CLEANAWAY

Making a sustainable future possible

FY21 Cleanaway Investor Series

Energy from Waste

Presenters:
Vik Bansal – CEO and Managing Director
Frank Lintvelt – EGM, Strategy and M&A
James Pearce – Project Director, Energy from Waste

30 November 2020

ASX: CWY

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Agenda

Snapshot of Cleanaway

Australia's leading total waste management, industrial, environmental and health services company.

Vertically integrated from collection, to resource and energy recovery, to waste treatment and landfill.

ASX100 listed with a $4.9 billion market capitalisation.

6,000+
Employees

5,300+
Vehicles

250+
Sites Australia wide

125+
Prized infrastructure assets

134mkWh
Renewable energy generated

ASX100
Listed company

100+
Municipal Councils

140,000+
Commercial & Industrial customers

~10,000
Medical waste customers

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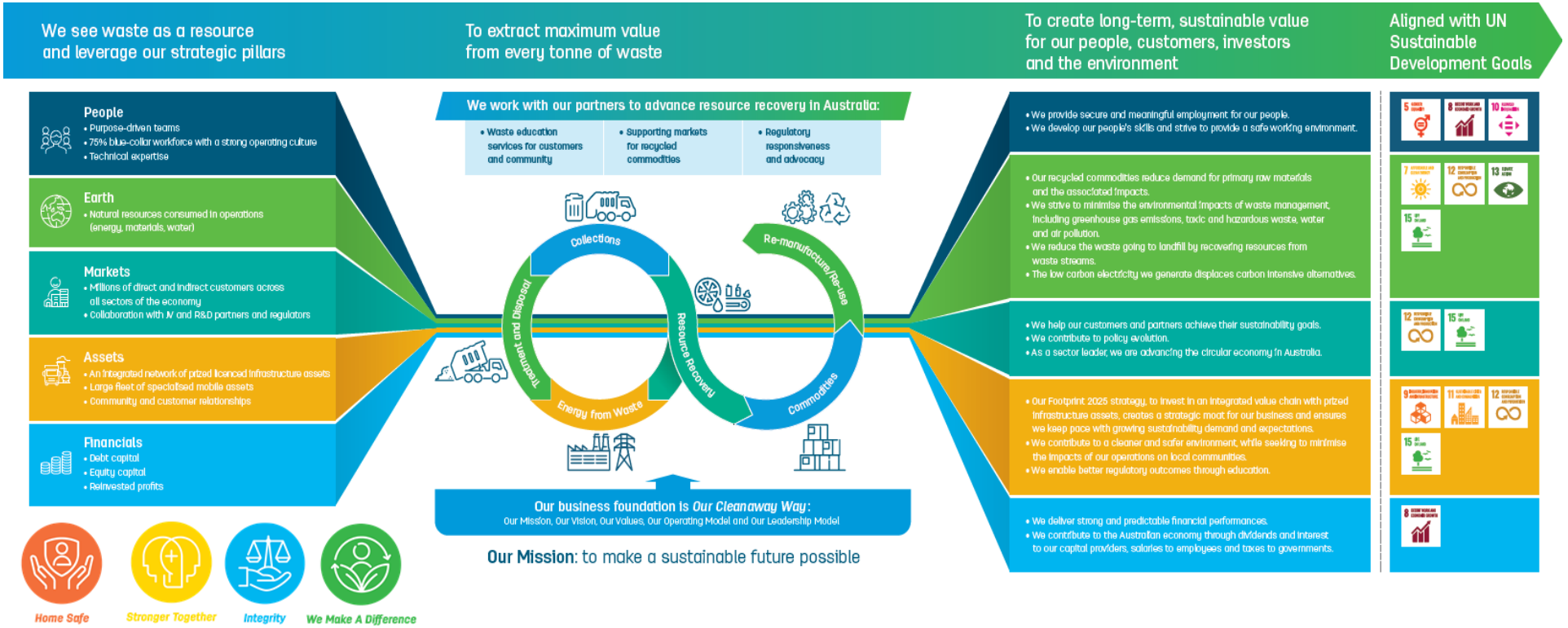
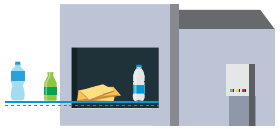
Cleanaway's Value Creation Story

- Our Value Creation Story is based on our strategic pillars of **People**, **Earth**, **Markets**, **Assets** and **Financials.**
- Focus on strategic pillars are transformed through our business activities, applying ***Our Cleanaway Way***, to create outcomes for our stakeholders.
- Foundation of our Value creation story is our mission statement ***: "making sustainable future possible for all".***
- Outcomes are aligned to UN Sustainable Goals and enables a future world of circular economy.



