FREQUENTLY ASKED QUESTIONS

COMMUNITY Q + A

CLEANAWAY WESTERN SYDNEY ENERGY AND RESOURCE RECOVERY CENTRE

STATUS DATE: 31 OCTOBER 2019

This document contains answers to some early questions we believe people may ask about the proposal. As part of our community engagement, and we are committed to answering all of the community's questions.

These questions are grouped under several headings:

If your question is not here – please ask by contacting us at:

Ph: 1800 97 37 72

Email: energyandresourcecentre@cleanaway.com.au

Or on the website: www.energyandresourcecentre.com.au

Section 1 The proposal	
1. **What is proposed?**	An energy-from-waste Centre is proposed by Cleanaway and Macquarie Capital. Cleanaway is Australia's leading total waste management, industrial and environmental services company and Macquarie Capital is a specialist developer, sponsor and investor, with a mission to accelerate the transition to a greener global economy. We are committed to engaging with Western Sydney councils and offering them a more environmentally and economically sustainable alternative for dealing with the household and business red bin waste that would otherwise end up in landfill. Importantly, the size of the proposed facility would be sufficient to process approximately one third of the waste from western Sydney currently going to landfill. Subject to the take-up by western Sydney councils, the centre may accept waste from other local council areas. The Centre would operate in accordance with the NSW Government requirements and include an education and visitor centre. The electricity generated is fed into the electricity grid and used in our homes, businesses, and places such as schools. Leading cities around the world use modern waste management centres such as this to recover energy-from-waste to generate electricity. The Energy and Resource Recovery Centre would put Western Sydney on the map as world-leading, by creating energy from waste that is otherwise destined for landfill and helping solve our landfill space problem.
2. Is it safe?	Cleanaway's energy-from-waste proposal is safe and based on proven technology that is used widely across the globe, including some of the world's cleanest and most beautiful cities such as Dublin, Leeds, Oslo, Malmo, Paris and Copenhagen. Energy-from-waste technology has been improved over several decades and approximately half the centre's footprint is devoted to cleaning the emissions ensuring the best possible environmental and health outcomes. There are approximately 500 similar centres in Europe. They are also common in Japan, USA and Singapore.

	New facilities are underway in various cities including Dubai, Abu Dhabi, Mexico City and various cities in China. Because the technology and its safety is proven, facilities are being built in city centres, urban areas, as well as in regional areas. Case studies can be found on the website at www.energyandresourcecentre.com.au.
3. Does the proposal remove the need for recycling?	No. Cleanaway encourages Australians to continue to recycle. Australia's recycling rates are behind some countries that also have energy-from-waste centres. For example, 60% of waste in Germany is recycled, with the remaining 40% being processed using energy-from-waste technology. As the proposed Centre will only be accepting residual, non-recyclable waste, we do not expect any negative impact on recycling rates.
4. What is your track record in building these facilities – how many have you built?	Macquarie Capital is a specialist developer, sponsor and investor, with a mission to accelerate the transition to a greener global economy. With more than 350 dedicated green energy professionals, Macquarie Capital has invested in over 30 waste and biomass projects globally – from small scale anaerobic digestion plants to large scale energy-from-waste facilities, including Australia's first thermal waste-to-energy project, Avertas Energy in Western Australia. The ideas, capital and expertise of Macquarie Capital are powering green opportunities across Australia and around the world. Cleanaway is Australia's largest waste manager and generators of energy-from-waste. Each project reduces our reliance on fossil fuels. There are different ways to generate energy-from-waste. Cleanaway is already operating gas capture systems that use methane from decomposing waste at its landfill sites, to generate approximately 135,000 MWh of renewable energy per annum. This is the equivalent of powering 29,000 homes. In Camellia NSW, Cleanaway operates an anaerobic digestion facility that recycles organic waste to produce 9,297 MWh of renewable electricity each year, enough to power 3,600 households. Cleanaway co-owns (with ResourceCo), and operates, the only Process Engineered Fuel manufacturing plant in NSW. The Wetherill Park facility converts up to 250,000 tonnes each year of commercial and industrial

