sydney Basin on air quality	<i>The EIS.</i> An air quality and odour assessment will model the Sydney Basin conditions. The results of this report will be made available during the EIS exhibition and summarized in the EIS chapter 8.
Detail around management and impacts of shutdown/emergency conditions	<i>The EIS.</i> Management of shutdown conditions will be described in EIS chapter 3.

	The potential impacts of facility shutdown for scheduled maintenance or emergency conditions will be considered in the air quality and odour technical report.
Management and destination of hazardous materials (flue gas treatment residues)	<i>The EIS.</i> Management of flue gas treatment residues requiring disposal will be detailed in EIS chapter 3.

All the specific questions and concerns raised by the panel in all four sessions and the final survey will be documented in the WSERRC proposal stakeholder issues database. They are to then be raised in the Community and Stakeholder Engagement Technical Report; and addressed in the EIS or elsewhere as part of broader project planning.

3.4 Participants' overall conclusions on this process

Below is a sample mix of 12 quotes from participants on the panel process. The comments are verbatim and describe a mix of feelings about the issues and the process just completed - positive, neutral and negative sentiment. The comments are taken from the final survey participants completed after session four (overall 23 participants and 16 questions providing 368 responses). As shown in Figure 3 – Journey Map, these comments reflect the overall distribution of panel sentiment at the end of the process.



3.5 Further engagement for the Citizens' Panel during the EIS exhibition

Of the 23 panel participants, 22 people have expressed confidence in the process and are keen to resume a discussion with the consortium when the EIS is placed on exhibition and the air and health results are available.

A small sample of some comments in response to this question follow.

Yes I would love to come back and discuss stuff, its a strange feeling but I feel very invested in this now

If there is any additional sessions I would love the opportunity to continue to be a part of representing the wider community

Yes surely interested to reconvene as I feel we are part of the consultation process and I would like to track the progress of the proposal up to the end.

APPENDICES

Appendix A – Community recruitment details – who participated?

There were 23 recruited participants who were part of the four sessions of the Citizens' panel. The participants were made up from 10 participants who attended the deliberative forum in 2019 and consented to be contacted by Cleanaway again. The remaining 13 participants were recruited from the same recruiter who approached community members from surrounding suburbs to the project site.

Ages	n=23
Aged 18 - 30	n=6 or 7
Aged 31 - 45	n=6 or 7
Aged 46 - 60	n=6 or 7
Aged 60 +	n=6 or 7

Suburb quota:

Mix of residents from the following suburbs:

- Mount Vernon
- Horsley Park
- Erskine Park
- Eastern Creek
- Minchinbury
- Arndell Park
- St Clair
- Huntingwood (mostly industrial/commercial)
- Cecil Park
- Abbotsbury
- Bossley Park
- Parts of Wetherill Park (mostly industrial/commercial)

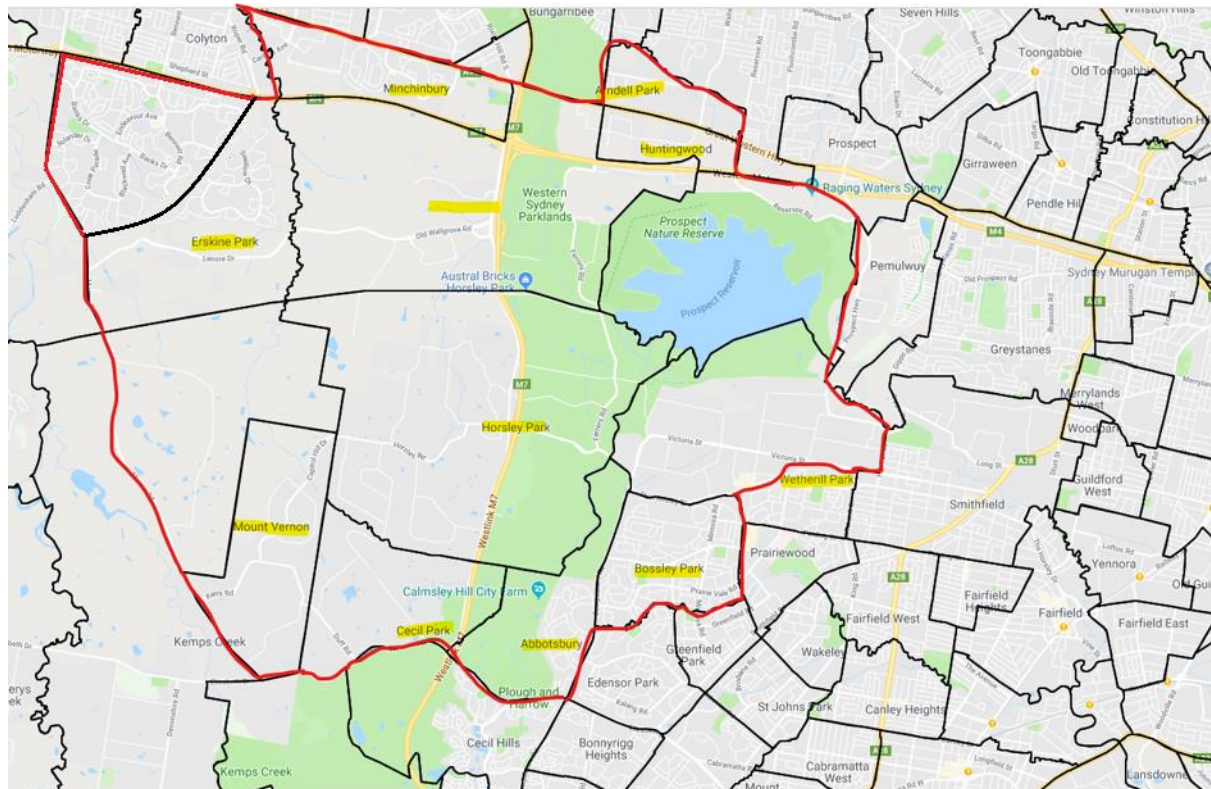


FIGURE 4 – WORKING MAP OF THE AREA FROM WHICH PANELLISTS WERE RECRUITED

Appendix B - Meeting agendas

Session One Agenda

Activity	
9.30am	WELCOME and Introductions
	Agenda
	Why are we here?
	Who is here in the room?
	Activities outside the sessions and reporting
	Confidentiality and trust
	The Citizens' Panel journey
	PRESENTATION #1: Setting the scene - Waste in Australia and around the world; Mikaela Orme, Cleanaway
	PRESENTATION #2: Introduction to the proposal; Nick Schutt, Cleanaway
10.55am	MORNING TEA
	PRESENTATION #3: The proposed Western Sydney Energy & Resources Recovery Centre and its processes; Nick Entsch, Macquarie Capital
	TABLE DISCUSSION #1: Further information required and our issues and priorities
	PRESENTATION #4: How will this proposal be assessed? Nick Schutt, Cleanaway
	TABLE DISCUSSION #2: Identification of issues to be assessed
12.40pm	LUNCH
	Feedback and next meeting overview
1.30pm	CLOSE

Session Two Agenda

Activity	
9.30am	WELCOME and Introductions
	Agenda
	Session 1 recap
	Responses to questions held over from last session
	Planning process recap
	PRESENTATION #1: Air Emissions – what are they and how are they measured? Aleks Todoroski, Todoroski Air Sciences
10.30am	MORNING TEA
	PRESENTATION #2: Air Emissions – how do they disperse and how is this regulated? Aleks Todoroski, Todoroski Air Sciences
	TABLE DISCUSSION #1: Further information required and our issues and priorities
12.05pm	LUNCH
	PRESENTATION #3: Air Emissions – how will we assess potential impacts? Aleks Todoroski, Todoroski Air Sciences
	TABLE DISCUSSION #2: Identification of issues to be assessed
	Feedback and next meeting overview
1.30pm	CLOSE

Session Three Agenda

Activity
Friday 27 March – Saturday 28 March
Session 2 recap
PRESENTATION #1: Legislation, regulation and compliance. Therese Manning, Enriska
PRESENTATION #2: What's already in the air. Therese Manning, Enriska
PRESENTATION #3: How we conduct a health risk assessment. Therese Manning, Enriska
PRESENTATION #4: Other matters. Therese Manning, Enriska
Saturday 28 March 11.30am – 1.00pm
ONLINE DISCUSSION: Further information required and our issues and priorities
Saturday 28 March 1.00pm – 5.00pm
Feedback on the session

Session Four Agenda

Activity
Friday 3 April – Saturday 4 April
Session 3 recap
PRESENTATION #1: The overseas perspective. Herman Huisman
PRESENTATION #2: Recap on the learnings to date. Mikaela Orme, Cleanaway
PRESENTATION #3:
Part 1: In-built safety of the proposed centre. Geert Stryg, Ramboll
Part 2: Accountability. Nick Entsch. Macquarie Capital
Part 3: Cleanaway's commitment to safety. Mikaela Orme, Cleanaway
PRESENTATION #4: Landfill. Mikaela Orme, Cleanaway
PRESENTATION #5: The Planning Pathway – next steps. Mikaela Orme, Cleanaway
Saturday 28 March 11.30am – 1.00pm
ONLINE DISCUSSION: Further information required and our issues and priorities
Saturday 28 March 1.00pm – 5.00pm
Survey

Appendix C – Panel session summaries

Air and Health Citizens' Panel: Summary

Session One

Atura Hotel Blacktown, 32 Cricketers Arms Road, Prospect 2148
Saturday 15 February 2020

****TO BE REMOVED ONCE CONFIRMED BY PANEL ATTENDEES****

This is a draft meeting summary of the first session for Western Sydney Energy & Resource Recovery Centre's Air and Health Citizens' Panel.

This report aims to accurately represent the conversations held between the proposal team, the air and health experts, and the attendees during this session. If any misrepresentation has been made, please submit your requested changes to Rhana Fleming at Rhana.Fleming@newgateengage.com.au

Background

The Western Sydney Energy and Resource Recovery Centre, proposed by Cleanaway and Macquarie Capital, is a proposal to build an energy-from-waste centre at 339 Wallgrove Road, Eastern Creek. The Centre would accept up to 500,000 tonnes of residual red bin waste from households and businesses, diverting this non-recyclable waste from landfill and using it to generate energy to power up to 65,000 homes.

The proposal is currently conducting the consultation and assessments required by the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Industry and Environment (DPIE) in consultation with agencies. These assessments will be included in our Environmental Impact Statement (EIS), which is expected to be submitted mid-year. DPIE will place the EIS on display for review and comment by community and agencies.

During consultation with community, comments around the impact of the proposed Centre on air quality and human health were raised, including requests for additional information. This led to the establishment of the Air and Health Citizens' Panel.

Session One Attendees

Attending the discussion were:

- Representatives of Cleanaway and Macquarie Capital
- Technical experts, with specialties in the area of air quality and health
- Newgate Engage (meeting facilitator and table facilitators)
- 23 residents - recruited from a broad cross section of suburbs surrounding the proposed project site
- Western Sydney Direct Action
- Blacktown District and Environment Group
- NSW Health (observer)
- Blacktown City Council (two observers)

Session Objective

As there were varying levels of knowledge on the proposal in the room, the objective was, firstly, to ensure that all attendees had a similar level of understanding of energy-from-waste and the proposed Centre.

Secondly, the aim of the first session was to capture the specific areas of air and health that the community was interested in, in order to inform the agenda for sessions two, three and four.

Understanding the questions community in this session will enable the technical experts to attempt to provide answers where possible in future sessions.

Presentation One

Presenter – Mikaela Orme, Cleanaway

Presentation one gave a broad overview of the waste context in Australia and how we compare to our European counterparts.

Following presentation one, questions were taken from the floor with responses provided as noted below.

Questions and Comments	Responses
On the sign at your site, you mention 1.6 million tonnes per year, but only take 500,000 tonnes?	The 1.6 million tonnes refers to the amount of waste to landfill currently generated in Western Sydney. Our Centre will only accept 500,000 tonnes of that each year.
How much is pre-sorted before entering the combustion area?	This is red bin waste that will go into the Centre.
How will this [citizens' panel] influence the decision?	The goal of this panel is to assess the methodologies being used for the air and health assessments for our EIS, and to understand if there is anything we are missing.
What knowledge is needed to understand the technology?	We will give you the information that you require over the course of the Citizens' Panel
Can we have access to an expert that we can use to consider this topic?	This can be arranged. We have asked our experts for names of experts in health and air quality that they recommend. We have a couple of CVs' and will provide these details separately. [ACTION for project team].
What about considering issues outside health and air?	The focus of this panel is to specifically consider the details around air and health. However, the Project Team would be happy to address issues outside the topics of air and health. Please feel free to raise these with Nick S, Nick E or Mikaela.

Blacktown Council are here, were Fairfield Council invited?	Yes. Fairfield and other councils were invited to participate in the panel. They are all aware of the proposal and have been briefed. We will continue to engage with them.
What is the effect on property prices?	We don't have the answer for this question; however, the site selection process was thorough. The project is more than 1km away from residences and is surrounded by landfill to the north, an alternative waste treatment facility to the east, the M7 motorway to the west and other heavy industry and landfill.
Where is the centre located?	This is something we will cover in the next presentation.
NSW air emission standards are not good enough.	The Centre will meet the toughest air quality standards enforced in the EU, which are stricter than the Australian Standards. This is a topic we will also discuss in future sessions.
Is this just an experiment, or is it going to get larger and take more waste in?	No, it is not an experiment. The approval being sought is for 500,000 tonnes per annum. It is an appropriately sized facility for current waste generation and the expected future waste generation – assuming that people become better at reducing and recycling their waste. 500,000 tonnes per annum is a similar amount to facilities operating overseas – the proposal is required to have a reference facility of a similar capacity and feedstock. We have noted the Dublin facility as a reference site. A second reference site is still to be confirmed.
Comment: Copenhagen and their property prices – they're not comparable to the Australian market.	
Incinerators are being decommissioned around the world?	Some older facilities are being decommissioned, some are being upgraded, but many new facilities are being built. Information to be provided on this. [ACTION for project team].
How much will it cost to get [a waste management result] as good as Germany?	Germany began moving away from landfill in the 1990s and went through a lot of community education and policy change. So, it was a long process and probably cost a lot of money.
What is the size of the facility?	It will have a 500,000-tonne capacity – similar to facilities operating overseas. 1.6 million tonnes of waste is currently sent to landfill from Western Sydney.

What are the benefits to Cleanaway?	The Western Sydney Energy and Resource Centre allows Cleanaway to offer a cheaper alternative to landfill for councils and businesses. It also supports our wider investment in recycling and waste management facilities. It is always best to manage waste closer to its source. This results in less (diesel) transport and, therefore, reduces the negative impact from transport on air quality. The proposed stack emissions are the equivalent of 4 diesel trucks travelling at 60km/hr.
Why not select a regional location, for example where the coal mines are closing down, because they are receiving government support and grants?	
Comment: There are electric trucks now and they could be used to transport waste out to regional locations	
This is not a circular economy image I am familiar with. How does the circular economy use minerals? Can I have the reference?	There are many interpretations of the Circular Economy – ultimately, resources come from somewhere and that means they are mined, even in a circular economy. The reference can be supplied. [ACTION for project team]
For the overseas slide – you just say EfW. Can we see the breakdown of other EfW types, particularly anaerobic digestion?	Anaerobic digestion will likely only be a small amount – most of the EfW is generated through thermal treatment. The team is happy to come back with actual figures. [ACTION for project team]
What is anaerobic digestion and how can it dispose of waste?	Anaerobic digestion is where organic material is broken down through the use of bacteria. The process captures methane, which is used to generate electricity and heat. A sludge created out of the process, which is often dried using the generated heat and either used in agriculture or, overseas, sometimes sent to EfW. There is an example Cleanaway facility in Western Sydney in Camelia.

Presentation Two

Presenter: Nick Schutt, Cleanaway

Presentation two provided an introduction of the proposed Western Sydney Energy and Resource Recovery Centre.

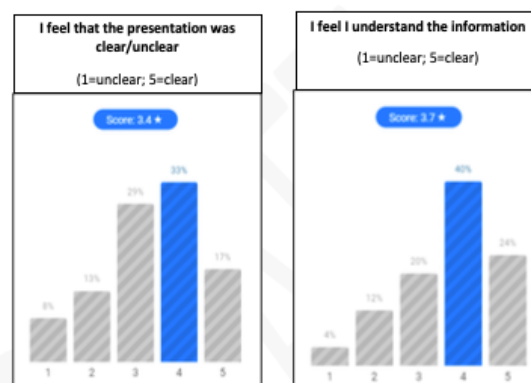
Following presentation two, questions were taken from the floor with responses provided as noted below.

Questions and Comments	Responses
Bushfires and the Western Sydney basin – how does this affect air quality?	This question can be addressed at the following sessions.
Waste does not disappear – a tonne is still a tonne and it will have to go somewhere whether it is burned, recycled, disposed etc.	We can provide some more information on what the waste turns into at the next session.
How close are houses to the international examples?	The maps are on the project website and team to bring photos to next meeting. [ACTION for project team].
Comment: Kwinana is south of Perth, this site has a big difference to western Sydney's air basin.	
Macquarie Capital is outright owned by Macquarie Bank – what is their return on this investment?	We don't know yet. The cost of landfill currently is around \$300/tonne. We anticipate the Centre's gate fee will be less. This will result in a reduced cost to councils.
Comment: This [western Sydney] location already accepts all of Sydney's waste.	
How will the proposal affect the cost of power?	The power generated will likely go back into the grid, but we cannot specifically plug it into individual homes. We are looking at local investment ideas, to offset electricity rates. To be clear, the waste rates are a clear offset of costs and the reduction is to council.

Participant Check In

Following presentation two, participants were polled using Sli.do online technology to gain an understanding of how the information was being received. Sli.do allowed participants to be polled and answer questions anonymously from their phones.