Delivering Footprint 2025 – Acquisitions and Greenfield to continue



Collections

Statewide Collections
- ✓ 1 x Transfer station
- ✓ Regional Victoria Collections

NSW C&D Acquisition
- ✓ Grasshopper

Resource recovery
- ✓ Perth MRF*
- ✓ 2 x WA transfer stations
- ✓ SE Melbourne transfer station
- ✓ QLD Transfer station
- ✓ VIC organics resource recovery
- ✓ QLD Paper recycling facility
- ✓ NSW CDS sorting line
- ✓ Western Sydney transfer station and resource recovery
- ✓ ResourceCo PEF facility

Plastic pelletising

NSW/Vic Glass beneficiation

Western Sydney MRF

Energy from Waste
- ✓ Doubled electricity generation at Melbourne facility

Western Sydney Energy from Waste facility

Potential Brisbane and Melbourne Energy from Waste facilities

Treatment and Disposal
- ✓ Planning permit for Melbourne Landfill until 2046
- ✓ Height rise extension approval for Adelaide landfill
- ✓ VIC organic waste treatment facility

VIC Regional Landfill

Height extension in QLD & New Landfill

Extension of Erskine Park Landfill

NSW Medical Autoclave

✓ **ToxFree (May 2018) - Significant acquisition of prized assets across the value chain**

SKM (Nov 2019)
- ✓ 3 x Material recycling facilities
- ✓ 2 x Transfer stations

✓ **Personal Sharp containers and insourcing manufacturing of Sharp Smart containers rom China to Sydney**

Greenfield delivered

Greenfield WIP

Acquisition and Integration WIP or completed

Acquisition and Greenfield to align with strategy

* Under construction

Energy from Waste Project Rationale

CLEANAWAY WESTERN SYDNEY ENERGY & RESOURCE RECOVERY CENTRE

Resource Recovery

- EfW is a key element in NSW meeting its **resource recovery and landfill diversion targets**
- **Superior environmental outcome** to landfill – higher in the waste hierarchy

Need

- >2 million tonnes of waste from Sydney is currently sent to landfills
- These **landfills are filling up** and are the least preferred method for disposal

Environment

- **~390,000 tonnes of CO_2e avoided**, equivalent to ~79,000 cars off the road
- **Low emissions** - equivalent to 4 semi trailers travelling on the M7 + reduced transport of waste over long distances

Investment & Local Jobs

- $700m investment for the project and the surrounding communities
- **~900 direct jobs and 1,200 indirect jobs** during 3-year construction of the facility with a further 100 construction roles for related developments
- **50 ongoing new highly skilled jobs at the facility**, >100 jobs to service facility

Savings

- **EfW in NSW is cheaper** than landfills for residual waste
- Potential for **attractive savings** for councils, residents and the local business community