	waste into a fuel for that is used as a substitute for coal and gas in cement kilns.
5. What are the impacts of this technology on the environment?	The Centre will result in a net reduction in climate change gases that contribute to the heating of our planet. These savings are sizeable. If the Centre processes 500,000 tonnes per annum of waste, it will remove the equivalent of up to 450,000 tonnes of carbon dioxide (CO_2e) each year. This is the same as taking approximately 100,000 cars off the road. Cleanaway's energy-from-waste proposal is based on safe, proven technology that is used widely across the globe, including in the centre of some of the world's cleanest and most beautiful cities such as Dublin, Oslo, Malmo and Copenhagen. There are approximately 500 facilities across Europe using the same technology as we are proposing. See www.energyandresourcecentre.com.au for information on similar facilities used overseas.
6. What sort of waste would be processed at the Energy and Resource Recovery Centre?	Cleanaway is committed to engaging with Western Sydney councils and offering them a more environmentally and economically sustainable alternative for dealing with the household and business red bin waste that would otherwise end up in landfill. Cleanaway would source waste contracts from Western Sydney Councils and businesses. The centre is sized to primarily process red bin waste from surrounding Councils and businesses and is able to deliver a lower cost, environmentally beneficial alternative to landfill. Red bin cannot be recycled and is currently sent to landfill. The sorts of things that people put in their red bin are plastic toys, packaging and packing materials, old games, nappies, tissues and sanitary items, torn clothes, bits of wood and unwanted kitchen utensils.
7. What is the physical size of the Energy and Resource Recovery Centre? How big is it?	The Centre is proposed on a site that is 8 hectares. This will provide enough room to build the Centre, administration buildings and visitor centre. Overall the main building is expected to be about 200 metres long, 60 metres wide and 50 metres tall. The centre's stack would be built to a height of about 75 metres.

	The energy centre is designed to process up to 500,000 tonnes of waste that cannot be recycled each year. This would equate to managing about one third of Western Sydney households and business residual waste.

Section 2 Waste in Sydney	
8. How much waste is produced in Western Sydney and where does it go?	By 2020, Western Sydney will have over 1.62 million tonnes of waste going to landfill each year. This is the same as 2,400 Olympic-sized swimming pools each year! While we are recycling, more people and new developments mean we are generating more waste. Experts estimate an additional one million people will move into Western Sydney between now and 2030 (Metropolitan Strategy for Sydney 2031 - A Plan for Growing Sydney). Approximately 54% of Western Sydney's household waste is currently recycled. The remainder is sent to landfill (Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2017-2021) Each year, the majority of Sydney's household red bin waste goes to two landfills, Lucas Heights and Goulburn.
9. Are our landfills filling up?	Yes, according to the National Waste and Recycling Industry Council, our landfills are filling up. By 2020 it is estimated that 1.62 million tonnes of waste will be generated each year from Western Sydney. This means we need new solutions to meet Sydney's growing waste management needs (National Waste Report 2018 prepared for the Department of Environment and Energy). According to the National Waste Report 2018, approximately 9 % of Australia's municipal solid waste is used to recover energy.
10. Would Cleanaway take waste from other areas?	Cleanaway is committed to engaging with Western Sydney councils and offering them a more environmentally and economically sustainable alternative for dealing with the household and business red bin waste that would otherwise end up in landfill. Importantly, the size of the proposed Centre would be sufficient to process approximately one third of the waste from Western Sydney currently going to landfill. Subject to the take-up by Western Sydney councils, the Centre may accept waste from other local council areas.

Section 3 Technology	
11. How does this technology work?	The technology is called a 'moving grate system'. Waste is combusted in a furnace at more than 850°C. The heat generated produces steam, which then turns a turbine and creates electricity. Following combustion, approximately 20% of the original weight remains as bottom ash. Metals are then screened out of the bottom ash and recycled. The bottom ash can then be reused, for example, as a construction material. Our aim is to reduce the volume of waste going to landfill by up to 95%. Gases are produced and the emissions are cleaned (called scrubbing). Approximately half the Centre footprint is devoted to environmental control systems that clean the emissions. As a result, 99.9% of the volume leaving the stacks are gases common to air, including oxygen, hydrogen, nitrogen and water vapour, which quickly disperse. What you may see coming out of the stack is steam and primarily components of normal air.
12. Where does the ash go?	The volume of waste is substantially reduced during combustion. Approximately 20% of the original weight remains as bottom ash at the end of combustion. Bottom ash contains the non-combustible elements in the waste including metals, glass and ceramics. • Metals would be removed from the bottom ash to be recycled and reused as scrap metal. • The bottom ash, once matured and processed, is suitable for use in construction. This ash can replace materials such as crushed gravel and limestone in applications such as road fill. Cleanaway is currently investigating the possibility of reusing this ash as road base. The other residues from the process make up less than 5% of the total waste. This residue is a combination of the extracted pollutants such as dioxins and heavy metals and the materials used in the air cleaning process.