The results of the polls appear below.



Presentation Three

Presenter: Nick Entsch, Macquarie Capital

Presentation three centred around giving detail to participants on the proposed Centre's operational procedures, and its inputs and outputs.

Following presentation three, participants were invited to ask questions to clarify the information shared.

A summary of these questions appears below:

Questions and Comments	Responses
How does energy-from-waste compare to coal to create energy (in terms of air pollution control processes)?	The air treatment process is similar, but obviously the fuel is different. There's generally newer, more advanced technology in the energy from waste process than there is in coal fired power plants, as many of the coal plants in Australia are decades old. It is important to remember that this proposal is not a solution for energy, but a waste solution.
What fuel starts the combustion process?	It starts with gas or diesel, and then the waste self-combusts.
Where is the restricted landfill for flue gas ash?	Kemps Creek, Sydney.

Participants were then asked to consider and discuss the information provided in the session at their tables, with table facilitators instructed to take detailed notes. The following three questions were asked:

- What did you think about the information provided in the last presentation?
- What issues are of most interest to you?
- What needs further discussion or information?

A summary of responses recorded from the table discussion appears below.

Comments and Questions – Air Quality and Health
What is in the flue gas, compared to everyday air?
How is the flue gas distributed?
Concerns about the smell and odour.
Is there any methane produced?
How is the air quality being tested – especially in relation to the area containing stagnant air.
Maintenance and cleaning of air systems. How is this managed? How often is it cleaned? Is water used? Where does the by-product go? Is it self-cleaned/automated?
Assessment of this air basin and issue of temperature inversions.
Bushfire and its impacts on air quality.
What is the impact of rain on the Flue Gas?
More information on the case studies from overseas. Can we receive information on their wind characteristics?

Cancer rates in Western Sydney to be examined.
What are the community protection measures if and when something breaks down?
Volume of emissions and particulates released - how are they monitored and reported (honestly)?
What are the triggers to action a safety response?
What are the safety precautions?
If it is a similar technology to coal – why is coal burning not accepted in suburbs?
Was a coastal location chosen considered with sea breezes?
What are the licence breach fines and other measures to stop pollution events?
Prospect Reservoir – what are the impacts on water supply?
Will the following be measured – Benzene; Formaldehyde; Toluene; Xylenes; PAHS; Benzo(a)pyrene?
What is the difference between the air emissions and health impact for the DADI proposal? Including feedstock, filter bag, and technology differences?
How will variability in feedstock over time be managed (in relation to managing air emissions)?
How is incoming waste monitored as it enters the site and what governance/processes are place?
How is the air cleaned and cooled?
More information on the chemical reaction processes i.e. ammonia and NOx reaction.

Comments and Questions – Other Issues
Concerns that the information provided in this session was marketing.
Indication on how much water would be used in operation.
Why is the Centre to be located in Western Sydney – is Western Sydney producing more waste than the rest of Sydney?
Will there be further incinerators built and if so, will waste be accepted from areas outside of Sydney?
What are the savings on council rates?
Trucks coming to this site – what is the impact on local roads to air quality (assuming diesel vehicles)?
This proposal is not eradicating landfill; how many filter bags need to be disposed and where?
Concerns around the 24hr/7day operation.
It's located in Blacktown which is the lowest density suburb in Sydney – why shouldn't it go in a higher density suburb with more waste?
Renters won't benefit from a lowering of Council rates [regarding] cheaper waste solutions.
Will other recycling initiatives close?
What investment will Cleanaway make in people to recycle?
Does the location benefit Cleanaway and how much will Cleanaway/Macquarie make?
Future pricing of the use of the centre – if prices come down will operational quality be compromised?
Property price impacts on the area.
Water recycling process on site – how does it work; is it filtered?
Regarding monitoring – how much control will the government have? What will the regulations be for ongoing operations? Who will operate?

Presentation Four

Presenter: Nick Schutt, Cleanaway

Presentation four described the planning process and introduced the SEARs, specifically those relating directly to the air quality and health assessments.

Following presentation four, participants were invited to ask questions to clarify the information shared.

A summary of these questions appears below.

Questions and Comments	Responses
Will the WSERRC have the same architectural marvel that Europe has, or will it be an ugly box?	Architecture is important - we are designing the Centre to suit the environment in which it will be placed.
How long will it take to build?	Around three years, plus 6 months for commissioning.
What alternate sites were considered? Are you going to detail this in the EIS?	Many sites across Sydney were considered. This will be detailed in the EIS. More information on site selection can be provided. [ACTION for project team]
Are you the only people proposing this?	No. There are facilities being proposed by Suez at Botany; there is an approved site in south west Melbourne at Laverton North; Perth has two sites that are approved; one at East Rockingham and one at Kwinana; and there is the Remondis proposal located at Ipswich.
Comment: If Western Sydney knew this was a good idea for Australian development, and is being proposed elsewhere in Australia and Sydney, they'd be more confident about the proposal. There is a concern they are the only community that will have an energy-from-waste centre.	
Will the air studies be localised to Western Sydney air conditions?	Yes. They will be specific to the location.
How long does it take between construction and approval?	There is a bit of commercialization that needs to occur if approval is obtained e.g. waste contracts secured, etc. It's expected that construction would commence about 12 months following approval.

Participants were then asked to consider and discuss the information provided in the session at their tables. They were asked two questions:

- What areas of assessment make you feel comfortable with the process?
- What areas need further investigation?

A summary of responses recorded at each table appears below.

Comments and Questions
What is the weighting applied to community opinion and feedback on the process? Will government still approve, even if community are against the proposal?
How will the community engagement be reported in the EIS – will it include positive and negative feedback so that decision makers have a full understanding of what community thinks/wants?
Has NSW Health been asked what they think?
Can communities have more information – we didn't know anything about this, so how can we be sure the community is informed and able to make comments about the proposal
Suggestion to conduct pop ups, letterbox drops and online/in-person surveys to share information and understand what community is concerned about
Why haven't Penrith Council placed a submission to the SEARs?
Have Penrith Council been consulted?
What are the direct community benefits? (Investment funds and packages)
Location – why Western Sydney and not further out?
Interest in comparison sites. How different to Western Sydney in terms of air quality and other environmental factors
What other site will be used as a comparison?
Is there a difference in feed stock between the comparison sites and the proposed site? If yes, what are the differences?
Are you testing for radiation?
Want to now more about consideration of alternate sites, delve into details
Can we look for an independent assessor to look at the information being provided?
The impact of the air quality regarding the inversion layer, or if there is a negative impact on the surrounding suburbs?
Assessment studies we are comfortable with were: health, soil, European comparison
We want meteorological temperature studies, we want radiation, and electro-magnetic fields studies.
We want cumulative impact assessment with the Western Sydney airport
We want a traffic and transport assessment including the number of vehicles that will be accessing a single location
We are interested in the feedstock and understanding what the assumptions were around commercial and industrial contracts and intake
Can you provide throughput studies (volumes)
What are the shut down procedures? We want to know especially what the emergency procedures would be and what protections were in place for the community and what that document would look like?
Benefits listed for Western Sydney needs to be very clear and collated suggestion that it wasn't clear enough yet
Technology. How is the centre going to adapt to new technology? What is the life span of it if it can't adapt to new technology?
What happens with an aging facility? Just like landfill, what is the eventual close down requirements? Would that be assessed as part of the EIS?

And the alternatives assessment, both technology and location
Want to know more about consideration of alternate sites, delve into details
Can we look for an independent assessor to look at the information being provided?

Final Participant Check In

At the conclusion of the final table discussion, participants were again polled using Sli.do. The results of the poll appear below.



The group was also surveyed via Sli.do to understand what needed improving for the next session. The results of the two questions are included below.

Can you think of ways to make this information easier to understand?
All questions to be answered in following sessions.
Talk to the positive and negatives of the proposal. Sounds too much like marketing speak Eg. name alternatives considered.
Cross media info, pre planning videos info on website, pre session info so we can plan for future sessions. Experts, and alternative points of view.
Unpacking it more.
Video.
Make it more meaningful e.g. how much electricity rebates?
Printed info brief descriptions of q and a.
A hardcopy of the presentations would be helpful.
No, I'll wait for the experts.
Make it non bias and less of a marketing approach
Video presentation on Dublin site, how it operates and the impact on environment.
Have more time for Q&A so we can get more answers.
Create a glossary to provide clear understanding of technical terms.
Video. Diagrams. Examples.
Pretty good already with explaining.
More comments from the independent people.

Use diagrams and videos for when explaining technical information.
No.
Less technical talk and more in layman's terms.
The experts should be here.
More practical ways, and videos.
No.
Meme.
No. Great explanation.
No.

What was good about today? What was bad?	
Good	Bad
Sticking to time.	Need detailed information about the whole process. The presentations were very brief. Lunch not very good.
Received more information.	No issues to report.
The diversity of people created many ideas.	Will the proposal still get approved without details resolved? E.g. 2nd airport with no flight paths.
A better level of consultation than other projects.	Already know [this information]. Should look at the bigger picture.
More detail than the last community engagement and bringing in others from the council & experts.	Not enough time to get into the detail we require and answer all the questions.
I'm more informed and have a better understanding of this proposal.	Bad - No low carb/no sugar options for morning tea.
Consultation.	The teacups.
Answered a lot of questions.	Better coffee next time.
Enjoyed all around.	I dunno the lightshades.
Format pacing time for questions.	Hospitality needs improvement. Example, plates, glasses, napkins...
Informative.	Was too many people so was 2 noisy.
Easy to follow slides and discussion time.	Vegetarian options & coffee.
Information.	No practical information (videos).
Amount of information and q was relatively answered.	Coffee.
Reflection of information.	Bad food.
Mix of opinions.	Still a bit of talk interrupting [others].
Speakers knowledge on topic – good.	Everyone talking at the same time.
More info was given.	No beer.
The input sessions were good - What we want answers to is good.	
Great explanation and obviously a lot more research has been done since the last meeting.	
Info.	
Informative.	
Kate [table facilitator] was very helpful.	

Air and Health Citizens' Panel: Summary

Session Two

Atura Hotel Blacktown, 32 Cricketers Arms Road, Prospect 2148
Saturday 7 March 2020

****TO BE REMOVED ONCE CONFIRMED BY PANEL ATTENDEES****

This is a draft meeting summary of the second session for Western Sydney Energy & Resource Recovery Centre's Air and Health Citizens' Panel.

This report aims to accurately represent the conversations held between the proposal team, the air and health experts, and the attendees during this session. If any misrepresentation has been made, please submit your requested changes to Rhana Fleming at Rhana.Fleming@newgateengage.com.au

Background

The first session of the Western Sydney Energy & Resource Recovery Centre's Air and Health Citizens' Panel was held on Saturday 15 February 2020 at the Atura Hotel, Prospect. The aim of the first session was to describe the proposal and to capture the specific areas of air and health that the community was interested in, in order to inform the agenda for sessions two, three and four.

Session two was held on Saturday 7 March and was focused on exploring the topic of air quality and the assessments that would be conducted for the proposal. This session was run by the air quality specialists performing the assessments in order to give panellists the ability to ask their questions directly to the topic expert. A second independent air expert was also present to consider and examine the other expert's presentation and to assist the community with any questions arising.

The third session will be about health assessment.

Session Two Attendees

Attending the discussion were:

- Representatives of Cleanaway and Macquarie Capital
- Technical experts, with specialties in the area of air quality and health
- Newgate Engage (meeting facilitator and table facilitators)
- 25 residents - recruited from a broad cross section of suburbs surrounding the proposed project site
- Western Sydney Direct Action
- Blacktown District and Environment Group
- NSW Health (observer)
- Blacktown City Council (two observers)

Session Objective

Firstly, the objective of session two was to discuss the methodology for modelling the expected emissions from the proposed Western Sydney Energy and Resource Centre and the impact that they would have on air quality. To do this, it was necessary to ensure that all attendees had a similar level of understanding of:

- Sydney's current air quality, air flows around the Sydney basin and temperature inversions
- the emissions cleaning system typical in an energy-from-waste centre,
- the potential range of gas substances arising from the energy-from-waste process,
- the process to model what the emissions and air quality would look like,
- the method to assess any impacts on air quality, and
- the legislation and regulations governing air quality.

Secondly, the aim of the second session was to capture the specific areas of air quality assessments that the community was interested in, in order to make sure these are covered in the EIS.

As a further objective, questions and comments on the health impacts of the proposal would be captured to inform the agenda for sessions three and four.

Responses to questions taken on notice in Session 1 and planning process recap

Presenter – Mikaela Orme, Cleanaway

Panellists were asked if they had any changes to the draft summary circulated by email in the week immediately after the first session. Email feedback received indicated that panellists were confident that the summary was accurate. This was confirmed in Session 2 with no panellists indicating changes.

Responses to questions on notice from Session 1

Questions and Comments	Responses
Can we have access to an expert that we can use to consider this topic?	We have Georgie Galvin here for the air session and Brian Priestly will be attending the next session on health. The bio for each was provided to the members of the citizens group.
Incinerators are being decommissioned around the world?	There is a report by Tolvik in the UK and this is a snapshot from one of their yearly reports. This shows the number of facilities that are operational. The UK has seen an increase in number of facilities being built. We can look into finding data about more facilities across Europe. New plants are being constructed in many countries, including China, England and Sweden. Elsewhere, existing facilities are being expanded to increase capacity; upgraded or replaced to improve their performance and extend their operational life.

The circular economy image shown in session 1 is not something that we are familiar with?	<p>The image has been printed and is on each table with the source reference included.</p> <p>The image is a schematic to illustrate the broad principles of the circular economy.</p>
How close are houses to the international examples shown?	<p>Two international examples, including Dublin, have been printed and are on the wall for your review. The Cleanaway website has these and other examples available for your consideration, including a video fly-down on each showing the proximity of residential areas, schools, hospitals etc.</p>
What alternate sites were considered?	<p>The project team spent a long time looking for the right site. Several criteria were used to assess the suitability of sites, including:</p> <ul style="list-style-type: none"> - appropriate zoning/planning to be legally able to build on site, - need good transport access, - access to the electricity network. <p>We looked at proximity to sensitive receivers, things like houses and schools. In Europe there are many facilities close to houses and schools, but we are sensitive to this being the first centre in Sydney and choosing a site with buffers to the sensitive receivers was important.</p> <p>We need to be close to where the waste is produced.</p> <p>There is another energy-from-waste proposal in Botany that is at a similar planning stage.</p> <p>An area we were interested in was the aerotropolis. There was an area to the west of the airport that will be classified as agribusinesses. Two reasons we couldn't do that – relating to the new airport:</p> <ul style="list-style-type: none"> - very strict building height restrictions and - wildlife buffers for potential bird strike. <p>As a result, we then looked at sites away from the Aerotropolis; for example at Mulgoa.</p> <p>Considering criteria including sensitive receivers (i.e. schools, childcare centres, residents), water requirements, transportation needs - we found what we think is an appropriate site. We are next to key transportation routes and the site is surrounded by waste facilities, the M7 motorway and an industrial area. We are engaging with businesses near to the site to potentially use the heat produced from the centre.</p>

A diagram pointed out the close proximity of Prospect Reservoir. I thought that would not fit the criteria you have referred to.	The reservoir was considered and Aleks and Therese will talk to this in their presentations.
I supplied the team some links regarding Europe and Nordic countries decommissioning similar facilities due to poor air quality.	We will examine those. Our understanding is that some older facilities will be decommissioned over time. But that overall, the use of energy-from-waste is increasing.
Has the UK been trying to change the EU standards because they cannot meet them?	The UK facilities do overall comply with EU air standards. We can get back to the group with further information on this.
In England there are too many facilities which has resulted in a number of them having to burn recyclable products.	We have not seen any evidence of this. There are a number of energy-from-waste projects in the UK which use a refuse derived fuel (RDF) and SRF (Solid Recovered Fuel). These are methods used to turn general waste into a fuel that can be used in Energy from Waste facilities to generate heat and power, rather than sending the waste to landfill, by sorting combustible materials such as dry timber from construction and demolition waste. Examples include a project in Hoddesdon, Hertfordshire and Forth by Lanark in Scotland
I have read that waste-to-energy stops people looking for opportunities for more recycling.	Overseas, the rates of recycling have increased with the uptake of this technology. Recycling is a strong part of Cleanaway's services – we provide services in recycling, reuse and disposal.
Is the site on Wallgrove Road? In a diagram it looks next to Prospect Dam.	The site is on Wallgrove Road, there is an underpass beneath the M7 that provides access to the site.
How long is Cleanaway looking to sign a contract to keep this open?	The life of this project would be 20 – 30 years. With updates to technology, the centre could last longer.
Will the 25 alternative sites be listed in the EIS and did you investigate other technologies such as anaerobic digestors?	There was a technology selection process and a paper detailing this will be included in the EIS. Anaerobic digestion can be used in conjunction with energy-from-waste technology. Anaerobic digestion is not suitable for treating waste like plastic but can process organic waste. It can take the food and green waste from homes and turn it into compost.
I was told that you will not be doing any sorting and that everything in the red bin will end up in the incinerator.	We will talk about that today. As discussed, there are a range of measures being considered for the centre, including visual inspection of the waste, radiation detection and pre-sorting.
Did you have a court case recently in relation to the EIS?	No. That is a different proposal. That was called the 'Next Generation' proposal, sponsored by Dial-a-Dump. We are a different proposal, with different sponsors in Cleanaway and Macquarie Capital. Additionally, we would be handling different waste.

What is required in the EIS in relation to the environmental impact? What data do you have to present?	The Secretary's Environmental Assessment requirements (SEARs) are on the project website. They outline what is required for the EIS.
For the human health factors, you would need to know exactly what is coming out of the flue?	We will discuss the flue gases today – and how they are considered in the health assessment next session.