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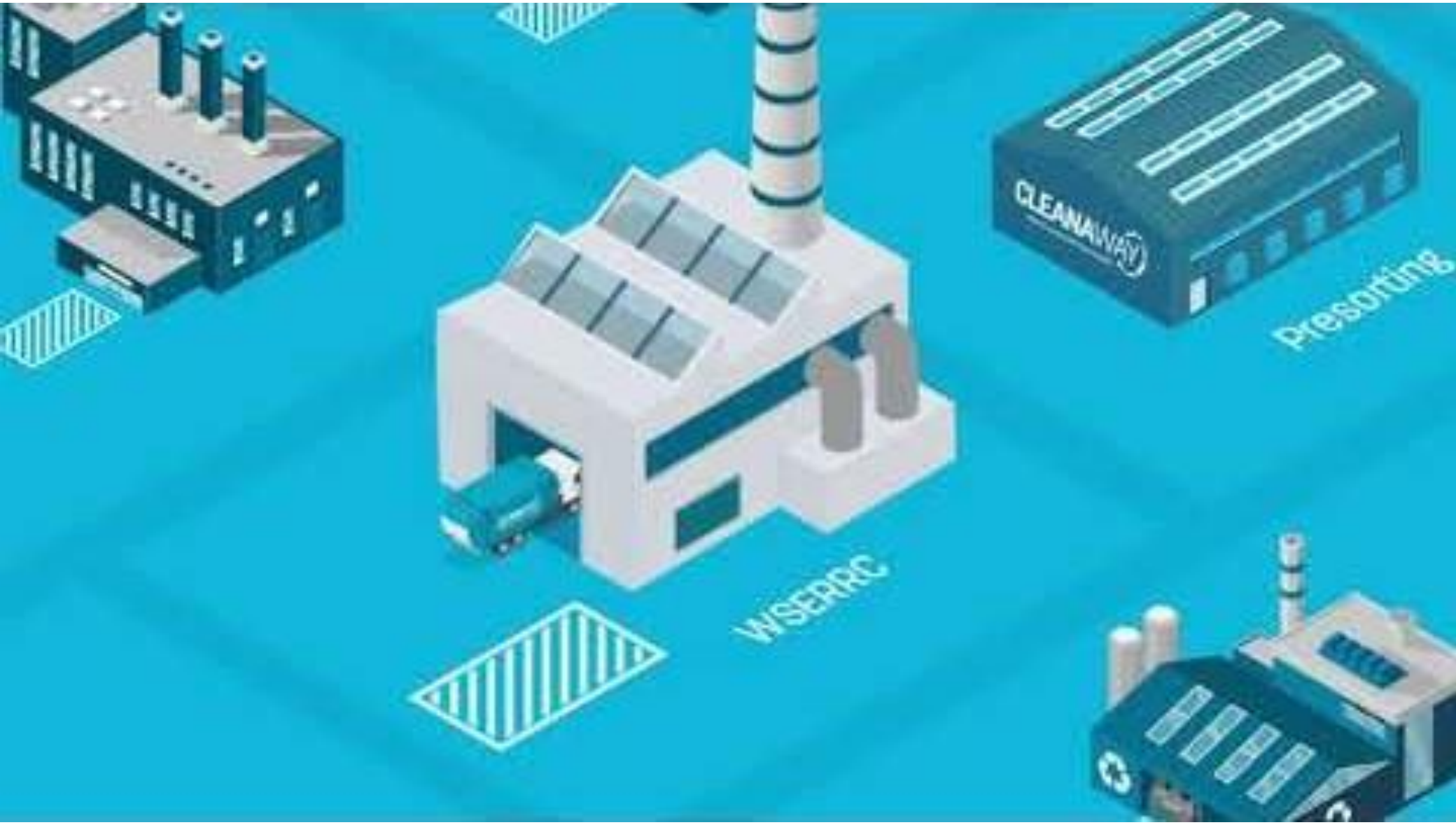


WSERRC animation: https://www.youtube.com/watch?v=RJ3UiJxCnO8

Our Partner: Macquarie Capital
Experienced EfW developer and investor

Macquarie Capital through its Green Investment Group has invested in over 35 waste and bioenergy projects, including Avertas Energy, the first to commence construction in Australia.