	These ash residues are stabilised and neutralised before being safely landfilled. We are still investigating technology and treatment methodologies that would allow this ash to be reused in construction. If we can do that - the Centre would achieve approximately 100% of the waste being diverted from landfill.
Section 4, Overseas examples	
13. Do any of the world's 10 most liveable cities have an energy-from-waste facility?	Yes. *The Economist's* annual survey, list the world's most liveable places below. Seven of the top 10 cities currently have operational energy-from-waste centres, all located overseas. The remaining three cities which do not are Australian cities.

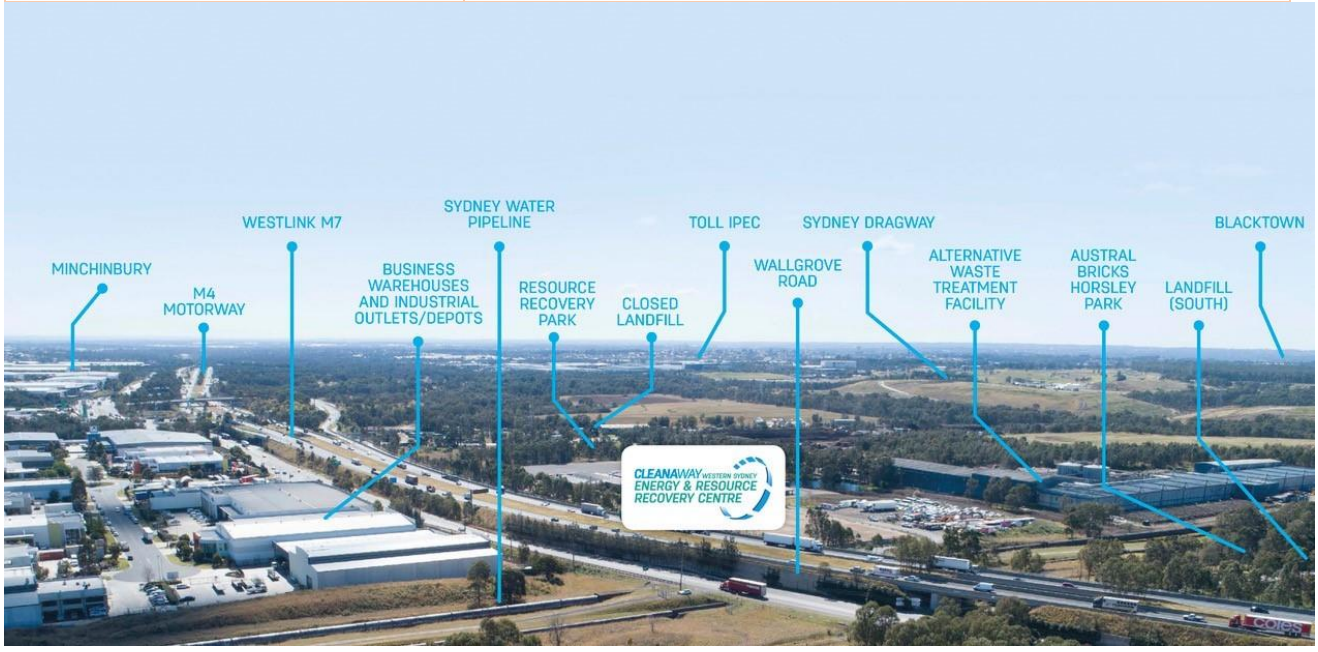
Rank	City	Energy from Waste?
1	Vienna, AUSTRIA	Yes (Spittelau)
2	Melbourne, AUSTRALIA	No
3	Sydney, AUSTRALIA	No
4	Osaka, JAPAN	Yes (Maishima)
5	Calgary, CANADA	Yes (Aldersyde)
6	Vancouver, CANADA	Yes (Metro)
7	Toronto, CANADA	Yes (U-Pak)
8	Tokyo, JAPAN	Yes (21+ plants)
9	Copenhagen, DENMARK	Yes (Amager Bakke)
10	Adelaide, AUSTRALIA	No