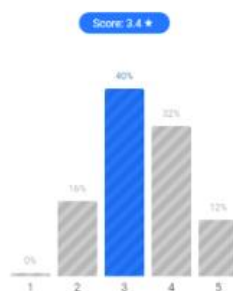
Participant Check In

Following the recap, participants were polled using Sli.do online technology to gain an understanding of how the information was being received. Sli.do allowed participants to be polled and to answer questions anonymously from their phones.

We requested that any panellists who had scored us as 3 or below to let us know how we could provide clarity of information.

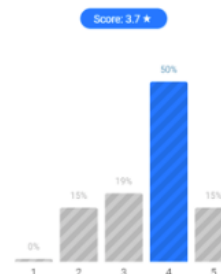
The results of the polls appear below.

How clear was the information presented? (1 star not very clear, 5 stars very clear?)



We requested that any panellists who had scored us as 3 or below to let us know how we could provide clarity of information.

How easy was the information to understand? (1 star not very easy to understand, 5 starts very easy to understand)



Presentation One

Presenter – Aleks Todoroski, Todoroski Air Sciences

Presentation one provided an overview of Sydney's air quality and how it compares to our European counterparts. Following presentation one, questions were taken from the floor with responses provided as noted below.

Questions and Comments	Responses
What pollutants are you referring to? (in regard to scrubbing)	All of them. Gaseous pollutants will be taken out of the air stream. The system will scrub the air to clean it. Once in the air gaseous and particulate pollutants attach themselves to water droplets. That little particle and water gets heavier.
When rain evaporates, do pollutants and emissions go with it into the air?	When water containing pollutants lands on trees and grass, they can absorb those pollutants. When you get evaporation – it is predominately water. There will be some very fine particles. Very trace amounts do have re-suspension. Most of the particles when they attach to something – trees have things on their leaves that take in matter from the air and rain.
Would they affect farms and the Prospect Reservoir?	The pollutants that deposit on farms and the reservoir will be assessed. We will discuss the health aspects next session.

The Prospect region is already polluted. The incinerator will add to pollution. Is there anything we can do to reduce that pollution?	Yes, there are controls that can help. For example, NO ₂ pollutants are decreasing, mainly because the emissions from motor vehicles are improving. However, we are approx. 10 years behind the rest of the world in regards to motor vehicle pollution control requirements.
Will this incinerator generate more traffic?	No. The waste trucks that arrive are already transporting waste to landfill. This proposal will result in less traffic, as it can be reused much closer to the source of waste. Currently, trucks may travel hundreds of kilometres to and from landfill sites.

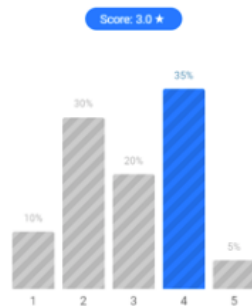
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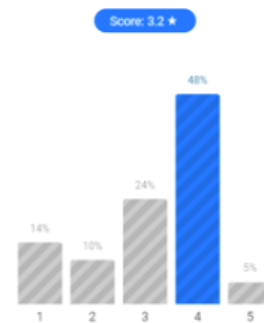
The results of the polls appear below.

How clear was the information presented? (1 star not very clear, 5 stars very clear?)



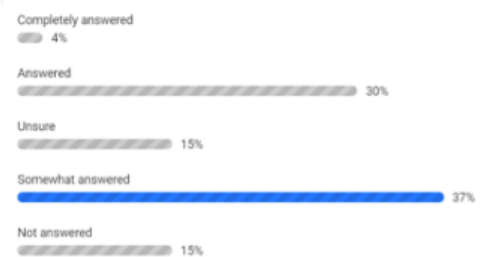
We requested that any panellists who had scored us as 3 or below to let us know how we could provide clarity of information.

How easy was the information to understand? (1 star not very easy to understand, 5 starts very easy to understand)



We requested that any panellists who had scored us anything less than answered to provide use with details of what questions remained unanswered. We indicated that this could happen during any breaks, at the end of the day, or by email following the workshop.

Have the panelists questions been comprehensively answered?



Presentation Two

Presenter: Aleks Todoroski, Todoroski Air Sciences

Presentation two provided an overview of the journey of the air molecules; from when they enter the centre, to when they exit. Following presentation two, questions were taken from the floor with responses provided as noted below.

Questions and Comments	Responses
How often do you think by-products from this facility will need to be put into landfill?	Our goal is to try to reuse as much as we can. We are looking at investing in a technology that results in sending no waste to landfill, including the fly ash.
Have you got a section in your proposal about your intention to send nothing to landfill?	For the re-processing of the bottom ash, there is a second, parallel approval process underway. Reusing bottom ash in construction processes, like road base, is done very commonly over in Europe.
Where are hazardous by-products and landfills specifically positioned in Sydney?	We would like to do the same here, so there is a bit of work to be done to make sure we can.
What is their capacity?	Hazardous materials are produced in a number of industrial processes and manufacturing processes, for example cement dust.
Can you provide more information about wastewater and how it is processed?	There is a restricted waste landfill at Kemps Creek. We are not sure how much capacity it has left. The landfill is continually excavated. Regarding wastewater, we are trying to recycle our water but are still going through engineering processes to determine how we will do that.
I'm concerned about wellbeing for myself and grandchildren regarding the disposal of hazardous waste to landfill.	There is a significant amount of additional engineering that goes into the restricted landfill to make them safe.
What method is being used for continuous emissions monitoring?	Monitoring is covered in the next presentation.
Do you know every chemical coming out of the flume?	We have data from similar centres operating around the world, that tells us what is being emitted, and what emission cleaning controls are most effective.
Is the bag filtering process used all over the world in similar facilities or is it new?	Modern incinerators predominantly use bag filters. Some may use electrostatic precipitators.
I have read that in the Leeds energy-from-waste air emissions are equivalent to 5000, 40 tonne trucks travelling 70,000 miles a year.	We will note that and review the source so that we can provide a response.
What goes through or escapes from the bag?	Between 99% and 99.9% of the materials in the air are filtered out through the bag as the air passes.

What gets through the bag and do they have an odorous smell?	Anything that passes through the bag will be well below detectable limits for odour. EPA will set strict licence conditions.
Hydrated lime – that's a chemical known to cause allergic reactions and respiratory conditions. It contains silica – a known carcinogen. How is it removed?	In the chamber where hydrated lime is injected, you need only a small amount to allow a complete reaction. The hydrated lime will then collect onto the bag filter. Unreacted lime will also collect and continue to react with emissions passing through the bag filters. The reacted lime material collected by the bags will go into a sealed disposal system. The bag filters have extremely high efficiency – anything that goes through will be extremely low. The cleaning and scrubbing process involves air to air reactions, then air to particle capture, then a wet scrubbing process. The lime is added in small amounts to react with pollutants in this process. Hydrated lime is removed by chemical reaction with these pollutants, physical capture in the bag filters and also in the wet mists in the scrubbers.
Are you doing a two-stage filtering or single pass filtering process?	The bag filter is a single pass, through many bag filters.
What happens with a bag tear?	These bag tears mostly happen at two points; first, when you put in a new bag it may tear due to accidental damage, or second, toward the end of the life of the bag.
How often would you shut down the facility to do repairs?	There are sensors to detect a bag tear, and the system will switch off the specific, separate section of the bag house with a torn bag, rather than shut down the entire facility to do a bag-change. There may be many dozens of filtered bags in there, and several sealed-off sections, the bags can be replaced individually. These bags are extremely effective filters. A wide range of bag filter materials are available to ensure the optimal type is used for the facility.
Can you name a bag filter product so we can have a look?	Yes. We can provide a range of bag filters that are used time in these kinds of facilities.
Fine filters (one micron) are very expensive filter bags.	Yes.
Does any ammonia come out?	Some ammonia will pass through the system. This will be addressed in the next presentation about what is emitted and what are the health impacts?

In comparison to landfill, what's the equivalent emissions and pollutants?	<p>Europe has very stringent goals to reduce or stop landfill. Due to environmental effects and risks, that make landfilling a poor disposal method relative to other methods, such as this energy from waste project.</p> <p>Coming out of landfill is methane, a greenhouse gas. Methane is 25x worse than carbon dioxide for climate change impacts. Other gases also come from a landfill. The air pollutants that may come from the proposed facility were detailed in this session.</p> <p>Landfill creates additional emissions from the transport of waste long distances. Trucks drive hundreds of kilometres from Sydney to landfill.</p> <p>Odour is worse in landfill.</p> <p>Landfill creates leachate which, unless captured, is bad for groundwater.</p>
What's the disposal procedure for the used filter bags - that are highly toxic?	They will go to the restricted landfill. It is treated carefully in sealed systems that prevent release of dusts, as used for example for fly ash.
Is there any reason you're not doing a sort on the waste before it is burnt?	<p>We are looking to do some sorting of the waste.</p> <p>If you have a 3-bin system separating food and garden waste, and mixed recycling, the Centre can process all of the red bin waste.</p> <p>Only Penrith Council uses this 3-bin system in Western Sydney.</p> <p>The centre can take 40% of residual waste if you separate out the green waste and food waste.</p> <p>Currently the red bin waste is very contaminated.</p>
What is the difference between this and burying it? i.e. what is coming out at the other end [of the stack]?	This presentation listed some of the key air emissions from the facility. There will address the difference between impacts from landfill versus EfW at the next session.
How will smell be tested if it's not yet constructed?	We will need to come back to the group on how odour is modelled.
Where does the steam/turbine fit in into the system?	Aleks answered by pointing it out on the presentation. After the boiler there is the heat exchange system which cools the air rapidly and takes that heat to make steam that drives the turbine. The steam/ turbine system is sealed like the radiator water cooling system for a car engine, the water or steam does not contact the air from

	the boiler. See Figure 1 in the Appendix for the image and turbine position.
There is already pollution in this area, how will you monitor the specific pollution from this facility?	We will monitor emissions coming out of the stack.

Panelists were asked if they would like to us to continue taking questions from the floor or move to table conversation. The majority of panelists supported continued Q&A with the experts.

Following an extended Q&A participants had time for table conversations. Participants were given the option of continuing their table conversations through lunch.

TABLE TALK

Participants were then asked to consider and discuss the information provided in the session at their tables, with table facilitators instructed to take detailed notes. The following three questions were asked:

- What did you think about the information provided in the last presentation?
- What issues are of most interest to you?
- What needs further discussion or information?

A summary of responses recorded from the table discussion appears below.

Comments and Questions – Air Quality and Health
More information requested on the air inversion layer in Western Sydney.
Information should be presented in layman's terms.
How does the hydrated lime leave the facility?
More information requested on the chemicals used in the scrubbing process
What happens if one of the parts of the air cleaning system (of which there are several discrete parts) is deficient/not functioning? Can the air be captured and re-circulated/re-cleaned?
The restricted waste into Kemp's Creek – what is the longevity of this waste? How does it breakdown and what does it breakdown into?
More information requested on the opportunity to turn APCr into a construction aggregate (Carbon8).
What is 'best practice' today and tomorrow? Is there a standard definition of best practice?
Will European best practice be a part of the site approvals for this site?
Are there safety issues that have occurred in overseas examples that we should learn from?
What happened in Dublin 3 years ago when 11 people were hospitalised?
Why recycle wastewater?
[There were concerns about accumulating waste in food cycle because of this]

What will happen with the toxins in the wastewater?
How much wastewater will be recycled?
Why isn't there water capturing the gases as they leave the stack?
Concerns that the explanation "acid and alkaline will mix and make a neutral, safe salt" is a simplification, and more is needed.
Request that the independent experts outline the negatives.
More information about what goes in vs what you get out. What specific chemicals come out of the stack after it has been burnt?
Concerns that even if it is 'chemically safe' there are other facilities around that are also held to a high standard yet emit a smell. How can we be assured there is no smell?
What are the risks from the facility?
Is the fine that is provided in regards to a breach of licence tax deductible?
Will the data set that is collected be live [on the website]?
Panelists requested more information on pre-sorting/source separation of waste.
How would Cleanaway be held to account in the future when running the facility?
Will you ensure the facility always has the latest technology?
Is this process similar to a crematorium?

Comments and Questions – Other Issues

The independent expert is not expressing their view. What was he thinking and did he validate the information presented?
What are the negatives? The information provided predominantly covers the positive aspects of the proposed facility.
Why is there no issue with landfill and crematoriums, but there is with this proposal?
Is there a no-fly zone in the area because of the stack?
Is it possible to put existing landfill waste into the facility?
How long before the facility achieves 0% landfill? We understand it will be a process to reduce from some landfill to zero landfill.
Is there a schedule that defines the reduction percentage per year until it achieves zero?

Presentation Three

Presenter: Aleks Todoroski, Todoroski Air Sciences

Presentation three centred around giving detail to participants on the how emissions are assessed for the proposed centre. Following presentation three, participants were invited to ask questions to clarify the information shared. A summary of these questions appears below.

Questions and Comments	Responses
When comparing/benchmarking sites, do you consider that Sydney is in a basin and that comparative sites are not?	While data on emissions released from facilities are used as inputs to the model, we use local meteorological data in the model to make predictions about future air quality specific to Sydney.
How often do you monitor?	We will monitor some emissions continuously in the stack. For any emissions that cannot be monitored in the stack, they will be sent to a lab quarterly for testing, as necessary to detect the trace level pollutants.
If there are multiple years of monitoring for Dublin site – are you taking the worst case scenario?	The EPA requires us to model the worst-case scenario. We will take the highest reading in any period in any year and pretend that happens every hour of the year in the model. This ensures we have modelled the maximum emissions at the time of worst air dispersion (most impact). We also separately model the expected case, which is based on the average levels of pollutant, this ensures the annual average values are correct.
How are the assessment guidelines set?	These are set by the NSW EPA, refer to the Approved Methods for modelling and assessment of air pollutants in NSW.
Are air quality monitors being installed in other suburbs?	The Prospect air quality monitor is nearest to this site. There are about a dozen monitors across Sydney.
Do fines increase after breaches of the centre's air quality limits?	Yes. If a facility is fined, there are normally also audits and increases in the annual licence fees. The EPA can also order a project to be shut down.
Does the EPA do random inspections?	Yes.
Will the dataset you collect be live on the website?	The EPA requires a live feed of air quality data. Cleanaway is committed to publishing this data regularly on the website as required by EPA.
What procedure are you using for continuous monitoring?	A range of sensors will be used in the stack and would be per the NSW EPA Approved Methods (for

	Sampling and Analysis of Air Pollutants in NSW). The exact procedure is yet to be determined.
Could there be chemicals coming out of the stack that are more toxic than the ones you are measuring? There is no point discussing the toxicity of these chemicals when you don't know what the chemicals are.	We are looking at maximum output and worst-case air quality scenarios, and have considered data from over 300 such facilities, including for the key toxic substances that may be emitted. The important thing about the NSW requirement for best practice is that it includes the need for ongoing improvement, so it is not a static standard. If there is a new pollutant discovery made, the standards will shift.
Do the spot sample take three months to get the results? In other words it will take 3 months to know the risks that the community has been exposed to?	Apart from the continuous monitoring, the spot monitoring is done quarterly. The first spot test is for a very wide range of pollutants that are sampled. Start-up tests are very comprehensive. The air standards are constantly updating, and this is what we sweep for. In terms of the health impacts for any chemical; the key consideration is <i>how much</i> you are exposed to, rather than <i>what</i> you are exposed to. Depending on what it is, if it is a very tiny amount, your body has systems to manage that.
Does EPA have any guidance on what tests you use?	Yes, there is a specific document for spot sampling. There is a legal obligation to use the methods that the EPA specifies. When you take a spot sample to the lab you can request a broad sweep for a wide variety of chemicals.
If the pollutants exceed their limits what happens?	There is an alarm set at levels below this, and it will go off indicating a potential exceedance. If there is an exceedance, it will need to be addressed. The exceedance must be reported to the EPA.
Can you simply turn off the alarm?	No, that is illegal. Any exceedance must be reported to the EPA promptly.
What happens to fix any exceedance?	We usually need to adjust controls. An alarm may go off due to a fault or other operating mistake - which can be straightforward to fix.
Can you compare with the air stations in both Prospect and St Mary's?	Yes, we can, the assessment will consider a range of stations.
Will you build more background measuring stations around the site?	The OEH/ DPIE conducts monitoring of the ambient air. The number of sites around Sydney is relatively high.

Final Participant Check In

At the conclusion of the final table discussion, participants were polled using Sli.do. The results of the poll appear below.

Were there any parts of today that you found confusing or unclear?
Inversion layer
No
At the beginning with the multi criteria analysis
N/A
Questions are not elaborated to give both sides of the question
Not so much looking forward to the next session
Running over time
No
No
Too much spin
Pretty clear
There are questions which will be forthcoming
No reference data for air modelling data
No
Operator error
How clear is the air coming out ??
All fine
Monitoring stations...
The drinking glasses
Yes the inversion layer. I would really like more explanation
None
No anything I was unsure of was clarified
Everything was very clear and understandable

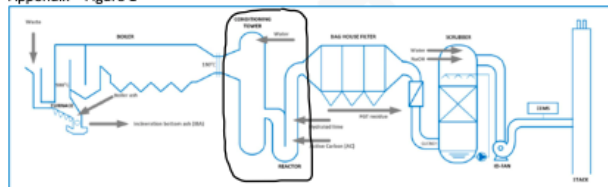
The group was also surveyed via Sli.do to understand what needed improving for the next session.