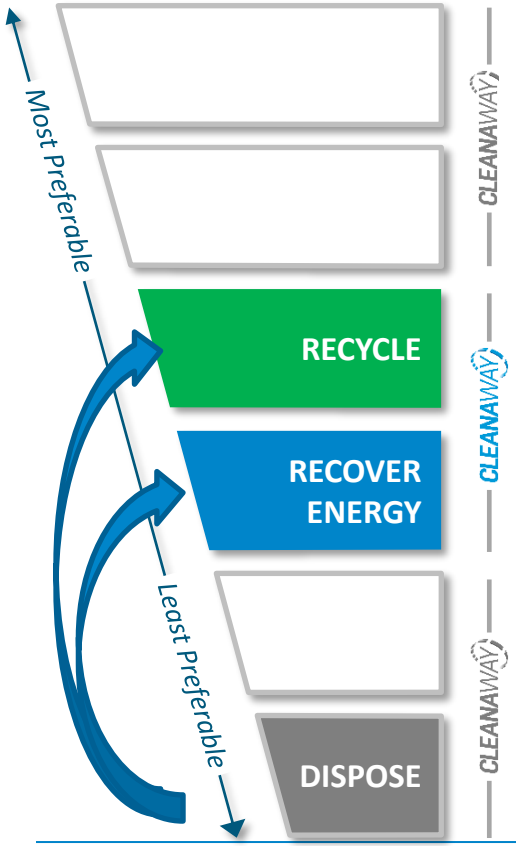
Avertas, Perth, energy-from-waste

Covanta, Dublin, energy-from-waste

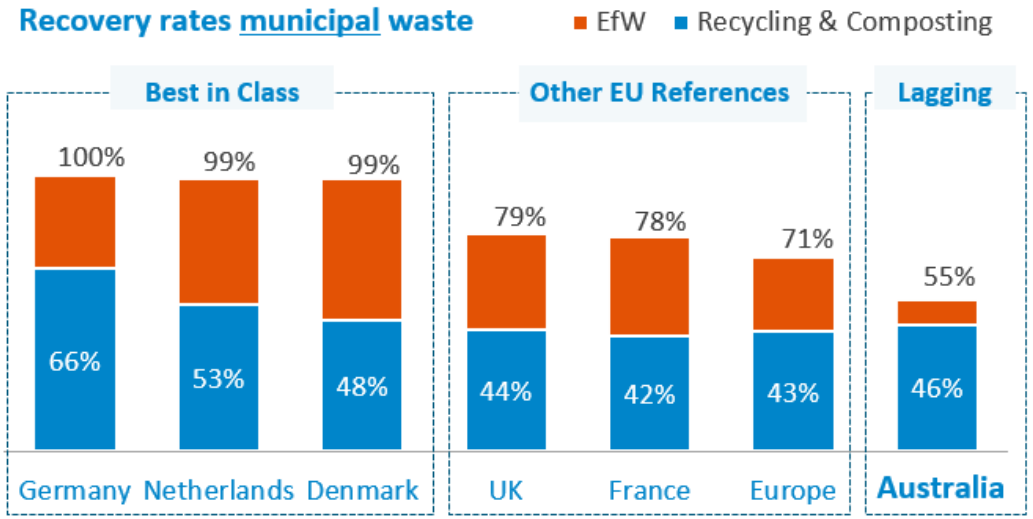
Selected projects	MW	Transaction Type	Transaction Value
WSERRC	55	Development	~A$120m
Avertas energy-from-waste	36	Development	~A$110m
Earls Gate energy-from-waste	21	Development	~£16m
Dublin energy-from-waste	60	Equity	€136m
MGT Teesside	299	Development	50% of project equity
Tilbury Green Power	40	Development	~£35m
Belfast energy-from-waste	15	Equity	~£47m
Ferrybridge Multifuel 2	68	Debt	~£38m
Kemsley	50	Debt	~£80m
Cramlington	28	Equity	~£21m
Derbyshire	14	Debt	~£195m
Evermore Biomass	16	Equity	~£18m
		TOTAL (across all projects)	**>A$1,800m**

Policy Context: Achieving waste diversion targets

Waste Hierarchy



Increase Resource Recovery

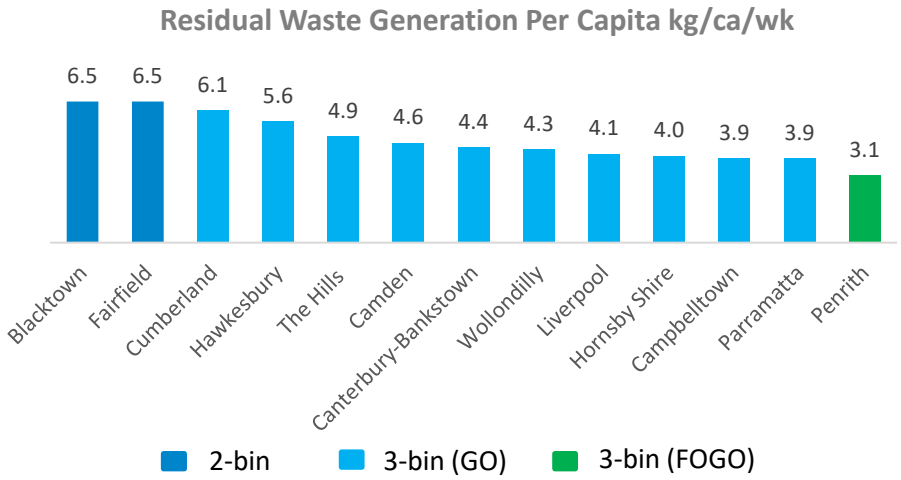


(1) Source: OECD, Australian National Waste Report 2018, Department of the Environment and Energy

- To meet its landfill diversion targets and support the transition to a circular economy, Australia must embrace large scale Energy from Waste for residual waste that cannot be recycled

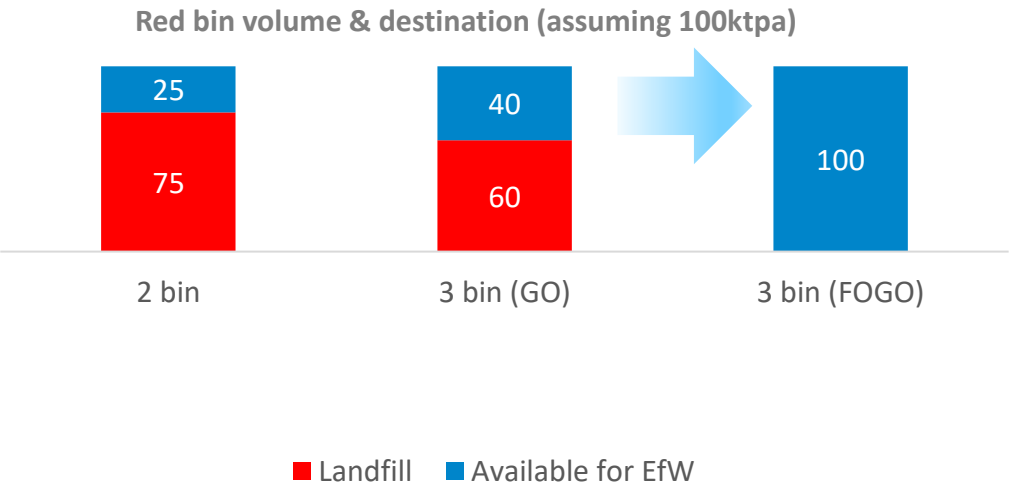
Market Context: Food Organics Garden Organics (FOGO)