14. Are energy-from-waste plants being shut down overseas?	Some plants are closing in Europe and America as a normal process of retiring plants that have reached the end of their life. Closed plants are generally older models and using outdated technology. New plants are being constructed in many countries, including China, England and Sweden. Elsewhere, existing facilities are being expanded to increase capacity or upgraded to improve their performance and extend their operational life.
Section 5, Visual appearance	

15. What would the building look like and would any care be taken to ensure it is not a blot on the landscape?	Quality of design is important to us. There are examples of architecturally designed energy-from-waste facilities that have become local landmarks. Many centres also accommodate public visits by providing educational tours for schools and interested people, or having educational or community facilities located onsite.  IMAGE 1: WASTE-TO-ENERGY PLANT IN LAKESIDE, ENGLAND  IMAGE 2: WASTE-TO-ENERGY PLANT IN COPENHAGEN, DENMARK

	 IMAGE 3: LEEDS ENERGY-FROM-WASTE, ENGLAND See our website at www.energyandresourcecentre.com.au for other case studies on similar centres around the world.
Section 6, The location	
16. Why was this site selected?	Over a 12-month period, over 400 industrial sites were identified in the Sydney area. We settled on this site at Wallgrove Road next to the M7 Motorway as the best location for the community and the project for the following reasons: 1. The site is situated in an existing industrialised area 2. It is close to major roads, the M7 Motorway and the M4 Motorway – reducing the impact on local roads and traffic 3. The immediate location is industrial with residential areas over 1 kilometre away 4. It is a local solution for local red bin waste 5. It is located on land where energy-from-waste development is permissible under State law. Our case studies on the website show that modern waste centres can be located in populated close to residential areas, which is quite common in Europe and the UK. However, recognising that this is new technology for NSW, we felt that we would seek a larger buffer area to nearby residences. Additional infrastructure costs such as water and high voltage electricity lines are also important when selecting a site. The site is in close proximity to this infrastructure.

17. How close is the proposed Wallgrove Road site to housing?	The nearest residences are approximately 1 km from the site, on Wallgrove Road. No site in wider Sydney completely avoids all community facilities, and this is the same with facilities across the world. However, one of the reasons this site was chosen is because it has a larger distance to houses, than other sites we investigated. The Centre will be completely safe. Similar centres overseas are located in very close proximity to domestic residents and these facilities operate safely and have shown to have no measurable impact on air quality around them.
18. Who are the neighbours to the property?	There are several different facilities in the area shown on the image below.



19. Why are you building this in Western Sydney? Why can't we build it outside of Sydney?	Transporting waste long distances is impractical and not sustainable. Waste needs to be managed in a way that is: - environmentally sustainable, - economically makes sense, and, - socially sustainable.

	Reducing the vehicle kilometres travelled transporting waste and saving on greenhouse emissions, NOx and particles from vehicle exhausts wherever possible is environmentally important. As our cities grow, it is recognised that providing local solutions for all our essential services enable communities that are sustainable and have access to reliable services essential to their liveability and prosperity.

Section 7, Air	
20. Will emissions from the centre be safe?	Yes. The emissions leaving the Centre would be cleaned using world's best technology. Preliminary air quality studies have been conducted. These studies show that we will comply with the toughest newest air quality standards from Europe. These air quality standards are stricter than the current NSW standards. Detailed air quality studies and modelling will be completed as part of the Environmental Impact Statement (EIS). The EIS will be available soon to help our community discussions. The NSW Energy from Waste Policy statement requires air quality emissions to be below levels that may pose a risk of harm to the community. Facilities proposing to recover energy-from-waste need to meet current international best practice techniques, particularly with respect to: • process design and control, • emission control equipment design and control, and, • emission monitoring with real-time feedback to the controls of the process.
21. Where are the existing air quality monitors?	There are at least four permanent local air quality monitoring stations within seven kilometres of the site. We will collect air data near to the project site. As a result, we will have a clear understanding of the existing air quality, including seasonal variations.

22. Would this information be shared publicly with the community?	Yes. There are NSW Government air quality monitors located all over Sydney. These monitors collect air quality data which is publicly available to everyone here: https://www.environment.nsw.gov.au/topics/air/monitoring-air-quality/sydney/monitoring-stations The closest NSW Government air quality monitors to the site are located in Prospect, St Marys, Bringelly and Liverpool. Any air quality data we gather will be published in the EIS.
23. How would air emissions be monitored when the centre is operating?	Cleanaway would monitor in the stack continuously, to ensure the emissions are cleaned to the highest standards. As part of meeting our commitment to safety and community transparency, we would regularly post the measured air quality data to the project website.