Can you think of any ways to make the information easier to understand?
No
Answer the questions
No
More time allocated to ask questions
Video
Much better today
More visuals would be nice..
Please give both sides disclosing issues and concerns also
Reference links backgrounded information
Make sure slide is legible if you wish to read (could read text but graphics were poor)
Use more pictures and videos or demonstrations when explaining scientific concepts
Yes more positive and negative answers we need a whole picture. Not a one-sided view.
Explain terminology as you use it in presentation instead of after the presentation is completed we have to go back to ask about terms used and or misunderstood

More visual examples and videos of process demo
No
No
Videos
No, much better/clearer than the first session.
Perhaps clearer, larger slides,
A little demo video for some of the processes would help
Impacts of air on western Sydney with the wind etc
no

Appendix

Appendix – Figure 1



Air and Health Citizens' Panel: Summary

Session Three

Hosted online using Recollective - <https://newgate.recollective.com/cleanaway-air-and-health-panel-session-three>

Friday 27 March - Saturday 28 March 2020

TO BE REMOVED ONCE CONFIRMED BY PANEL ATTENDEES

This is a draft meeting summary of the second session for Western Sydney Energy & Resource Recovery Centre's Air and Health Citizens' Panel.

This report aims to accurately represent the conversations held between the proposal team, the air and health experts, and the attendees during this session. If any misrepresentation has been made, please submit your requested changes to Rhana Fleming at Rhana.Fleming@newgateengage.com.au

Background

The third session of the Western Sydney Energy & Resource Recovery Centre's Air and Health Citizens' Panel was held using an online platform from 2pm Friday 27 March until 2pm Saturday 28 March, including a live online discussion held from 11.30am until 1pm Saturday 28 March 2020.

Given COVID19 circumstances and isolation advice from the Australian and NSW governments, this third session was moved from an in-person workshop to an online workshop.

The aim of this session was to answer some additional questions in relation to air quality and monitoring, and outline the health assessment process.

Session three attendees

Attending the online workshop and live discussion were:

- Representatives of Cleanaway and Macquarie Capital
- Technical experts in the area of air quality and health
- Newgate Engage (facilitators)
- 25 residents - recruited from a broad cross section of suburbs surrounding the proposed project site
- Western Sydney Direct Action
- Blacktown District and Environment Group

Session objectives

The objective of session three was to discuss the legislation and health assessment in relation to the proposed Western Sydney Energy and Resource Recovery Centre (WSERRC). To do this, it was necessary to ensure that all attendees had a similar level of understanding of:

- Legislation and governance
- What is already in the air
- The health assessment process
- Other considerations such as health effects from landfills and hydrated lime.

Secondly, the aim of this session was to capture the specific areas of the health assessment that the community was interested in or had concerns about, in order to make sure these are covered in the EIS.

As a further objective, questions and comments on the health impacts of the proposal would be captured to help inform the agenda for session four.

Session two summary

PDF upload of draft summary session 2

Panelists were asked if they had any changes to the draft summary circulated by email in the week immediately after the first session. Email feedback received indicated that panelists were confident that the summary was accurate.

Presentation one

Presenter – Therese Manning, Enricks

Presentation one provided an overview of relevant laws and regulations to assist the panel to understand the requirements for compliance and penalties for non-compliance as they relate to the proposed WSERRC. Following presentation one, panelists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?
- Are there any questions you would specifically like our additional independent expert, Brian Priestly, to answer?

Questions and Comments	Responses either provided in the Saturday discussion session or prepared for the session
Is the only penalty a fine or does the EPA have other means to assure the rules are followed?	<p>Penalties under the Act are as follows</p> <p>Tier 1 - penalties up to \$5 million and 7 years in jail for company directors (or other relevant people - this tier applies when there is wilful or negligent harm to the environment. This means whoever is responsible actually did something deliberately to cause the damage or deliberately did not maintain their equipment or repair it and then it failed</p> <p>Tier 2 - penalties up to \$2 million for a corporation and \$500,000 for an individual for failing to notify a pollution incident and up to \$1 million for a corporation and \$250,000 for an individual for other offences under the act - this would include breach of a licence where there was not a deliberate action. This would include where some piece of equipment failed even though it was maintained in accordance with the manufacturers' requirements.</p>

	<p>Tier 3 - on the spot fines - around \$15000</p> <p>So there are different levels of fine depending on the type of breach.</p> <p>The EPA has the power to ask for an independent audit of a facility. They do this when there have been issues at the plant - things not being managed correctly etc. They also can require this if there is some ongoing licence limit compliance issue that the company cannot get under control. For example, a company that had an ongoing odour issue was required to undergo a mandatory audit.</p> <p>The EPA can also issue penalty notices. If they don't think something is being managed appropriately, they can issue a legal letter that says a particular investigation or action must be taken. This is not something that can be ignored</p>
Is this site considered a Schedule 2 facility for air monitoring?	<p>No. This would be a new premises, thus the Group 6 limits Per Schedule 4 of the Protection of the Environment Operations (Clean Air) Regulation) would apply. The Group 6 limits are the most stringent legal requirements. Note that Schedule 4 contains a specific limit for emission of dioxins from incineration.</p> <p>However, we anticipate that the EPA and DPIE will set even more stringent limits than these legal minimum requirements. The expected limits would be consistent with best practice for modern plant.</p>
How often will the site be required to be audited by [the] EPA according to regulation?	<p>The EPA and DPIE can audit the site as often as they consider warranted. The EPA can choose to set licence conditions in this regard, and the DPIE can also specify mandatory auditing requirements in the Project Approval.</p> <p>The DPIE will generally specify mandatory, independent auditing to be done every three years, or whenever any specific event arises (e.g. an incident or non-compliance). The audit covers all requirements applicable to the operation.</p>
What qualifications will the workers involved need to have when the plant is operational?	<p>There will be many workers required to operate the facility if it is improved. Positions would range from admin roles to maintenance to operational control room roles. Therefore, we expect people with a range of qualifications to be hired. As an example, in facilities overseas many operational employees have engineering degrees.</p>

Is Australia going to have higher standard than Europe?	<p>In NSW, we have to meet best practice.</p> <p>As a result, we would achieve much lower levels in the stack than the default NSW and EU standards. The expected emissions become the licence limits for the specific centre that the EPA would then enforce.</p> <p>In my [Aleks Todoroski] experience any breach is rare for a well-designed plant and can be seen immediately in the continuous monitoring data. A breach can occur due to operator fault or some equipment failing. Generally, any fault occurs for a brief time, e.g. under an hour, but if the plant can't be brought back to normal operation swiftly, a shutdown is initiated automatically, so that the fault can be fixed before resuming operations</p>
How do we know that the waste facility is reporting all incidents and how do the public know that the data they report is true and correct?	<p>The monitoring that the company does is fed live to the EPA so they can see what's happening at any time.</p> <p>The monitoring is also published online regularly, so anyone can see what's occurring.</p> <p>The EPA does scheduled and unscheduled spot inspections. I [Aleks Todoroski] did these when I was at the EPA, and issued fines and shutdowns on the spot arising from unscheduled inspections.</p>
Are the waste load limits adjusted according to existing air quality?	<p>Require clarification on the question.</p>
What is the POEO Act?	<p>Protection of the Environment (Operations) Act.</p> <p>You can find links to all the Acts the EPA looks after, including the POEO Act, here: https://www.epa.nsw.gov.au/licensing-and-regulation/legislation-and-compliance/acts-administered-by-the-epa</p>
What sort of conditions can the EPA include in the site licence?	<p>EPA can include conditions on:</p> <ul style="list-style-type: none"> • What activities can occur • Where discharges can occur • What types of discharges are permitted • Licence limits for chemicals, noise, volumes, loads • Monitoring requirements • Reporting requirements • Investigation requirements
If an incident occurs, does the EPA come and inspect the site?	<p>Yes.</p>
Are these licences related specifically to waste-to-energy facilities?	<p>There are currently no waste to energy facilities operating in NSW, so we cannot provide a link to a licence for this kind of facility.</p>

	The licence conditions listed in the presentation are included on EVERY licence – that is every operator must do their work in a proper and efficient manner etc.
Would an independent company be conducting the monitoring?	<p>The emissions are minored in two ways:</p> <p>There will be permanently fixed real-time monitoring installed (by independent monitoring experts, paid for by WSERRC). The readings from these monitors go to the EPA in real-time.</p> <p>There will be regular stack sampling (by independent stack testing specialists, paid for by WSERRC) to collect samples for lab analysis. This is to test for metals and other trace pollutants that cannot be measured in real time by continuous monitoring equipment. The results of these tests are also reported to the EPA.</p> <p>The continuous and spot sampling results are also reported on the WSERRC website regularly.</p>
Would the findings be publicly available?	<p>The monitoring that the company does is fed live to the EPA so they can see what's happening at any time.</p> <p>The monitoring is also published online regularly, so anyone can see what's occurring.</p>

Presentation Two

Presenter – Therese Manning, Enriska

Presentation two provided an overview of what's already in the air and environment. Following presentation two, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?
- Are there any questions you would specifically like our additional independent expert, Brian Priestly, to answer?

Questions and Comments	Responses either provided in the Saturday discussion session or prepared for the session
How is the creation of POPs being monitored?	<p>The key POPs that may form in the process are dioxins. These can form at temperatures of approximately 400 degrees, when all of the required pre-cursor chemicals and a catalyst is available in the air stream.</p> <p>The formation is prevented by the design of the plant, which rapidly chills the air to well below the formation temperature. After this there is injection and filtration via activated carbon, to clean up any trace levels that may form.</p> <p>Monitoring of the temperature, oxygen level and other parameters is done in real-time to ensure the design is</p>

	<p>working correctly to prevent any excess formation of POP's occurring, and to ensure that what may be emitted is safe.</p> <p>The formation of dioxins is required to be tightly managed within the facility. There will be licence limits that must be met.</p> <p>We will email everyone this link to the Victorian EPA study: https://energyandresourcecentre.com.au/wp-content/uploads/2020/03/Health-Impact-Assessment-Literature-Review.pdf</p>
What is dead waste and where does that go?	We will address hazardous waste disposal in session four.
Can you provide more information on threshold mechanisms?	<p>The idea is that a person needs to be exposed to enough of a chemical to cause harm. Being exposed to a small amount isn't going to cause harm, as the systems in our bodies can deal with that.</p> <p>The assessment process makes sure that we keep these chemical levels below these health thresholds.</p> <p>Thresholds are taken into consideration when the health-based air emission standards are developed. These health-based standards are the ones against which exposure estimates are compared.</p> <p>For chemicals that have a 'threshold', the process described by Therese is used. This is a conservative approach because it assumes the tolerable exposure is well below the level at which toxic effects have been observed in the studies used.</p> <p>For non-threshold chemicals, the standard describes the incremental increase in risk per unit of exposure and the standard is then based on a judgement on how much incremental risk would be 'tolerated' by an exposed community.</p>
How do you know the percentage of poison dosages?	<p>We use Government issued guidelines for each chemical we are assessing. Some chemicals have guidelines issued by Australian health authorities. We get others from the USEPA or the World Health Organisation (WHO)</p> <p>These government agencies develop guidelines based on the information from experiments with laboratory animals and from large studies of people.</p>
Can we have comparative health reports that compare the rate of health problems around current energy-from-waste plants	Require more detail on the information being asked for.

as approved, to other local areas in same country but much further away?	
How do the chemical thresholds vary between different humans?	<p>There is variability between people, so we approach our calculations very conservatively to accommodate for expected differences.</p> <p>To work out these thresholds, we use laboratory animals to understand effects on the sensitive parts of life – when you are a baby or pregnant as well as normal adults. We then take the amount of chemical that does not cause any effect at these sensitive times and adjust using a safety factor for the variability between the laboratory animals and us and another safety factor for the variability between all the different people.</p> <p>So, we divide the amount that didn't cause effects in the laboratory animal by at least 100 (usually more like 1000) and that is the threshold we use in these calculations.</p>
Do you consider long term exposure to pollutants?	<p>The assessment is designed to look at long term exposures – we assume people will live in the area for 35 years continuously or work in the area for 30 years continuously.</p> <p>These time periods were chosen by Australian health authorities based on Australian Bureau of Statistics data about how long people generally live in one place</p>
Is it possible to create a new chemical by burning different waste streams together?	No that is not possible. Burning can cause the creation of new combinations of elements (i.e. compounds) but the very hot conditions in the furnace breaks the chemicals into smaller and smaller ones and eventually get to carbon dioxide and water.
How can these chemicals be small and measurable, if they're are micro?	<p>Most of the chemicals that could be present in the air emissions from a facility like this will be at levels so small at ground level that they will not be measurable.</p> <p>They are measurable in the stack before being emitted, but as Aleks explained they are mixed well into the atmosphere because the stack is high and only a very small proportion of what it emitted reaches the ground where people live.</p>
How can the project team accurately forecast [air] impacts with different streams of waste?	<p>The waste streams being treated are controlled. We can only take residual waste from red bins at home and red bins at offices and restaurants.</p> <p>Many waste types are not permitted to be processed, including radioactive waste, asbestos, liquid and oily wastes, contaminated soils, tyres, highly corrosive or</p>

	<p>toxic liquids or gases such as strong acids or chlorine or fluorine or other hazardous wastes.</p> <p>The air pollution control system is specifically designed to minimise and remove toxins. There will be licence limits that must be met.</p> <p>There are hundreds of reference projects with the same waste streams and the same technology. These projects have emissions data. This includes our reference project the Dublin Waste to Energy Project.</p> <p>The NSW EFW policy requires that there must be continuous measurements. This data must be made available to the EPA in real-time graphical publication and a weekly summary of continuous monitoring data and compliance with emissions limits published on the internet.</p>
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Presentation Three

Presenter – Therese Manning, Enriska

Presentation three provided an overview of how we will conduct health assessments. Following presentation three, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?
- Are there any questions you would specifically like our additional independent expert, Brian Priestly, to answer?

Questions and Comments	Responses either provided in the Saturday discussion session or prepared for the session
How do you forecast impact before the facility is functioning?	<p>This is where reference facilities come into play. These reference facilities must be of a similar size, take the same kinds of waste (household and business) and use the same technology.</p> <p>We can take the emissions data from these specific reference facilities and use it in the air quality modelling. This modelling forms the basis of the air quality assessment.</p> <p>The results from the air quality assessment is then used in the health risk assessment. The results from the health assessment is used to predict the impact of the facility.</p>
I'm still concerned about the particles getting into food sources.	Living in a city always affects soil in backyards. There are always particles in air that may deposit onto soil - particles from cars and trucks, wood fires, dust from other locations and other sources.

	This proposed facility may add a small amount to this (small enough to not be practically measurable), and we will assess this occurrence. We will consider how much will be deposited over many years.
What about things that we don't yet know are harmful to us?	<p>The plant will be designed per the most proven, modern design available at present to minimise the emissions of all known classes of possibly harmful substances.</p> <p>There are many facilities operating overseas which take in the same waste streams and we will be using the data from their monitoring. We know the basic chemistry that occurs when wastes are burnt so we know that almost all compounds in the waste get broken into their component parts. We know that those smaller molecules are things like carbon dioxide and water. We also know that there will be solid particles of ash to which some things like metals will stick. We know all this due to data collected from these overseas facilities that have been operating for decades. This means we know what chemicals we need to treat in the flue gas treatment system.</p>
How do we know the combination of pollutants from bushfires and other extreme events combined with this facility will not be harmful?	<p>There are no safe levels of pollutant emissions downwind of bushfires, with or without this plant or any other pollution source operating. The emissions from bushfires will dominate the level of pollutants in the air.</p> <p>This facility, and other activities and facilities can continue to operate during bushfires including facilities that have controlled air emissions including traffic on public roads, hospitals, sewage treatment plants, garbage collection trucks, etc.</p>
Is there any facility in the world that has been in operation for 35 years or shut down and has studies of health impacts?	<p>I [Therese Manning] am not aware of assessments around plants that have shutdown but I am aware of very detailed studies in the UK that looked at operating facilities. The most recent work on the most modern plants shows no effects could be detected.</p> <p>https://www.sciencedirect.com/science/article/pii/S0160412019308104?via%3Dihub</p> <p>https://www.sciencedirect.com/science/article/pii/S0160412018316398?via%3Dihub</p> <p>The EnRiskS report for EPA that I mentioned previously does address the experience from EFW facilities operating overseas. This report can be accessed by the link below.</p>

	https://energyandresourcecentre.com.au/wp-content/uploads/2020/03/Health-Impact-Assessment-Literature-Review.pdf
How do you measure the chemicals for non-threshold chemicals for people living near the facility?	<p>The health-based standards require these types of chemicals to be at such a small level that they cause none or negligible change based on the worst case and conservative assumptions we make in the calculations.</p> <p>How this is done is detailed in the enHealth guidance document that is referenced in the presentation by Therese.</p> <p>The enHealth document contains useful general guidance on how to do a health risk assessment and is used as the primary reference for such assessments in Australia.</p> <p>As discussed in the presentation, the risk from these types of chemicals is assessed for each chemical individually for all the pathways by which a person might be exposed and then all the risks from the different chemicals are added together and it is this total risk that must be less than the value set by the health authorities. This means each individual chemical must be well below the negligible level set by the health authorities.</p> <p>Your independent expert (Brian) was the person who updated this document in 2012 and was part of the group that first developed the document in 2002.</p> <p>Effects like asthma and chronic lung problems are considered in detail in the assessment.</p>
Are there dynamic studies which study participants over 10 - 30 years?	<p>We assume people live close by for a long period of time to get a worst-case assessment. If they move away after say 5 years they will have a lower exposure than if you live there for 35 years so the risks for such a person will be lower. If the risks for the 35 years are acceptable then the risks for 5 years will be too.</p>
Sydney's climate is changing quite dramatically - how does this affect the modelling?	<p>The modelling separately considers the maximum impacts under all conditions in each hour of a year. This is modelling for 8,760 separate conditions, that generally include very hot, very cold and very wet and very dry conditions.</p> <p>Any change in conditions due to climate change will be within these minimums and maximums.</p> <p>The criteria must be met under all conditions, for the highest rate of emissions.</p>

Presentation Four

Presenter – Therese Manning, Enriks

Presentation four provided an overview of other matters such as the health impacts of landfill and the role of hydrated lime. Following presentation four, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?
- Are there any questions you would specifically like our additional independent expert, Brian Priestly, to answer?