FOGO reduces Red Bin Waste…



NSW EPA, Local government waste and resource recovery data report 2018-19

….and reduces the amount sent to landfill under EfW policy



- >40% of Sydney's Red Bin waste could be recovered through a FOGO bin
- Our philosophy is to maximise recycling and resource recovery at the source. Once waste has been placed in the red bin, it becomes contaminated and there are limited environmental or economic drivers to 'unscramble the egg'
- FOGO recycling, when implemented along with EfW, provides a more sustainable & cheaper alternative than landfill
- Cleanaway will support Councils in the transition to FOGO and invest in infrastructure.
- By implementing EfW + FOGO, all remaining residual waste can be processed directly by EfW in compliance with the NSW EfW policy.
- FOGO is aligned with reducing emissions from organics to zero by 2030

WSERRC feedstock strategy

Commercial and Industrial (C&I) waste

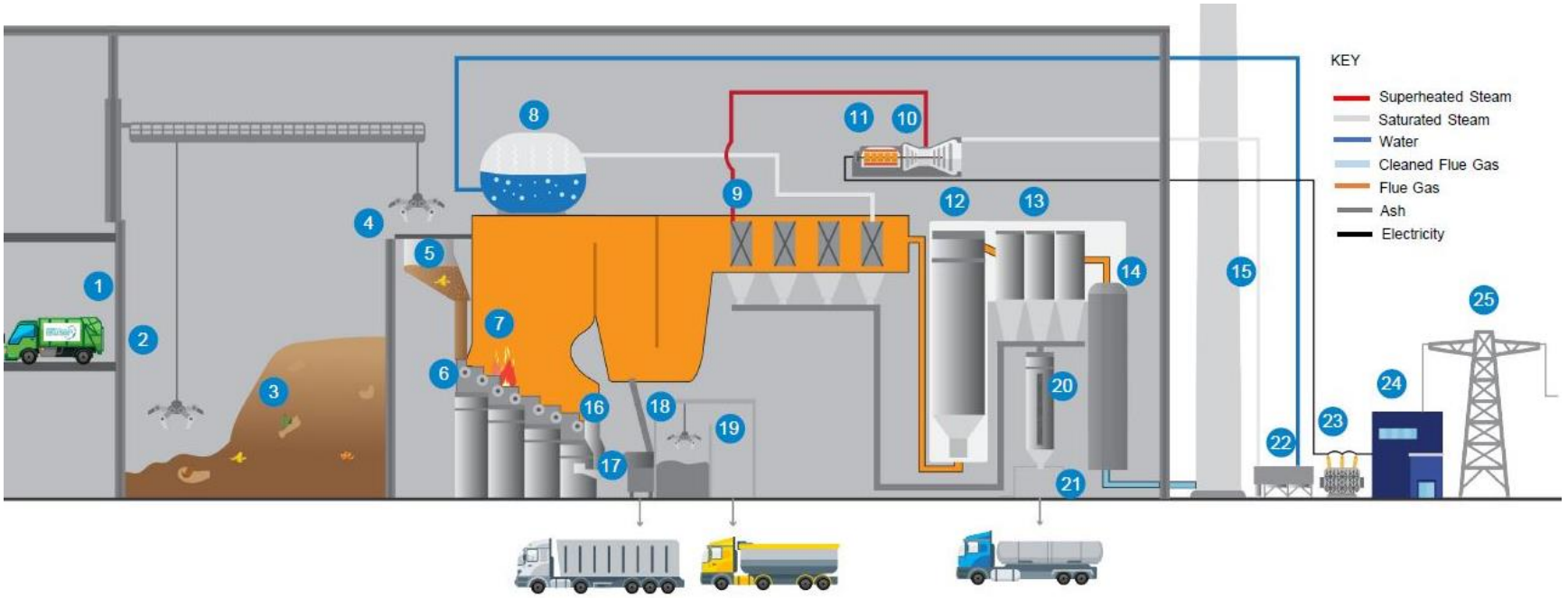
- Comes from a variety of sources including offices, schools, shopping centres, warehouses and manufacturing.
- Much of the waste resembles residual MSW, with some harder to recycle items such as hard plastics and MDF.
- The Western Sydney Energy & Resource Recovery Centre (WSERRC) will source a higher percentage of C&I waste in the short term

Municipal Solid Waste (MSW)

- The WSERRC will secure household red-bin waste disposal contracts from Western Sydney councils.
- MSW contracted to WSERRC will increase over time as current disposal contracts conclude and FOGO is implemented.