Section 8, Costs, jobs, construction	
24. What would the project cost to build?	The Centre is expected to cost approximately $500 million (as of 2019).
25. Are there any costs to taxpayers?	No. The project would be funded by investment from the private sector. Our waste contracts would be with councils, who in turn are funded by council ratepayers. One of the aims of the project is to reduce the cost of waste treatment and disposal.
26. When would construction start?	The project is still a proposal. If approved in 2020, construction would commence in 2021, and some 800 jobs would be created during construction.
27. When would it start operating?	Construction would take approximately 36 months. Testing and commissioning would take 6 months before operations can commence. Some 50 full-time local, high skilled operational jobs would be created to run the Centre.
28. When do you turn it off?	Energy-from-waste plants operate continually throughout the year to ensure a consistent supply of power to the electrical grid. Planned

	maintenance shutdowns will occur each year to ensure the plant's reliability and safety. The Centre will operate safely at all times.
Section 9, Energy	
29. How much energy would this facility produce each day, week and each year?	The amount of energy generated depends on the amount of waste handled at the Centre. The proposal can process up to 500,000 tonnes of material per year, which would produce approximately 45 MW of baseload power. This is enough electricity to power over 65,000 homes.
30. What are the benefits to the local community?	The energy would create electricity and be fed into the electricity grid. Household and business rates for waste management are issued by local councils. One of the aims of the project is to reduce the cost of waste treatment and disposal. Energy-from-waste technology will allow us to deliver a lower cost, environmentally beneficial alternative to landfill. Cleanaway is considering a range of community investment options, to ensure the local community benefits first from the project.
Section 10, Planning approvals	
31. What is the process for gaining approval for this project?	The project would be considered by the NSW Government as a State Significant Development. This process involves the preparation and submission of an EIS to the NSW Government, to support a Development Application. The EIS is displayed for approximately one month. The community is invited to make submissions during this period. We expect the following studies to be prepared. • Waste management • Air quality • Human health • Noise and vibration • Soil and contaminated land • Water resources and demand • Traffic and transport • Hazard and risk

	• Biodiversity • Landscape character and visual amenity • Greenhouse gas and climate change • Heritage • Aviation These studies will be published on the website and be communicated to residents. They will form the basis of the EIS.
32. Who is the consent authority?	Once the EIS exhibition process is finished, the project may be referred to the Independent Planning Commission (IPC). The Commission's process includes community consultation. A report is prepared that responds to all community and agency comments. The IPC reviews the project and makes a determination.

Section 11, Community engagement and investment	
33. How can I get involved? Who can I talk to?	We have a telephone information line: 1800 97 37 72 Email: energyandresourcecentre@cleanaway.com.au Website: www.energyandresourcecentre.com.au for you to visit, find information, submit your questions and concerns and register for updates.
34. What community activities are planned?	There will be different ways for the community to interact and discuss the Energy and Resource Recovery Centre, including the website updates, displays in local shopping centres and community meetings. Community information stands will be held in various locations in Western Sydney. The locations will be placed on our website. We must consult the public, specialist interest groups, government agencies and other stakeholders in carrying out the environmental assessment. We need to demonstrate how these issues are being considered in the project's design. Cleanaway intends to go beyond the legal requirements for consultation. We genuinely want to establish transparent and open communications with the community. We would like to collaborate with community members throughout the assessment process. We

	need to understand community concerns and describe how we will mitigate impacts. The EIS will be publicly displayed, which provides a way for people to provide comments and questions about the project and the information. Cleanaway will be required to respond to these questions by providing new information or clarifications. Finally, there may also be public hearings organised as part of the Independent Planning Commission process.
35. How will Cleanaway invest in the local community?	Support for our communities goes beyond education and awareness. We work with you to invest in our communities, listen to your needs, and to consider how to improve local sustainability. Cleanaway has set up community reference groups, offered grant programs and commitment investments into their existing sites and surrounding communities to promote and support a more sustainable and collaborative future for our communities. Our community investment framework for this project is being considered now and we welcome your input to help shape this.