Questions and Comments	Responses
Will the output of the stack be odourless?	<p>It will not be possible for a person in the community to detect the odour from the stack. The stack would not emit any significant quantity of odour.</p> <p>Odour would come from the garbage delivered by the trucks to the indoor bunker. The odour emissions are minimised by having the building around the bunker under negative pressure; the odour laden air is drawn into the furnace, where odours are destroyed/burnt.</p>
Why is not the option of sorting to remove plastics and then using anaerobic digestion not being compared as a solution?	<p>This option has been considered and has been disregarded due to high levels of contamination. We support separation of material at the source as the best method to recover resources.</p> <p>Essentially, when you have a lot of mixed material in one bin – food, plastics, glass, etc – as you do in your red bin, trying to separate it all out is like trying to unscramble an egg. You can not efficiently separate all the small bits of plastics and glass out of the organics once it has been mixed.</p> <p>There was a process in NSW where food was separated out of the red bin, and the resulting organics (Mixed Waste Organic Output, MWO) was composted for land application. Recently, after studies were conducted, the EPA banned the use of MWO on land due to high levels of contamination from plastic and glass fines.</p> <p>Overseas where organics are separated from the red bin for anaerobic digestion, after it is processed the sludge is sent to EFW.</p>
Silica dust clouds are of concern.	<p>Clouds of dust that contain silica occur when dry cutting cement, dry grinding a stone kitchen bench, or using high speed drills in hard rock underground or in a tunnel to prepare for blasting of the rock. This silica is in</p>

	<p>the respirable size range, and is of concern to any workers exposed to such dusts.</p> <p>In this case, there will be no dust clouds of silica, or any tangible emissions of respirable silica. There is only a small amount of silica that may be present the hydrated lime used in the pollution control system.</p> <p>However the hydrated lime is added into the system before the baghouse and before the wet scrubber so the combination of there only being a small amount (if any) in the hydrated lime to start with and treatment through the baghouse and the wet scrubber means there will be little, if any, silica in the emissions from this plant.</p>
What is the difference to the environment between methane gas and carbon dioxide?	<p>In terms of greenhouse gas impacts, methane is approximately 25 times more damaging to the environment than carbon dioxide.</p> <p>When waste is burnt, carbon dioxide is generated, but when waste goes to landfill methane is generated.</p> <p>Additionally, electricity from an energy-from-waste plant can be produced when there is no solar or wind power available, and means that overall, we don't have to generate as much electricity from a power station using fossil fuel.</p> <p>The net impact of the project is estimated to result in a net reduction of CO₂ equivalent gases by approximately 450,000 tonnes per year.</p>
Accidents occur what measures are taken to ensure that if a leak does occur that no silica will be released from the plant into our water system or affect our health?	<p>There are many redundancies built into the design of the facility to prevent accidents from occurring. Operational redundancies will be covered in session 4.</p>
Do all new plants use this [moving grate] method?	<p>Not all new plants use moving grate technology as the technology selected for EFW facilities is highly dependent on the type of waste being processed.</p> <p>For facilities processing household and business waste as we propose, moving grate is the most common and best performing technology used.</p>
How will the waste-water from the scrubber be used?	<p>The scrubber water is cycled around the system to ensure that the chemicals are captured and used. Refer to the slides for Session 2.</p>
Is there a substitute for hydrated lime?	<p>There is no practical alternative that is less damaging and as reliable to manage.</p>
Does the incinerator replace the use of one [Western Sydney] landfill or more?	<p>Cleanaway does not own any landfills in NSW, so we cannot speak to landfill use in Western Sydney.</p>

What are ALL the chemicals being emitted from the flue and how, yes, actually how, will they be monitored?	All of the known chemicals emitted by such plants will be set out in the final assessment. They will be monitored per the methods set out by the EPA in the Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (2007), (or any new methods that the EPA may chose to stipulate).
Will there be any protective wear for the cleaners of the baghouse (regardless of there being little to none of the crystalline silica)?	The baghouse is a sealed system, with automatic cleaning. The baghouse is in many sections. Each section is independently sealed, and any one or more sections can be closed off to the air flow without affecting the overall operation. The cleaning of all the bags in each section is fully internal and fully automatic, the dust is knocked off the bag, and settles in the bottom of that section, from where it is removed. Workers are not needed for cleaning the bags/ filters. If workers do need to go into the system for maintenance, for example to replace bags, they would of course need to wear suitable PPE.

Live Discussion

The live discussion provided an opportunity to answer questions raised by participants regarding the presentations. The following questions were raised in the live discussion forum and had not been previously raised.

Questions and Comments	Responses
EPA only fines when facilities such as an incinerator breach legislation. They do not stop operations.	EPA do stop operations. I [Aleks Todoroski] was an EPA officer and shut down major companies like Orica and Boral for exceeding limits. If a company gets a fine, they normally also have to be independently audited, and do what the auditor requires, such as improve pollution controls. There are approx. 700 "hits" on the search term "Fine" on the EPA website - take a look here: https://www.epa.nsw.gov.au/news?search=fine
Is testing done prior to the site opening to use as a base for risk assessment	For the air assessment, the existing baseline air pollutant levels are considered. These are added with the project impacts for the Primary air pollutants (as these have cumulative criteria that apply). In terms of health impacts, studies have been done on local communities around facilities – like the ones I [Therese Manning] mentioned from 2019 in the presentation. These have shown no effects if the plants meet the modern standards from IED in Europe. It may be helpful for community members to read the 2018 report prepared by EnRiskS for the Victorian EPA

	that is on the Cleanaway project site consultation website. This is a summary of a range of literature on health effects and includes a discussion of how emissions are monitored and on the selection of chemicals to be monitored and included in a health risk assessment https://energyandresourcecentre.com.au/wp-content/uploads/2020/03/Health-Impact-Assessment-Literature-Review.pdf
Would it be possible to add a further safety feature of having running water around the flue to absorb the particles and collect to run off similar to the leaching process in land fill	Thank you, we welcome suggestions for how we might be able to improve the design. In this case, there will be a wet scrubber installed at the WSERRC to treat all of the air before it is emitted. The scrubber uses sprays that are specifically designed to have a very large water to air contact area in order to remove air pollutants. Due to this it would be much better at removing pollutants than having running water around the flue.
Will the hydrated lime that Therese mentioned in her presentation is going to be used to treat harmful gases/liquids before being released into the open air?	The hydrated lime is used to treat various air pollutants in the air stream before the air is released up the stack. The lime is injected into the air well up steam of the bag filters, and it is collected onto the filters where it forms a cake (i.e. a layer on the filter bag). The lime on the filter reacts chemically with the air pollutants that must all pass through this layer on the filter. The resulting compounds that form from the reaction of the lime and air pollutants remain on the filter and are removed when the bags are cleaned, after which some more lime is injected to form a fresh layer on the bag. Only some very trace amount of lime can get past the filter. In any case, after the filter there is a wet scrubber which would further remove any trace levels of lime and other pollutants that get past the filter. As there were a number of questions about this when Aleks outlined the pollution control system, Therese undertook to include some responses in her presentation.
You cannot organically farm near an incinerator?	The potential impact to organic farms will be considered in the health assessment. As Therese mentioned we will be assessing uptake into eggs and meat and milk. We will cover all these. Growing veges and eggs in our backyards is a great thing. In cities there are always potential impacts on our soils from many sources - cars, trucks, planes, wood fires, stormwater runoff and many other things. This facility is being designed to contribute no extra impacts or negligible amounts so that won't change

	anything that you can do now, including organic farming.
If this goes ahead how much will Cleanaway contribute to the community?	We are in the process of creating a community investment package. The amount has not been confirmed, but we will have an investment package established.
Incineration competes for the same resources as recycling which is a much better way to deal with waste issue, or better still all plastic products need to be banned at the front end with the companies that make them.	The evidence from Europe is that countries with high levels of energy from waste, also have high levels of recycling. We will provide information in the next session on this. Cleanaway currently recycle organics, they run the container deposit scheme in NSW and have a joint venture with Asahi to recycle plastic bottles into pellets and then turn them into new bottles – a true circular economy process.
What is Cleanaway's plan for recycling in the next 10 years?	Cleanaway always encourages recycling and is working towards providing more infrastructure in Australia to support improved recycling initiatives. We have a strong education programs across the country, have recently acquired and reopened the SKM recycling facilities in Victoria that were placed in administration and have entered into a partnership in NSW to take the plastic from the Return and Earn scheme to make new bottles. Providing recycling infrastructure and initiatives will continue to be a focus for Cleanaway for the next 10 years.
Is it possible for the rubbish in landfills to be dumped into this EFW incinerator process, and if so, will there be any health risks involved in using the land that was once a landfill? also, what would the health risks look like then, knowing there will be greater CO2 emissions from the incinerators?	It is not considered appropriate to use waste from a landfill. We will not be doing this. There are possible health impacts of "mining" landfills.

Air and Health Citizens' Panel: Meeting Summary

Session four

Hosted online using Recollective.

Friday 03 April - Saturday 04 April 2020

****TO BE REMOVED ONCE CONFIRMED BY PANEL ATTENDEES****

This is a draft meeting summary of the second session for Western Sydney Energy & Resource Recovery Centre's Air and Health Citizens' Panel.

This report aims to accurately represent the conversations held between the proposal team, the air and health experts, and the attendees during this session. If any misrepresentation has been made, please submit your requested changes to Rhana Fleming at Rhana.Fleming@newgateengage.com.au

Background

The fourth session of the Western Sydney Energy & Resource Recovery Centre's Air and Health Citizens' Panel was held using an online platform from 4pm Friday 03 April until 5pm Saturday 04 April, including a live online discussion held from 11.30am until 1pm Saturday 04 April 2020.

Given COVID19 circumstances and isolation advice from the Australian and NSW governments, this fourth session was moved from an in-person workshop to an online workshop.

The aim of this session was to answer some of the questions remaining regarding air monitoring and health assessment, obtain an international perspective on Energy from Waste and outline some of the operations and accountability procedures.

A final survey was provided to participants, concerning the overall panel process.

Session four attendees

Attending the online workshop and live discussion were:

- Representatives of Cleanaway and Macquarie Capital
- Technical experts in the area of air quality and health
- Newgate Engage (facilitators)
- 25 residents - recruited from a broad cross section of suburbs surrounding the proposed project site. One participant was unable to access the online workshop.
- Blacktown District and Environment Group. This participant did not complete online activities and sent an apology for the online live discussion session.
- The representative from Western Sydney Direct Action did not attend the fourth and final Air and Health Panel session and did not participate in the online live discussion.

Session objectives

The objective of session four was to provide an international perspective on Energy from Waste, outline operational redundancies and the legislation and regulations in place to guard community and environmental health.

Further, the session aimed to capture any specific areas of the air or health assessment that had not yet been covered. Topics for discussion in this session were chosen from input and comments raised by panellists in earlier sessions.

Session three summary

PDF upload of draft summary session 3

Panellists were asked if they had any changes to the draft summary circulated by email in the week immediately after the first session. Online feedback received indicated that panellists were generally confident that the summary was accurate.

Presentation one

Presenter – Herman Huisman, Rijkswaterstaat, Netherlands

Presentation one provided an overview of the overseas experience of Energy from Waste facilities by Herman Huisman, a resident of the Netherlands. Following presentation one, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?

Questions and Comments

How long has Energy from Waste existed in Europe?
Will we pay less tax if more recycling is done?
Is the waste still imported from the UK now that they have left the EU?
Does the EU have too much power in regard to policy across Europe?
How close are facilities to residents?
Are there reports on the amounts of pollution that was emitted from older plants?
Would Australia take to processing other country's waste as per the Dutch Model?
What are the negative health effects of the Energy from Waste facilities in Netherlands?
What are Herman Huisman's qualifications?
Can you review this link and provide a response on its contents: https://zerowasteurope.eu/2019/06/the-story-of-rec/Low-toxicity/health-hazard/
Herman informed us that there is a lot of "imported" pollution from the UK, Belgium and Germany -presumably from air flow. Is this similar to the Sydney Basin pollution effect due to bottle like entrance between sea and land and the surrounding mountain ranges?
Does plastic in landfill create methane?

Are there any plants in California to compare air pollution and health risks with that also face bushfires?
What are all the chemicals being emitted by the flue, how will they be monitored (what instrumentation) and what are the toxicity/health effects of these chemicals?
How reliable will the energy from the plants be?

Presentation Two

Presenter – Mikaela Orme, Cleanaway

Presentation two provided a recap on information from the previous 3 sessions. Following presentation two, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?

Questions and Comments
I'm concerned that small amounts of chemicals emitted from the plant will build up and be harmful over time.
What do other countries do with hazardous waste?
Will this only create 15 long term jobs?
How often and how easy are the baghouse filters cleaned?
What happens to the waste from the bags once cleaned?
How is the fly ash treated before going to landfill?
Is there another facility trying to get approved in the same area?
How can you estimate the future of industrial development?
How heat is exported to industries?
What is the population density within a 3km radius of the Dublin facility?
Has there been a 35-year study of the Dublin facility and the impact on residents within a 3km radius?
If people try harder, they can recycle everything, have seen videos and articles online.
What is going to happen to the 1.1m waste from the 1.6m waste produced in Western Sydney?
How many tonnes of waste are passed through the furnace in 2 hours?
Is the air model good enough considering the weather events Sydney now experiences?
Is animal testing and dividing results by 100 or 1000 effective enough to accurately test thresholds? As far as I can tell the Covid-19 virus does not affect animals?
How dangerous is fly ash?

My lack of understanding in relation to the 35-year air quality assessment.

I am still concerned about the red bin input.

What are the methods of storage and disposal of the by-product wastes?

Presentation Three

Presenter – Geert Stryg, Senior Project Director with Ramboll, Mikaela More, Cleanaway

Presentation three provided an overview of how we will conduct health assessments. Following presentation three, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?

Questions and Comments

Who determines who the waste contractors are?
What independent protocols are in place to ensure the restricted waste is not accepted?
Is there a fine for businesses that do not follow protocol?
How many visual inspections will be carried out during waste acceptance?
How will unacceptable waste be identified?
What is the speed of shutdown?
Is there going to be a plant sorting the waste before it arrives?
What will happen to the unaccepted accepted waste?
Is the waste bunker used to hold 7 days of waste before being fed to the conveyors?
I know you mentioned continuous monitoring of the flu gasses but how and when is that published. Is it made public and live immediately after being recorded?
Who audits the EPA?
International Best Practice is meaningless unless we know what that practice is. For example, did the asbestos workers work according to the International Best Practice of that time?
Are there repercussions from management if an employee reports work place safety issues?
I have heard there are problem with fires at these plants.
Are OHS standards applicable to the industry? Are you going to implement extra measures other than is required to ensure total safety to workers?
What kind of health issues may exist for the workers?
If OHS and safe work standards change how long will you have to change?
Have there been any significant incidents at Cleanaway?

Once the facility is built will there be ongoing reporting on success or failure?

Presentation Four

Presenter – Mikaela Orme, Cleanaway

Presentation four provided an overview of landfill. Following presentation four, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?

Questions and Comments
Will Cleanaway ever go into landfill management?
Who monitors the waste going to landfill?
Where will the hazardous waste be stored? Onsite? And will trucks be carrying the hazardous waste through the community close to house?
Are there hazardous landfills in other states VIC, WA?
With all the so-called EPA requirements, there is still a lot of odour/stink/ coming from the waste treatment sites in the Kemps Creek area.
How long before the Suez restricted landfill is full and how much is expected from the waste incinerator?
I thought Nick mentioned there was a hazardous landfill in Kemp's creek.
Since the ash is so fine, when the ash gets dumped into the landfill, is there a method of compressing it down?
Although it's not classified as hazardous then, wouldn't that particle still be bad for us to accidentally inhale?
What are the health effects of burning non-toxic waste?
I am concerned that another facility of similar operation will be built here in the west.

Presentation Five

Presenter – Mikaela More, Cleanaway

Presentation five provided an overview of the planning pathway. Following presentation four, panellists were asked to comment on the following:

- What made sense?
- What is still worrying you?
- What further information do you need?

Questions and Comments
If the project is rejected does Cleanaway have the right of appeal?

If this COVID-19 is still around with the restrictions, how will the public exhibitions go ahead

If everything is approved when do you expect building to start?

I worry that you will ignore some of the tough and detailed health questions in the EIS

Live Discussion

The live discussion provided an opportunity to answer questions raised by participants regarding the presentations. The following responses were provided to questions raised online while watching the pre-recorded presentations. Additional questions were raised in the live discussion forum in to clarify responses given.

Questions and Comments	Responses
Presentation One	
Would Australia take to processing other country's waste as per the Dutch Model?	No. The European Union has legislation supporting free borders, and free flow of commerce within countries in the EU. This applies to recycling materials and to waste which is being used for energy. We cannot take waste from overseas and it is a long distance for transport. It is not economical, particularly for countries in south east Asia where there is often little or no regulation of waste disposal (i.e. no levies)
How reliable will the energy from the plants be?	We will have the centre operating 24/7, and as a result will generate what we call 'baseload' electricity. Plants in the UK operate at an efficiency level of approximately 90% which allows for planned maintenance and shut downs.
Presentation Two	
I'm concerned that small amounts of chemicals emitted from the plant will build up and be harmful over time.	For the health risk assessment, we assess exposure over a long period of time. There are a lot of chemicals that don't accumulate over time. For those that do accumulate, we ensure they are identified and will not accumulate to a point where it will become a problem.
How often and how easy are the baghouse filters cleaned?	Each bag gets cleaned multiple times a day. A system is always cleaning a bag as it cycles through different parts of the system. It is a continuous process.
What happens to the waste from the bags once cleaned?	The waste is captured at the bottom in a sealed system. It is then taken to a silo. Silos contain various fine materials.
How is the fly ash treated before going to landfill?	