Project Location: Eastern Creek

Facility technology: Moving grate – leading, proven & safe



LEGEND

1	Waste Receiving hall	7	Boiler	13	Bag filters	20	Flue gas treatment residues (FGTr) and boiler fly ash silo
2	Tipping bay	8	Steam drum	14	Wet scrubber	21	FGTr and boiler fly ash collection for treatment and disposal
3	Waste bunker	9	Superheaters	15	Stack	22	Air cooled condenser
4	Waste crane	10	Steam turbine	16	Incinerator bottom ash (IBA) handling	23	Transformer
5	Feed hopper (chute)	11	Generator	17	Ferrous metals recovery	24	Substation
6	Moving grate	12	Semi dry reactor	18	IBA bunker and separate metals bunker	25	Local electricity grid
				19	IBA collection and separate metals collection		

Reference Facilities

The WSERRC has reference facilities that:

- have similar waste streams,
- have same moving grate technology, and advanced flue gas treatment systems: Selective non-Catalytic Reduction (SNCR); Semi-dry Flue Gas Treatment (FGT); Wet scrubber,
- are a comparable size.

WSERRC, Sydney

Size: 500,000 tonnes per year

Waste Streams: Municipal solid waste, commercial and industrial

Filborna, Sweden

Size: 200,000 tonnes per year

Waste Streams: Municipal solid waste, commercial and industrial

Covanta, Dublin*

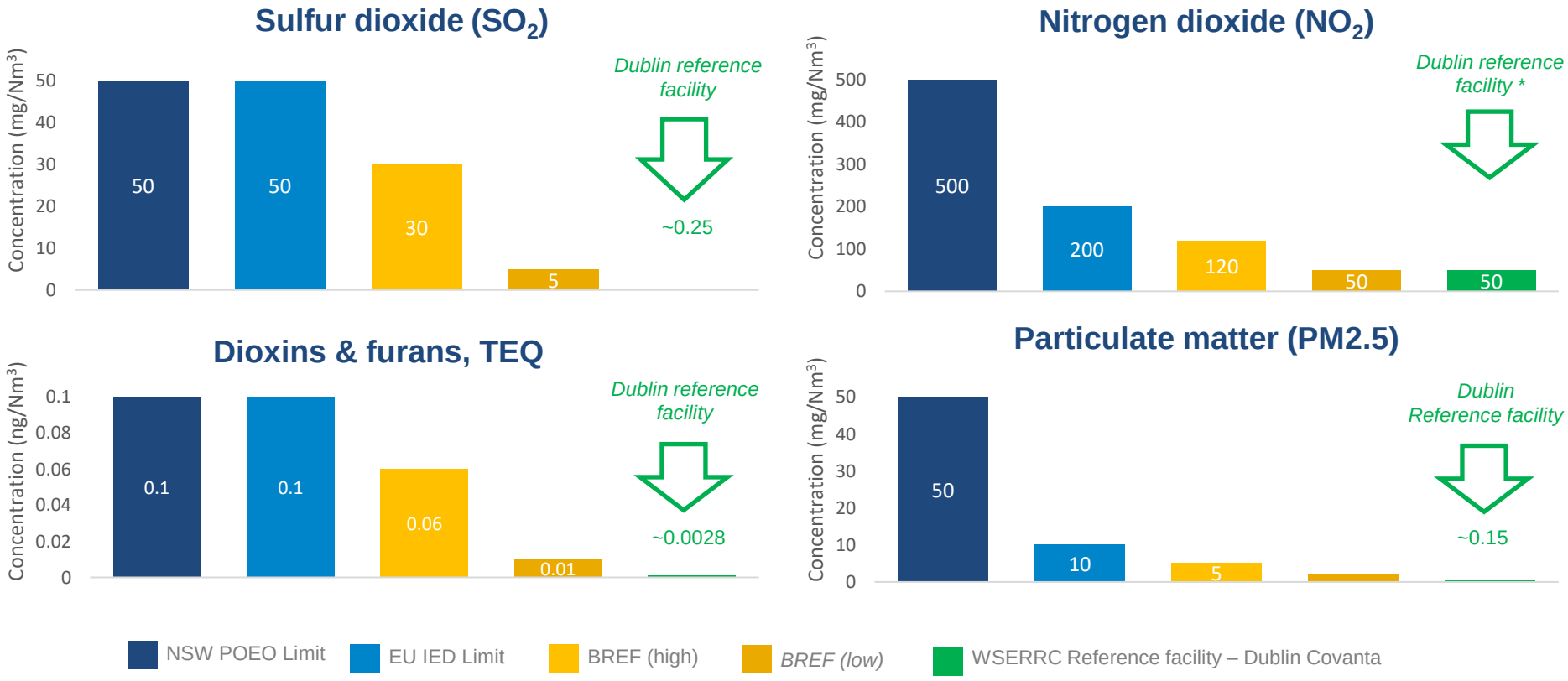