	<p>From there, it is then taken by a sealed truck to a special facility where it will be treated with a combination of washing and other processes that will make it suitable to enter to a restricted landfill.</p> <p>There are many hazardous materials that are dealt with all the time. Materials such as cement and paint are considered hazardous. There are strict rules and procedures regarding the handling of all these materials.</p>
Is there another facility trying to get approved in the same area?	<p>Yes, there are a number of facilities seeking approval across Sydney. You may be familiar with Next generation project that was rejected by the Independent Planning Commission, however, is now in the land and environment court.</p> <p>There is also Orora in Botany and one more based in Lithgow.</p> <p>One of the requirements for this project is we have to assume the Next Generation proposal will be approved and conduct our tests acknowledging the cumulative impacts of this on Western Sydney.</p>
How heat is exported to industries?	<p>One of the great things about our location is there are a number of places that are nearby and have a need for heating or cooling. Often overseas the heat is used in town heating or in industrial process. We can take the steam as it's cooling, put it in a pipe and it is used to heat houses and offices. You need to be within about 2-3km to get the efficiency of this process.</p> <p>Here we are talking to a nearby data centre, that requires cooling. There is a process by which the heat/steam can be converted to a cooling system.</p>
What is going to happen to the 1.1m waste from the 1.6m waste produced in Western Sydney?	<p>The remaining amount that does not go to the WSERRC will still go to landfill.</p> <p>The reason we haven't made the proposal larger, is that we want it to be appropriately sized for the location and we anticipate better local recycling practices in the near future.</p>
Presentation Three	
Who determines who the waste contractors are?	<p>Waste will come from two sources: one is the red bins from your homes. And second is from red bins at businesses such as offices, schools, restaurants. From your home the council has legal ownership of the waste once it leaves your curb. They tend to run two tenders, one for collection, one for disposal.</p>

	For businesses, they may contract directly with Cleanaway to collect their waste. Cleanaway then has control over where it disposes of the waste.
What will happen to the unaccepted accepted waste?	Waste will be returned to the contractor within the delivery contract.
Is the waste bunker used to hold 7 days of waste before being fed to the conveyors?	The bunker is being designed to hold 5-7 days of waste. The waste is constantly being mixed by two cranes to homogenise the waste mix before being fed into the combustion chamber.
I know you mentioned continuous monitoring of the flu gasses but how and when is that published. Is it made public and live immediately after being recorded?	<p>NSW EFW policy requires us to provide live data in a readable form to the EPA.</p> <p>We would need to provide a weekly summary in a readable format on the internet.</p>
Are there repercussions from management if an employee reports work place safety issues?	No there are no repercussions. Cleanaway staff are always encouraged to let the business know immediately if there are safety issues or concerns.
Presentation Five	
If this COVID-19 is still around with the restrictions, how will the public exhibitions go ahead	<p>We will still engage with the public throughout the exhibition process. We are open to do more online activities like this.</p> <p>Would you be interested in reconvening the panel?</p> <p>The public exhibition is managed by the Department. We will be provided with information on how the EIS will be exhibited.</p>
I worry that you will ignore some of the tough and detailed health questions in the EIS	<p>Appreciate this concern. The EIS assessment is based on:</p> <ul style="list-style-type: none"> - national guidelines that tells us what we need to cover - guidance materials from people like US and Canadian EPAs that have guidance documents <p>The Department asks a lot of clarifying questions, some with the intention that they understand the questions are important to the community.</p>
Additional Questions (asked during live Q&A)	
Can you import waste from interstate?	<p>NSW has a levy to dispose of waste in landfill.</p> <p>QLD historically got rid of their levy and as a result waste was being sent to Ipswich, Queensland. This was being driven by two things, the economics to transport the waste and avoidance of the NSW landfill levy which meant it made economic sense to send the waste there.</p>

	All states now have a levy. There is a strong economic disincentive to import waste as NSW has the highest waste levy.
I have supplied links to the health studies in the Netherlands that show problems.	We will ask our expert from the Netherlands to respond to these.
What is everything coming from the flue?	<p>We cannot know everything.</p> <p>We will use 300 sites for reference across the world with continuous monitoring and regular spot sampling.</p> <p>We are looking at maximum output and worst-case air quality scenarios, and have considered data from over 300 such facilities, including for the key toxic substances that may be emitted.</p> <p>The important thing about the NSW requirement for best practice is that it includes the need for ongoing improvement, so it is not a static standard. If there is a new pollutant discovery made, the standards will shift.</p>
China doesn't take our waste because it's too dirty.	<p>For this facility we would only accept what goes into residual waste bins.</p> <p>That issue with China not accepting our waste was related to contamination of the recycling we were giving them (our yellow bins). Average contamination in curb side yellow bins is about 10%</p> <p>We are looking at how we can clean and process that instead of sending it overseas.</p> <p>One of those streams was plastic bottles. NSW put in place a container deposit scheme, and Cleanaway operates the scheme on behalf of the NSW government. We have entered into a joint venture with Asahi and Pact to turn the PET bottles into plastic pellets that can then be used in other manufacturing.</p>
How do you know how much electricity will be generated?	We have undertaken a detailed 12 month study on the composition of waste in Sydney. This was to understand the embedded energy content in the waste mix among other things. The waste mix and volume coupled with the design of the facility enables us to calculate the electricity output of the facility.
Have the bags ever broken?	That's not an unusual thing. The bags will occasionally get a tear. If a bag breaks, you can tell, and that section gets shut down at the time. They are then manually replaced as the rest of the facility continues to operate.
What is the hazardous material?	The hazardous material is the fly ash. However, the bag filters catch this ash.

I would like the 35-year analysis of health assessment explained more clearly.	
Can you clarify the air assessment process?	<p>There are a number of ambient monitors that the EPA operates. Ambient (or the background) air is measured by the government.</p> <p>There are three aspects to our air assessment process.</p> <p>Firstly, there is continuous modelling for some pollutants at the top of the stack. This is the best place to measure, as any pollutants would be at their highest concentration here.</p> <p>Secondly, we use a model to predict the dispersion of these pollutants. These are not easily measurable as they disperse and are very low in concentration. Some materials such as NO2 (NOX) can be measured in the air. Our model allows us to predict pollutants that may not be measurable as well.</p> <p>Finally, to conduct a health assessment we apply this model to the government's advice on acceptable levels of pollutants and ensure we do not exceed this. We also consider how they accumulate in soil over time and what you may be subject to from veggies, chicken eggs and much more.</p>
In addition to assuming those statistics, how do you know how it works?	<p>The model Aleks uses has been developed over a long period of time. It does a good job at measuring a worst case and average case scenario.</p> <p>It considers weather, machine functionality and other factors.</p> <p>It estimates things will be a bit higher than they are in real life.</p> <p>For the health assessment, we assume someone will live at the location with the highest concentration for 35 years. That location is usually very close to the plant. If that spot is fine, everywhere else will be lower and fine.</p> <p>We also calculate at the closest house, workplace, childcare centres and school.</p>
If hazardous material passes through your screening and are found in the bunker what procedures do you go through to remove?	<p>There is a chance some hazardous waste will get into the red bin. It is likely something like a gas cylinder.</p> <p>Firstly, a crane is sorting the waste and can pull the cylinder out.</p> <p>If it got past the screening measures and into the moving grate system, it would pop, the metal would be</p>

	recycled, and the gasses would go through the emissions cleaning system
What are you doing differently to other procedures that have proposed incineration that has been rejected?	<p>What are we doing differently? We developed a project for Kwinana in Perth that has approval.</p> <p>One key difference is our waste streams. We are not accepting construction and demolition waste. They (Next Generation) also had floc waste which is salvaged from car wreckers. We will not accept floc waste.</p> <p>We have a reference project with the same waste stream and same technology.</p> <p>We also have a higher quality air pollution control system.</p>
Where does construction/demolition waste go?	<p>C&D waste has the highest recycling rate of all waste streams given it is mainly concrete, steel, timber etc.</p> <p>Residual amount goes to landfill. Depending on type of waste, it is probably inert landfill.</p>

Appendix D - Response Provided to Questions asked in Panel Session 3 by Western Sydney Direct Action

Several written questions were provided to the panel in session three online discussion by the representative of the community group Western Sydney Direct Action. The independent expert, Brian Priestly, agreed to draft a response to the questions. It was agreed that the written response would be provided to the panel and this is documented below.

1. “The EPA is useless”

It was asserted that the EPA:

- Does nothing to protect public health
- Does not stop operation of facilities that are ‘repeat offenders’
- Rarely shutdown facilities
- Only fine facilities who breach licence conditions, which have no impact on large companies
- Change regulation to increase [emissions] limits for facilities who might exceed

Response:

This is not consistent with our experience of how EPA regulates nor is it supported by the ambient air quality data which show air quality in NSW is very good by world standards.

The EPA rarely approves projects that may cause unacceptable emissions, so it is to be expected that very few may need to be shutdown.

When fines are issued, the operator is generally also required to conduct an independent audit and must implement the auditor’s recommendations. This can cost many millions and may disrupt operations significantly. The operator may lose contracts with clients, as a result, and the annual licence fee also generally increases for operators that have been fined, and this is a large impact, even for large corporations.

The regulation can only be changed by an Act of Parliament, not by the EPA’s whim.

2. “Waste incinerators cause people harm”

A very long list of presumed health impacts was quoted by WSDA’s representative, as well as a number of studies as references. These are listed in a table below.

Cardiovascular Disease	Respiratory Issues	Other
<ul style="list-style-type: none"> • Heart attacks & arrhythmias in those with existing cardiovascular conditions 	<ul style="list-style-type: none"> • Exacerbation of existing respiratory problems i.e. asthma & COPD 	<ul style="list-style-type: none"> • Infant death
<ul style="list-style-type: none"> • Heart disease 	<ul style="list-style-type: none"> • Reduced lung function 	<ul style="list-style-type: none"> • Birth defects
	<ul style="list-style-type: none"> • Irritated eyes, nose & throat 	<ul style="list-style-type: none"> • Autism
	<ul style="list-style-type: none"> • Chest pain 	<ul style="list-style-type: none"> • Reduction in life expectancy

- Cancer

It was claimed that research shows people in the proximity to energy-from-waste facilities suffer from the health impacts listed above and that incineration is responsible for this impact.

Researchers, Michael Ryan and Dr Dick van Steenis, were referenced.

Studies by the World Health Organisation, the Small Area Health Statistics Unit and the Paris Appeal Memorandum

<https://www.who.int/airpollution/ambient/health-impacts/en/>

https://www.whatdotheyknow.com/request/matters_relating_to_the_incinera?fbclid=IwAR0IUfX_dhbHPp8AWaTN_loRxOfEUIEvCKkkKlrBvudH2hVyemUCVQhU2Y"

http://appel-de-paris.com/?page_id=592&lang=en

health problems like respiratory illness and premature death".

<https://www.who.int/airpollution/ambient/health-impacts/en/>

Miller K.A., Siscovick D.S., Sheppard L., Shepherd K., Sullivan J.H., Anderson G.L. and Kaufman J.D. Long-term exposure to air pollution and incidence of cardiovascular events in women. New England Journal of Medicine 356 (2007) 447-458

Pope C.A. Mortality effects of longer term exposures to fine particulate air pollution: review of recent epidemiological evidence. Inhalation Toxicology 19 (2007) 33-38

Respiratory, immunological, haematological, neurological and reproductive / developmental problems, sometimes with long time-lags between exposure and health effects [Curtis L., Rea W., Smith-Willis P., Fenyves E. and Pan Y. Adverse health effects of outdoor air pollutants. Environment International 32 (2006) 815-830]

[Pope C.A., Burnett R.T., Thun M.J., Calle E.E., Krewski D., Ito K. and Thurston G.D. Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution. Journal of the American Medical Association 287 (2002) 1132-1141]https://zerowasteoz.org.au/wp-content/uploads/2017/12/Public-health-impacts-associated-with-incinerators.pdf?fbclid=IwAR3HwiCK8st1ArmPlvhEMxNj_SneLtOnQD2VGMqith0fctRdetTpVML2l4c"

Response:

Health Impact Studies

The *most recent* studies by reputable independent researchers using government statistics show that modern plants do not cause identifiable changes in health effects surrounding facilities or down wind.

<https://www.sciencedirect.com/science/article/pii/S0160412019308104?via%3Dihub>
<https://www.sciencedirect.com/science/article/pii/S0160412018316398?via%3Dihub>

These researchers have also put up a series of frequently asked questions and answers about these studies which you can access here <https://www.imperial.ac.uk/school-public-health/epidemiology-and-biostatistics/small-area-health-statistics-unit/our-research/incinerators-study/faq/>

Studies for *older plants* did show that effects could not be ruled out. That is why the plants like the Waverley Woollahra Incinerator were closed down by the NSW EPA in the 1990s. This is consistent with the findings in 1994 by Dr Dick van Steenis in relation to emissions from old power stations, that do not have comparable controls or performance to that of modern energy from waste plants.

That is also why the European Union started doing systematic reviews of the engineering of such plants to work out what was best practice and how such plants should be designed. They have continued to do such reviews and so we have another update to the reference document on the best engineering practices.

The plant in Dundee referenced in the Small Area Health report was opened in 1979 and was built without the air pollution control equipment that is now used. This plant is not comparable to the proposed facility. It was updated in 1999 but still would not have comparable air pollution control equipment to what is proposed for this facility.

The same group of people at Imperial College London that did the Dundee study, also published new work in 2019/2020 focused on the plants that meet the IED limits. These plants would be reasonably comparable to the proposed plant. The most recent studies from the same people were looking to see if the IED limits were actually sufficient to make it clear whether there were likely to be effects around such plants. The links to the studies are provided above. The new work found no increased health effects are likely around these facilities.

Papers like this one in the British Journal of Cancer (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2074344/>) do show that the potential for increases in cancer is a matter that researchers have been looking at for some time. This paper is from 1996.

If you are interested to understand what the effects of this proposed plant may be, it is important to look at the most recent studies that can be related to the proposed facility. Whilst one can, of course, find older studies that raise questions about the safety of old incinerators, to see where we are up to in our understanding, it is important to look at the most recent studies by trustworthy groups that relate to the type of facility being considered. The most recent and relevant work by these researchers finds that the recently constructed plants are sufficiently engineered to not be able to find these adverse associations any longer.

In response to the Paris Appeal Memorandum referred to, since 2006 when this was released the air pollution control requirements for such facilities in Europe have greatly increased. The IED limits came into force soon after and they were updated in late 2019. It is clear that European governments listened to the doctors back then and required improvements in the engineering and operation of these facilities.

It may be of interest to know that the NSW EPA enacted policy in the 1990's to ban incinerators in NSW, well ahead of the 2006 Memorandum. Whilst incineration (without energy generation) remains unacceptable in NSW, the NSW EPA more recently developed policy and guidelines that

require best practice to be achieved by new modern energy from waste facilities. The EPA is now willing to consider new energy from waste plants, as these are required as part of the mix for managing the state's waste and energy needs as long as such facilities comply with the best practice requirements.

Health Risk Assessment

As discussed in Session 3 of the Air and Health Citizens Panel the health risk assessment that the government requires as part of the EIS includes the calculations of how much of the emissions people will be exposed to at the worst case location. This is the spot where the concentrations in air impacted by the facility are the highest. This location is usually very close to the facility. To assess the highest possible exposure that may occur, it is assumed a person lives at that worst case impacted location for 24 hours per day, 365 days per year for 35 years from birth. If the worst case location happens to be in the middle of a road then, of course, no person will actually live in that location. All other locations will have lower concentrations in air from the facility, and will comply with the criteria.

The government requires that these calculations for the worst case location need to show that this worst case location meets the government requirements. If the worst case location does not meet these requirements then the proposed facility cannot be built.

The assessment will also include calculations at the actual closest houses and the closest workplace and at places like schools and child care centres that are nearby to demonstrate specifically that these locations are also in compliance.

The assessment required by the government for this facility requires us to assess this in detail. We must undertake calculations to determine how much dioxin could build up in eggs and meat and milk. We have to do that in accordance with the national guidance on risk assessment.

We also use, where necessary, the guidance from the US Environmental Protection Agency (USEPA) about how to do such assessments (https://epa-prgs.ornl.gov/radionuclides/2005_HHRAP.pdf). The USEPA document is about how to do an assessment for hazardous waste incinerators. That is not what Cleanaway is proposing – they are just proposing a standard energy from waste facility but this guidance helps us make sure we properly assess all the different pathways that might be relevant.

It is important to remember that it is about how much of a chemical that we get exposed to, which is why the engineering design of the plant and treatment systems makes sure the levels are as low as possible, and do not cause any unacceptable harm.

Particulate Matter

It is first worth noting that the health effects listed are those associated with any combustion source – our cars, trucks, buses, trains, planes, smoking, woodfires in our homes, candles, bushfires, power stations as well as these sorts of facilities.

We are always exposed to particles from burning/combustion that are very small in size and which may get into our lungs. The goal for managing air pollution from all these types of sources is to keep the levels as low as possible and for new facilities to not make any significant, or measurable changes to ambient air quality. That is the goal for this facility as well.

The big studies undertaken on large groups of people in cities that are used by the USEPA or the World Health Organisation give us a basis for understanding what level of effect is small enough to make no measurable difference to ambient levels. That is what this facility will be designed to achieve as is required by the government.

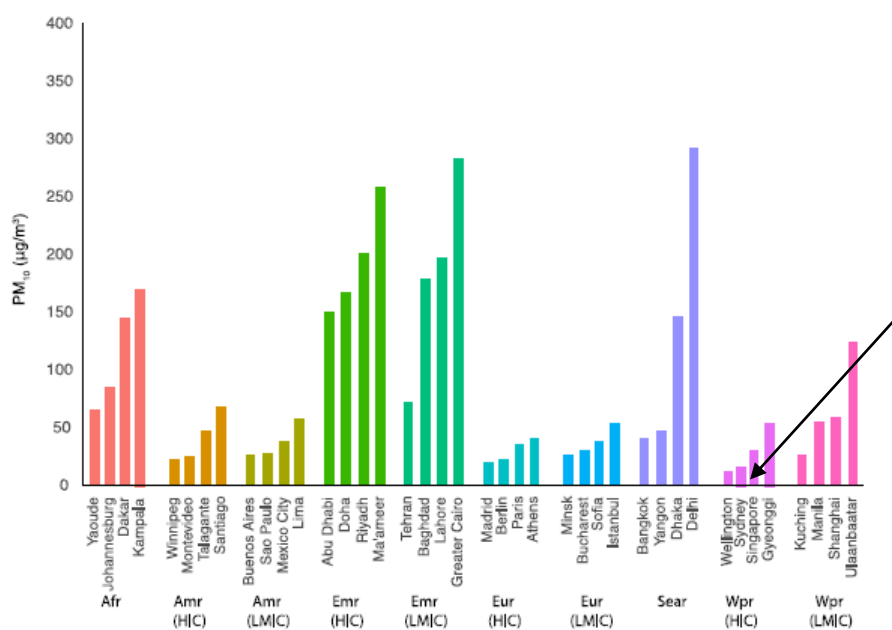
The World Health Organisation notes that exposure to particles from solid fuel cooking stoves in locations which don't have access to an electricity or gas network is higher than is normally seen in cities like those in Australia.

The World Health Organisation published a summary of air quality matters for cities across the world. PM₁₀ levels in a wide range of cities can be seen in the following graph. The arrow points to Sydney. Only Wellington in New Zealand had a lower average level between 2010 and 2016, which mainly is due to Wellington being positioned on a windy peninsula.

The link to the whole report is

https://www.who.int/airpollution/data/AAP_database_summary_results_2018_final2.pdf?ua=1

Figure 5: PM₁₀ levels for selected cities by region, for the last available year in the period 2010-2016.



PM₁₀: Particulate matter of 10 microns or less; Afr: Africa; Amr: Americas; Emr: Eastern Mediterranean; Eur: Europe; Sear: South-East Asia; Wpr: Western Pacific; LMIC: low and middle-income countries; HIC: high-income countries. ¹ Selection criteria: For the latest year of measurement for each city included in the database, the largest for each country within a region was selected. City size ranges from 192'900 to 26 million habitants

The mechanisms for how particles cause harm in the body is extensively studied and is well known. Much of the harm arises from the body's immune response (inflammation) caused by prolonged exposure to high levels of particles. This is why the WHO recommended criteria for annual average PM_{2.5} is 10 µg/m³. The NSW EPA has a criterion of 8 µg/m³, one of the most stringent in the world.

In a modern plant, the generation of particles is minimised in the first place by good furnace design, and the vast majority of the particles generated are captured by the flue gas treatment system. Only very low levels of these particles are emitted via a stack so as to ensure they are well dispersed high up into the air, and only very small effects arise at ground level where people may be present.

3. Question 3 “Incinerators put our drinking water under threat of contamination”

The claim was made that with the Warragamba pipeline running adjacent to the site and Prospect Reservoir within 5km of the site, Sydney’s drinking water would be contaminated with nano particles and substances such as arsenic, cadmium, nickel, polycyclic aromatic hydrocarbons and persistent organic pollutants (POPs).

Response:

The potential for particles to fall into Prospect Reservoir is something that will be assessed in detail in the health risk assessment. Given the very small amounts of particles that will be emitted from this plant, it is not expected that changes in concentrations in the reservoir would be even measurable, but this will be checked in the assessment.

Again, the government will want detailed assessment to show them this will not be an issue so we must provide that.

Drinking water already contains low levels of most metals like arsenic, cadmium and nickel. Sydney Water must supply water to our homes that complies with the drinking water guidelines so while there may be low levels in the drinking water it will be less than these guidelines.

Given the low water solubility of chemicals like polycyclic aromatic hydrocarbons or POPs, and the fact that Sydney Water always treat water from Prospect Reservoir by filtering it through very fine filters before sending it to our homes, it is unlikely that particles containing these chemicals from this plant or from any other combustion source will be present in our drinking water. Again, Sydney

Water must demonstrate that the water complies with relevant drinking water guidelines for these chemicals too.

4. Question 4 “Incinerators release 2.5 times Co₂, 28 times more dioxin, twice as much carbon monoxide, 3 times as much nitrogen oxides (NO_x), 6-14 times as much mercury, nearly six times as much lead and 70% more sulphur dioxides than Coal, Oil and Gas.”

Response:

Coal, Oil and Gas are fossil fuels, and release air emissions when they are burnt. What is released from a coal, oil or gas power plant, an incinerator or an energy from waste plant, will depend on how the fuel is burnt and what the pollution controls are.

Modern energy from waste plants are not comparable to incinerators, which are an old technology that is not permitted in NSW. Modern energy from waste plants reduce CO₂ emissions, and do not have the levels of emissions of incinerators.

5. “Incineration creates a need for landfill”

The argument was made that due to the creation of fly ash, incineration creates a need for landfill.

Response:

The facility greatly reduces the need for landfilling because it will divert approximately 500,000 tonnes of waste away from landfill. Approximately 20-25% of the total volume is ash that is created as a by-product of the waste reduction process.

This ash is made up of two components, bottom ash and air pollution control residues (APCr). Bottom ash is inert and contains metals that can be recovered and recycled (this metal would have otherwise gone to landfill). The project team is working to direct the residual bottom ash into construction products as commonly done overseas - not landfill it.

The APCr will need to be treated and landfilled, however is only around 2-5% of the original volume. This means that the proposed energy-from-waste facility would divert ~95% of non-recyclable waste away from landfill.

6. “Incineration competes with the same resources as recycling”

Response:

This is a common misconception and inaccurate. The proposed Western Sydney Energy and Resource Recovery Centre will *only* accept waste that has been placed into the red bin – or residual waste. This is waste that cannot be recycled and would be sent to landfill. Recycling streams **will not** be accepted at the facility.

Cleanaway owns and operates recycling facilities in Sydney, including the NSW Return and Earn scheme. We have also recently entered into a partnership with Asahi and Pact Group to take recovered plastic and recycle it back into bottles – a true circular process! It would not be in Cleanaway’s interest to take recyclable commodities to an energy-from-waste facility.

7. “The waste to energy sector is one of the most dangerous industries”

There was a reference made to an incident causing fatality in a plant in the United Kingdom, as well as a statement that the industry fatality rate is ‘around 15 times as high’ as the all-industry rate.

<https://resource.co/article/man-dies-after-oldbury-recycling-plant-explosion-12022?fbclid=IwAR21BYRrVYexmLNEcUvSVTujeom6SKCOPdJ8PE-xtkpOacu17HrCuzPDU28>

Response:

In relation to the incident causing death, the article had little information on the cause of the incident. However, the facility in itself was described as a gasification plant accepting “end-of-life” shredded vehicles – also known as flocc waste. The proposed WSERRC **will not** be using the same technology or accepting the same type of waste. The WSERRC is a proposal for a thermal moving grate technology and will only accept business and household waste.

The statistics quoted in regards to the increase in fatalities in the waste to energy sector is actually a figure for the waste industry as a whole in the United Kingdom specifically. The full report can be viewed at <https://www.hse.gov.uk/statistics/pdf/fatalinjuries.pdf>. Australian statistics can be viewed at <https://www.safeworkaustralia.gov.au/statistics-and-research/statistics/fatalities/fatality-statistics-industry> and do not display the same level of fatalities for the waste industry here.

8. Other comments

There were a number of other comments made towards Cleanaway's credibility, raising instances of workplace incidents involving Transpacific (now Cleanaway) employees.

Due to these comments being outside of the Panels consideration, air quality and health risk, they are not something that would ordinarily be addressed in a document like this. However, due to the sensationalist nature of the comments, a response has been provided.

Response:

Cleanaway takes the safety of workers and members of the communities we operate in very seriously and safety culture is woven throughout our operations. Safety is our number one priority and is established as a core value to the business. This topic was covered in session 4 of the Citizens Panel and information on Cleanaway safety values, procedures and policies can be found on our website <https://www.cleanaway.com.au/sustainable-future-hub/people/health-and-safety/>.

Workplace incidents unfortunately occur across all industries and types of sites. Cleanaway's focus is on ensuring that all employees go home safe, every day.

Appendix E – Appearance of the online panel sessions

E.1 Session Three

The screenshot displays the NEWGATE online panel session interface for "WSERRC Citizens' Panel on Air and Health - Session Three". The interface is divided into two main sections: a top navigation bar and a main content area.

Top Navigation Bar: Includes the NEWGATE logo, the session title "WSERRC Citizens' Panel on Air and Health - Session Three", and icons for user profile, chat, and notifications. The main content area has tabs for "Home", "Activities", and "Summary".

Main Content Area (Activities Tab): Displays a grid of activities. The first row includes a "Summary" card, a "Presentation - Legislation, regulation and compliance" card, and a "Presentation - What's already in the air?" card. The second row includes a "Presentation - How we conduct a health risk assessment" card, a "Presentation - Other Matters" card, and a "Discussion forum" card. The third row includes a "Feedback on the session" card and an "Add Activity" button.

Activity Details (Presentation - Legislation, regulation and compliance): The activity is titled "Presentation - Legislation, regulation and compliance" and is marked as "Expired". It shows a video player with a play button and a "View Responses" button. The video player shows a presentation slide with the title "Presentation - Legislation, regulation and compliance" and a subtitle "What's already in the air?". The video player also shows a "Welcome Rhana" message and a "Welcome Video" thumbnail.

Activity Content (Presentation - Legislation, regulation and compliance):

Hi everyone - welcome back to the 3rd session for the Air and Health Panel for the Western Sydney Energy and Resource Recovery Centre!

Now first, the team wanted to pass on their thanks to the panel for being so flexible and accepting of this new structure. We appreciate that this session will, of course, be a little different to previous sessions and we welcome your feedback on what works and what doesn't.

The next two sessions of the Citizens' Panel will primarily consist of a series of activities that can be done at your own pace between now and our live meeting each Saturday. This should take no longer than two hours and you will need to ensure you are online in the Discussion Forum Activity by 11.30am on Saturday.

There are a number of presentations to watch and comment on, before we reconvene on Saturday. I recommend you watch each video through fully, then go back to it once again to add in any questions or comments you may have before proceeding to the next activity.

As with previous sessions, it is worth keeping in mind that the purpose of this session is to discuss the methodologies used to assess any impacts of the proposed energy and resource recovery centre on human health. We ask that, where possible, you try to keep your questions and comments on topic and relating to the health assessment process.

As always, if you do have other non-related questions, we still encourage you to write them down and email them through to us. These additional questions will still be captured in the weekly summary report and answered by the team.

Remember, the project team is very keen on understanding your thoughts on the assessments being conducted - what additional information you would like in order to understand the process better, is the assessment methodology proposed robust; is there an assessment we have missed, or an extra assessment you would like us to consider?

This feedback is very important to us and will be an important input to the Environmental Impact Statement.

Please visit our project website for more information: <https://energyandresourcecentre.com.au/>

Enjoy the following presentations and we'll speak with you Saturday.

E.2 Session Four

NEWGATE WSERRC Citizens' Panel on Air and Health - Session 4 CLOSED 25 🔒 📧 🔔

Admin Home Activities Summary

Expired 7 📅 🔍 Activity Sequence View Responses

Summary

April 2 - 4 📅 24 (100%)

The overseas perspective

April 2 - 4 📅 26 (100%)

Recap

April 2 - 4 📅 24 (100%)

Operational redundancies and accountability

April 2 - 4 📅 24 (100%)

Landfill

April 2 - 4 📅 24 (100%)

Planning pathway

April 2 - 4 📅 24 (100%)

Survey

April 4 - 5 📅 23 (100%)

+

Add Activity

Home Activities Summary

Welcome Fiona Page Options Add Card

Home Activities Summary

Expired 7 📅 🔍 Activity Sequence View Responses

Summary

April 2 - 4 📅 22 (95%)

Presentation

April 2 - 4 📅 22 (95%)

Presentation

April 2 - 4 📅 22 (95%)

Recently Online

J Jessica Aldag
43 seconds ago 🌟

Rhana Fleming

Hi everyone and welcome back to Session 4 of the Western Sydney Energy and Resource Recovery Centre's Citizens' Panel on Air and Health.

I hope you are all well and are adjusting to the current restrictions on socialising!

Thank you again for enabling us to switch across to this digital platform to keep the conversation going.

In this session, we hope to address some of those lingering questions about air and health assessments that you've brought up in previous sessions. We have brought in Herman Huisman, a resident of the Netherlands and an expert on Energy-from-Waste facilities to give you an idea of how countries with operational facilities are affected by them.

Each presentation needs to be watched in full and responded to before you can move on to the next. A number of them have questions for you to respond to within them. With time for responses included, reviewing all of the videos should take you no more than 2 hours in total. I remind you, that your payment is linked to full participation in all activities.

I ask that you complete these activities by 10.30 on Saturday morning.

You'll then need to be online in the Zoom videoconference at 11.30am for a meeting that will last about 1.5 hours. I've sent an email to you all with the link to the Zoom videoconference.

If you have any difficulties logging in, please contact Declan on 0477 119 991.

As always, if you do have other non-related questions, we still encourage you to write them down and email them through to us.

And remember, you can always visit our project website for more information: <https://energyandresourcecentre.com.au/>

Appendix F – Final panel survey at the conclusion of Session Four

Q1. The process to assess air emissions and air quality for the EIS

Do you feel you have a basic understanding of the process to manage air and emissions in the centre?
Yes/No

Attached is a list of the items that were raised by this group for consideration by the air specialist in the studies. Does this list cover the questions and issues you have? Yes/No

Do you think the air assessment process is: Very comprehensive/Comprehensive/Missing items that are important to be considered?

If missing items, what else would you like to see considered in the assessment?

Q2. The process to assess health impacts for the EIS

Do you feel you have a basic understanding of the process to consider what the health impacts of the centre would be? Yes/No

Attached is a list of the items that were raised by this group for consideration by the health specialist in the studies. Does this health list cover the questions and issues you have? Yes/No

Do you think the health assessment process is: Very comprehensive/Comprehensive/Missing items that are important to be considered ?

If missing items, what else would you like to see considered in the investigations or studies?

Q3. This process

Do you feel like this process has been an informative for you? Yes/No. Your further comments are welcome:

Do you feel that you received the information you needed to participate meaningfully? Yes/No. Your further comments are welcome:

Did the engagement team listen to and record people's questions and concerns? Yes/No. Your further comments are welcome:

Q4. To conclude

Do you have any additional comments or questions regarding the proposal?

Do you have any additional feedback on this community engagement process?

Appendix G - Participant communications in between sessions

Participants provided feedback on their issues and questions in between the panel sessions. These comments are included below and were part of the final consideration of issues and questions raised.

Date	Questions/Feedback
19 March 2020	<p>As feedback to session 2, I remain disappointed with the presentation from Aleks and particularly his answer to the Sydney Air Basin swirl (or circular motion due to it being a basin)</p> <p>As such, I would like to be able to look at the model being used by Cleanaway that Aleks referred to, that he was involved in setting up in his government role and superceded the excellent research and model developed by Thurley et al and their research.</p> <p>If you think I should take this up with the NSW Government - just say so and I will.</p> <p>I see no justification to the changes to the modelling other than being able to manipulate the minimal number of reference sites and reinterpret the data. In no way did Aleks explain or justify the new modelling but it does explain why a lot of proposals that create poor air quality are now being approved in western Sydney</p> <p>Also, my thoughts on COVID19 and session 3 are that it will continue on March 28 as the group is less than 100. Is this correct?</p>
8 March 2020	<p>I am hitting it now while I have internet access. Firstly, thank you for presenting control and your professionalism, much welcomed and appreciated.</p> <p>Have to say this all reminds me a bit of Erin Brokovich. I think a lot has to do with our health, cover ups and accountability along with transparency that we don't trust as much. Sorry for my long all over the place email, I am running along the lines of the session.</p> <p>I am concerned with cumulative health effects, which may not be known for years to come, land degradation, water contamination. Monitoring of all this and reporting mechanisms. I know the EAP will jump, but these things are post flaw, defect, breakdown. While I want to dramatically minimise potential risk factors, before they happen.</p> <p>I do want failsafe info, I want to make sure that the mechanisms are not just basic or standard but are best practice, which has been alluded to already.</p> <p>Prospect Reservoir and Warragamba pipeline and dam are not far away. Prospect is emergency water supply, however that does not stop birds, wildlife and the environment being affected by any risk on this supply.</p> <p>The longevity of the plant is said to be 20-30 years, but what then? Sell off? knock down rebuild? Adaption? You must have a plan for this event and timeframe. Please let us know what is envisaged.</p> <p>Technological changes, do you foresee changing technology trends being adapted on the go, is this even possible once it is built?</p>

We must get better at sorting waste. PCC has the 3 bin system, but that does not mean this is effective nor correctly applied. RED BINS will still be incorrectly used and further sorting will need to be applied. How will you action this?