Size: 600,000 tonnes per year

Waste Streams: Municipal solid waste, commercial and industrial

*Macquarie has an equity interest in this project

Emissions Management - Pollutants

Emissions will be in line with world's best practice ensuring it is safe. Proven reference facilities with similar technology and waste streams are used to provide empirical evidence of the outputs of our facility.



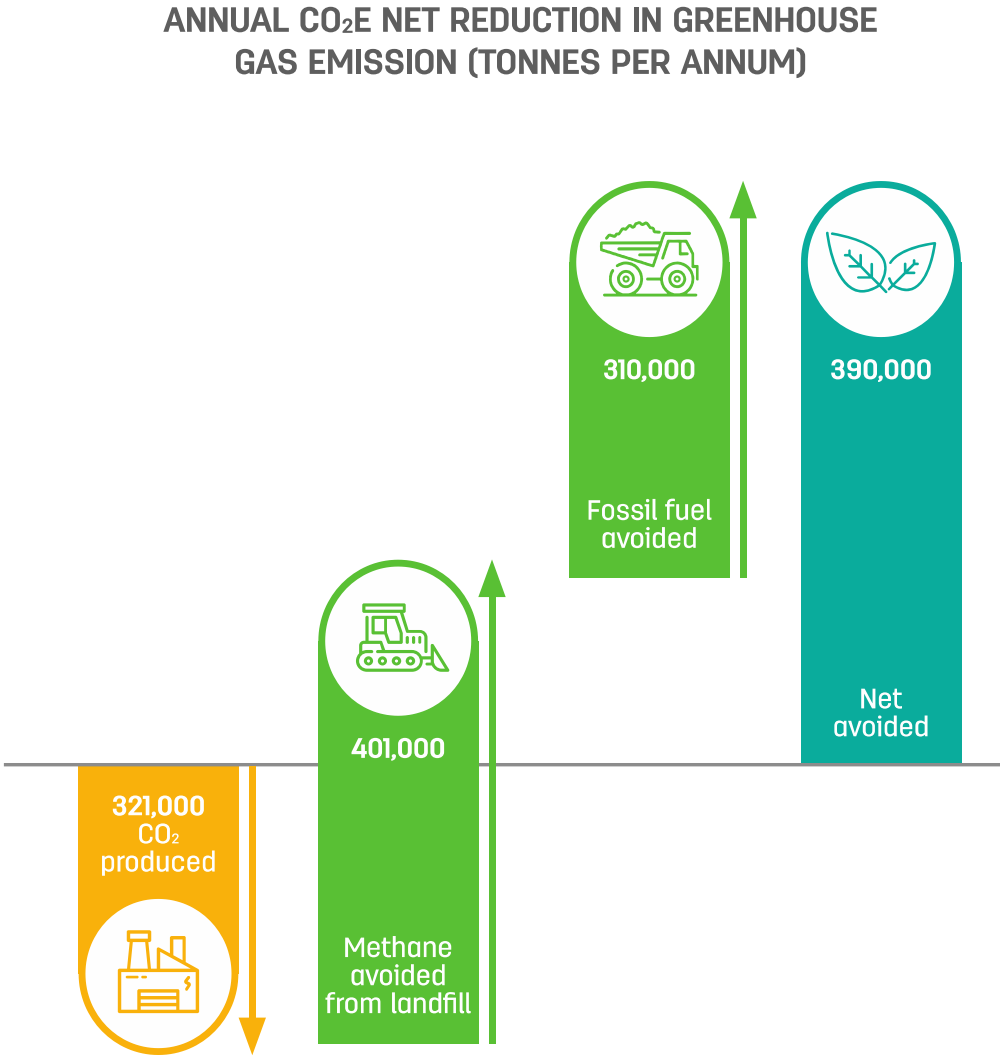
BREF = Best Available Technology Reference

** The facility in Dublin will achieve 50 with new technology currently being installed*

Emissions Management – CO2-e

- WSERRC has a net CO2e reduction (carbon benefit) of ~390,000 tpa
- Methane produced as waste decomposes in landfills is 25-28 times more potent than carbon dioxide
- Constant baseload electricity generated from EfW displaces fossil fuel generation in the National Electricity Market

Calculations based on National Greenhouse Account Factors and National Greenhouse and Energy Reporting methodologies



Stakeholder and community engagement…

Objectives

This research was undertaken by Newgate Research in July 2020 on behalf of Cleanaway and Macquarie Capital that have proposed the Western Sydney Energy and Resource Recovery Centre (WSERRC).