LONG TERM AND COPD Health effects. – I know this is upcoming, but this area has a high incidence of breathing issues, eg asthma, copd up into the Blue Mts. A great deal of this process involves chemicals at varying stages and emissions.

- I raised the issue of Lime- hydrated – this is a well known chemical process to reduce the odour from ammonia. It also has serious effects on skin, eye and breathing, along with gastro issues.
- It may increase the PH level of water supplies which will affect wildlife, live stock, plant life.
- Dust from Lime will affect respiration, so how will the safety measures apply to the before, during and post use? It can contain crystalline silica, which is a known carcinogen.
- We know diesel is an impact that being trucks driving to the facility 24 hours a day. I still question diesel use as adding to environmental impacts, and still ask about the electric vehicle side of things, energy fed to the grid could be used on electric vehicles reducing your footprint on the environment.
- What of any possible leeching?
- Can steam from the stack be utilised to generate a greater power efficiency? Heating solutions?

Who monitors the monitors?

Live data, online at anytime for residents, rather than waiting up to three months to know of any breach.

Samples have in the past been compromised – what measures are in place to protect this process?

Operator error, who says? Self reporting? People by nature avoid an error becoming known, so what is in place to protect any of this from going undercover? I think of sports sampling for drugs, in urine etc, people can be sneaky and corruption does occur. What is in place to stop this from occurring at every stage of the process?

Air quality, we are inland, not coastal. Sample data, or averaging, must be sector driven, not over like a 30km radius, or to cover the whole Sydney area. You know what I am saying? Air quality data including in all the area can dilute the real data.

Have you looked at Western Sydney UNI data research on air quality for the last 12 months? They ran a project up in the Blue Mts and Lithgow area with 12 Koala monitors set up in Springwood, Wentworth falls, Katoomba, Lithgow etc. You then have data of air quality up there, because I believe what happens down here, will affect them.

What and where are the sensors for monitoring air quality?

Will there be 24 hour monitoring, the Western Sydney Uni, I think had issues with monitors being solar and not running 24 hours a day, again diluting data, due to air temp changes over night to morning.

	<p>Restricted Matter- waste at Kemps creek, but what happens when it is full? What is the longevity of this material deposited there? Is the land then a waste zone?</p> <p>Single pass bags? Why single pads add to waste. Or do you anticipate the they can only handle a single pass due to toxicity?</p> <p>NSW data? Current data per area of capita? Cancer rates are affected by many things, smoking, alcohol, work, environment etc. Will we have current data of CPOD< SKIN, CANCER etc presented.</p> <p>Medical records data and classification of diseases depends on operator input and can miss underlying health issues. This is a complicated matter, from time living in a region to lifestyle, unknown health impacts now and after the project begins. There are no guarantees that be given, because we don't know the effects unless you pull data from Dublin or Germany, but Europe is vastly different to Australia.</p> <p>This will be built before the Airport, and you don't know the additional impacts this wil add to your air quality issues and we cannot know the increased toxic effect likely as there is nothing to measure it by yet</p> <p>Past email-</p> <ul style="list-style-type: none"> Electric vehicles – are still an improvement on diesel and this 4 trucks per hour 24 hours a day, is significant emission given air inversions, with foreseeable additions to infrastructure in the region, eg airport. All adding to significant air quality issues. I have concerns. You are feeding back to the grid for electricity, we should expect better rebates in this area. Also as you are generating electricity, doesn't it make sense you utilise this with electric vehicles. Nashville uses electric buses, running free on a circuit, hope on and off, no cost. A great service, free to the public and helps reduce noise and air quality issues. Maybe an initiative for councils to tap into, and offer free buses for some offset to the facility.
6 March 2020	<p>Thanks for the information on Western Sydney Energy and Resource Recovery Session 1.</p> <p>My Apologies, however we have had internet issues for some time, so I am late.</p> <p>Points;</p> <ul style="list-style-type: none"> Effect on Property- I believe it will impact on prices. Your facility is not the only proposal. Regardless of what else is near the site, does not mean it is right for it. Additionally, the sheer volume has to increase usage of the site, flow of traffic and has to be visible. While air quality must be impacted. You cannot add a facility like this, without impact. Red bin waste – will there still continue to be sorting, to further reduce waste and recycle> Germany- if Germany went though a process from 1990, it would be assumed you can utilise their information, or avoid their issues. 30 years is a long timeframe to get it correct, did they? Their costs, your costs- if you are drawing on their information and achievement, will this work for this site? Are you using anything gleaned from it for this process? Are you cutting costs as a result of all waste facilities studied? Also to maximise efficiency, air quality and residual waste that would make this world class and are you aiming for that? Will you be innovators or followers?

	<ul style="list-style-type: none"> • Electric vehicles – are still an improvement on diesel and this 4 trucks per hour 24 hours a day, is significant emission given air inversions, with foreseeable additions to infrastructure in the region, eg airport. All adding to significant air quality issues. I have concerns. You are feeding back to the grid for electricity, we should expect better rebates in this area. Also as you are generating electricity, doesn't it make sense you utilise this with electric vehicles. Nashville uses electric buses, running free on a circuit, hope on and off, no cost. A great service, free to the public and helps reduce noise and air quality issues. Maybe an initiative for councils to tap into, and offer free buses for some offset to the facility. • What is the actual cost envisaged per household? For us? • Is there a way the start of combustion can be changed to another method – not gas or diesel? Are these the only two methods? Can you use your electricity to do this, at a nil cost and less fossil fuel use. • Are there other areas for restricted landfill flue gas ash? Besides Kemps Creek and how long is it before it degrades are we talking like low grade nuclear waste of 300 years or less? Will it ever degrade? What is the capacity of this facility or longevity for your facility to use it. <p>I heard there were other waste sites being considered in the area and Lithgow. Why is this not mentioned?</p>
04 March 2020	<p>Sorry I did not get back to you earlier as promised regarding additional questions, but I've been somewhat occupied, however these are some of the additional questions I have regarding the proposal and the incineration of waste:</p> <ol style="list-style-type: none"> 1. It was stated in Session 1 that 75% of waste would be diverted from landfill, so where will this 75% go? A tonne of waste will still be a tonne of waste; it can go into the ground, into the atmosphere etc. but it will still be a tonne. 2. Why not increase/improve recycling – the more incinerating of the waste the less need for recycling or improving recycling technology. The more incineration of waste, the less need to improve and increase recycling and the more atmospheric pollution generated. 3. What happens to volatile organics, volatile heavy metals and organometallic compounds? 4. What chemicals/compounds, both organic and inorganic, being emitted from the flue are going to be monitored? 5. What method is going to be used to monitor the flue gasses coming from the stacks and how often are the stack effluents going to be monitored? 6. How efficient is activated carbon in removing toxic organic, volatile metals, organometallics etc?. How will the effectiveness of the activated carbon be checked and monitored? 7. The UK has been trying to have the EU lower its air quality standards as the incinerators are not able to meet the EU air quality standards. <p>Also I refer you to the following articles:</p>

	<p>https://www.theguardian.com/environment/2019/jan/14/uk-failed-to-enforce-eu-air-quality-standards-what-will-happen-after-brexit</p> <p>Environment and Sustainability Waste to Energy</p> <p>http://journals.sagepub.com/doi/abs/10.1177/0734242X0202000107</p> <p>http://theconversation.com/garbage-in-garbage-out-incinerating-trash-is-not-an-effective-way-to-protect-the-climate-or-reduce-waste-84182</p>
28 February 2020	<p>I think the summary captured the main questions and I look forward to the next session where more will be answered. In relation to disease analysis, there was mention of cancer rates, maybe COPD could also be evaluated. It would also be nice to know how NSW Health's view stands on this matter. Also, I received a petition from the offices of Chris Bowen MP, saying to stop the Western Sydney Incinerator again!, I'm sure there is another name for the facility.</p> <p>I'm happy with bringing Geordie and Brian in for their valued opinion and have noted there impressive CV's. Look forward to the next session.</p>
28 February 2020	<p>Our Group would suggest Professor Lidia Morawska as our independent expert https://staff.qut.edu.au/staff/l.morawska</p> <p>Lidia Morawska is a Professor in the School of Earth and Atmospheric Sciences, Faculty of Science & Engineering, Queensland University of Technology (QUT) in Brisbane, Australia, the Director of the International Laboratory for Air Quality and Health (ILAQH) at QUT, which is a WHO Collaborating Centre on Air Quality and Health, and a Co-Director in Australia for the , Australia – China Centre for Air Quality Science and Management (ACC – AQSM). She conducts fundamental and applied research in the interdisciplinary field of air quality and its impact on human health and the environment, with a specific focus on science of airborne particulate matter. Professor Morawska is a physicist and received her doctorate at the Jagiellonian University, Krakow, Poland for research on radon and its progeny. Prior to joining QUT she spent several years in Canada conducting research first at McMaster University in Hamilton as a Fellow of the International Atomic Energy Agency, and later at the University of Toronto. Professor Morawska is an author of over six hundred journal papers, book chapters and conference papers. She has also been involved at the executive level with a number of relevant national and international professional bodies and has been acting as an advisor to the World Health Organization.</p> <p>Also due to family commitments I will be in Melbourne and am unable to attend the next session, but would like to send another member of our group.</p>
19 February 2020	<p>Team Cleanaway,</p> <p>Thank you for the detailed forum on the incinerator. I appreciate your engagement and hope I did not over do the asking.</p> <p>Moving forward, I previously asked the NSW EPA about air quality standards and their response is below along with my reply and concerns about the level of toxics monitoring in NSW particularly for a stage 2 site which I would consider the Cleanaway site to be.</p>

As such, my request to the forums is for the toxics mentioned below to have baseline monitoring done before any construction and would be putting in my response to the EIS for this to be done and for this to be a regulation managed by NSW EPA (by whatever name) and the cumulative effects of 2 x incinerators in Eastern Creek and an airport be considered in the effects of the development.

Finally, other feedback I received said they want more monitoring in their area, particularly the western side of the Eastern Creek industrial estate.

As well as understanding where exactly the monitoring station is in Prospect (although I imagine it in the hollow around the reservoir somewhere)

I would appreciate if these concerns were shared with Aleks and he could respond at the next forum.

Appendix H - WSERRC project team specialist CVs

Aleks Todoroski

Aleks Todoroski

Aleks has a degree in mechanical engineering and 28 years' experience in air quality both in consulting and in government.

- He worked for 10 years at NSW EPA including roles as the principal technical policy adviser and assessments manager in the Air Policy section. In the private sector, Aleks was Principal Australasia for a large environmental consultancy. He has been the Director of Todoroski Air Sciences since 2011.
- Aleks has conducted hundreds of major impact assessments, modelling, monitoring and impact mitigation projects related to air quality in Australia and overseas, and was directly involved in the approval of many state significant projects in NSW and in the development of significant air policy and guidance, most of which are still current.
- He represented NSW EPA and other overseas EPA's and authorities as an expert in prosecutions, inquiries and other legal processes, including a case resulting in the highest penalty for an environmental offence in Australia (at the time). He has advised State, Federal and Territory ministers on air quality.
- Aleks was the independent industry representative on the National Environment Protection Council's (NEPC) Peer Review Committee for implementation of the state monitoring plans under the National Environment Protection Measures (NEPM).

Therese Manning

Human Health Risk assessment

Therese Manning, Enrisks

- Therese is a Principal at Enrisks with more than 25 years' experience in human health and ecological risk assessment in Australia.
- She has worked in the area of analytical and environmental chemistry since 1987.
- She holds a Bachelor of Science (Honours) and a Masters in Applied Science (Environmental Toxicology). She is registered as a Fellow with the Australasian College of Toxicology and Risk Assessment (ACTRA).
- Therese worked for the NSW EPA for more than 20 years and almost 10 years as a consultant undertaking human health and ecological risk assessments.
- Therese has expertise in the areas of toxicology and ecotoxicology, regulation and technical policy development in chemicals management and contamination, risk assessment approaches, assessment of the fate, transport and toxicology of persistent organic pollutants and endocrine disrupting chemicals.
- She has provided advice to the NSW EPA and NSW Planning in regard to PFAS contamination and a previous proposal for an energy-from-waste plant in the Sydney airshed
- She was awarded the Public Service Medal in 2011 for her work at NSW EPA including regulation of risk and remediation at contaminated sites like Homebush Bay/Rhodes and Orica Botany

Environmental Risk Sciences Pty Ltd (enRiskS) is a dedicated toxicology / risk assessment consulting company in Australia. We have a long-standing track record in providing cost-effective human health and environmental toxicology and risk assessment services to identify the most appropriate approaches for sound environmental decision making. Staff from enRiskS are the primary authors of many national guidance documents for contaminated land management generally as well as the impacts of illegal drug manufacture and use on houses and apartments. We undertake work for commercial clients, government agencies, professional bodies and also undertake research and training.

Appendix I - Independent expert CVs

Herman Huisman

Herman Huisman, Senior advisor/expert and coordinator international projects with Rijkswaterstaat.

- Herman Huisman is senior advisor/expert and coordinator international projects of RWS Environment's department.
- The waste management department is the competent authority responsible for monitoring of all waste streams, executing subsidy schemes, policy advisor for State Government (preparing policy documents and National programs), implementing waste management and circular economy policies and providing information to local government and private companies.
- An environmental biologist by training, Herman began his career at the Scientific Council for Government Policy, a think tank of the Prime Minister in the Netherlands. After seven years he was assigned to build up the Commission on Environmental Impact Assessment.
- In 1991 he was asked to set up the Bureau of the Waste Management Council which served as a political platform for consultation and coordination between the National, Provincial and Municipal authorities on waste management in the Netherlands. In 2001 he was appointed as the executive secretary of the Council and managing director of the Bureau.
- In 2005 the Bureau merged with NL Agency, an Agency of the Ministry of Economic Affairs. In 2013 the Environment Division of NL Agency was transferred to RWS, an Agency of the Ministry of Infrastructure and Environment.
- In his position of international coordinator he is/was involved and set up projects in a.o. Brazil, Bulgaria, Canada, China, Colombia, Czech Republic, Hong Kong, India, Iran, Jordan, Macedonia, Morocco, Myanmar, Poland, Romania, Tanzania, Turkey, Saudi Arabia, Serbia, South Africa, Uganda, Ukraine, USA and UAE, and was invited as speaker to many International Conferences.

Geordie Galvin



Geordie Galvin

B.Eng (Env Eng) M. Eng (Env) A. AirQual MIEAust
 Director/Principal Environmental Engineer

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Areas of Expertise

- ☐ Air Quality Impact Assessment
- ☐ Air Quality Sampling and Analysis
- ☐ Odour sampling, assessment and Mitigation
- ☐ Meteorology
- ☐ Environmental Management
- ☐ Expert Witness.

Qualifications and Affiliations

- ☐ Bachelor of Engineering (Environmental), Griffith University, 1997
- ☐ Master of Engineering (Environmental), University of Southern Queensland, 2006
- ☐ Member, Institute of Engineers, Australia (MIEAust)
- ☐ Accredited Air Quality Professional – CASANZ (A. AirQual.) – Number 11
- ☐ Member Clean Air Society of Australia & New Zealand and Chair of the Odour Special Interest Group
- ☐ Member Engineer, American Society of Agricultural and Biological Engineers

Professional Experience

Geordie has 20 years' experience in air quality and was awarded Accredited Air Quality Professional status by the Clean Air Society of Australia and New Zealand in 2012.

He has completed numerous studies including projects involving landfills, hydrogenation plants, ethanol plants, boat repair and manufacturing operations, refineries, chicken farms, piggeries, cattle feedlots, rendering plants and wastewater treatment plants. He has consulted to state local government agencies throughout Australia and collaborated with universities in the United States including the University of Nebraska at Lincoln and West Texas A & M. Geordie has also given

Professor Brian Priestly

JANUARY 2020

CURRICULUM VITAE

PERSONAL DETAILS:

Full Name: Professor Brian Gregory PRIESTLY

Current appointments: Adjunct Professor, Department of Epidemiology & Preventive Medicine, School of Public Health & Preventive Medicine, Monash University, Vic 3004

Principal, Priestly Toxicology Consulting (private consultancy)

Ph: (08) 8431 7042 (home landline)
 Mobile: 0413 607 285
 Email: brian.priestly@monash.edu or brianpriestly8@gmail.com

DEGREES AND DIPLOMAS:

1963 B. Pharm – Sydney University.

1965 M.Pharm – Sydney University

1968 PhD – Sydney University

PAST APPOINTMENTS:

1964-67 Teaching Fellow (Demonstrator) Pharmacy School, University of Sydney

1968 Research Associate, Department of Pharmacology, University of Iowa

1968-70 Canadian MRC Postdoctoral Fellow, Department of Pharmacology, University of Montreal

1970-80 Lecturer/Sen. Lecturer, Dept. of Human Physiology and Pharmacology, University of Adelaide

1975-76 Professeur invite, Department of Pharmacology, University of Montreal,

1980 -92 Senior Lecturer, Dept. of Clinical and Experimental Pharmacology, University of Adelaide

1992-95 Senior Principal Research Scientist, (SPRS), & Scientific Director, Chemicals Safety Unit, Commonwealth Dept of Community Services & Health

1995-96 Scientific Director, (SPRS) Environmental Health & Safety Unit, Commonwealth Dept. Human Services & Health

1996-2001 Scientific Director, (SPRS) Chemicals & Non-Prescription Medicines Branch, Therapeutic Goods Administration, Commonwealth Dept. Health & Aged Care

2001-03 Director (SPRS), Laboratories Branch, Therapeutic Goods Administration (TGA), Commonwealth Dept. of Health & Ageing

2011-16 SPRS, Office of Chemical Safety (OCS), Department of Health (DoH), limited term, casual.

2004-18. Director, Australian Centre for Human Health Risk Assessment (ACHRA), School of Public Health & Preventive Medicine, Monash University