Methodology

ONLINE SURVEY

15-minute survey, with participants sourced from a professional market research panel, Dynata.

REPRESENTATIVE SAMPLE

1,121 participants across all of Sydney, comprising 513 local residents living within the three LGAs closest to the WSERRC project and participants in other parts of the greater Sydney metropolitan area ('rest of Sydney'). All aged 18yrs+.

Quotas set on gender, age and location and the data has been weighted on those variables to align it to ABS Census proportions for each of the three LGAs as well as four broad regions across the rest of Sydney.

SAMPLE BREAKDOWN BY LOCATION

Location	PROJECT AREA				Rest of Sydney	All of Sydney
	Blacktown	Fairfield	Penrith	Sub-total		
Sample (n)	263	87	163	513	608	1,121
MoE (+/-)	6.0%	10.5%	7.7%	4.3%	4.0%	2.9%

MoE = Margin of error at the 95% confidence level

In summary

This research demonstrates that, when positioned within the circular economy and alongside other waste reduction and recycling initiatives, energy from waste is viewed as positive and highly acceptable.

- The majority of people liked and agreed with the principles included in the NSW 20-year Waste Strategy.
- In the Project Area one in three people were aware of WSERRC and 66% of these people felt positive based on what they already know. 16% feel negative.
- When presented with a package of recycling initiatives that included EfW 90% in the local area responded positively.
- Following more information on how the WSERRC fits into the circular economy and benefits it provides, sentiment was re-tested, resulting in a 89% positive reception across both Sydney and Project Area, with around 2-3% feeling negative.

Why did participants feel this way?

- Jobs
- Seen as being an option that provides better environmental outcomes
- Creation of renewable energy
- Large investment in community education
- State of the art designed centre, reflecting world's best practice in a good location

….Critical in providing comfort to the local community and developing the social licence to operate.

Power Market

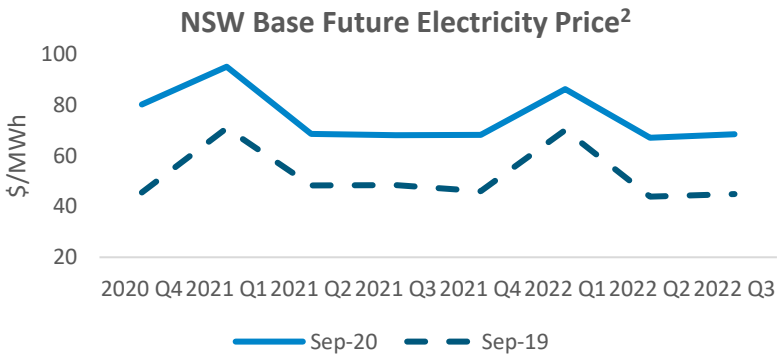
NSW Electricity Market Dynamics

Demand and Supply

- Highly interconnected electricity market
- Peak Summer Demand ~14,000 MW
- Annual average consumption ~70 TWh
- > 3,320 MW[1] of generation capacity expected to close in the next decade
- Majority of committed and announced generation supply is from renewables

Pricing

- NSW base futures prices have increased reflecting Supply-Demand dynamics



Project Considerations

Electricity and heat contracting options

- ~55MW/460 GWh p.a. output
- Energy and heat supply mix
- Behind the meter (direct supply to nearby customer)
  - Avoids transmission and distribution charges
- Long-term off-take agreement/ Power Purchase Agreement
  - Lock in long term volume for fixed prices reducing electricity price exposure
  - Firm supply output improves price outcome prospects
- Futures/ Over-the-counter markets
  - Medium term price and volume certainty with re-contracting price exposure (upside/downside)
- Spot market
  - Volatile market but always available for any potential excess supply
- Carbon credits
  - Eligibility to be evaluated

Note 1: AEMO: NEM Generation information November 2020
Note 2: AER: Comparative Base Futures Prices - www.aer.gov.au/wholesale-markets/wholesale-statistics/comparative-base-future-prices

Residuals Management – Metals, Bottom Ash and Flue Ash

New ash processing and metals recovery facility

Metals Recovery

- We will be recovering from the ash both ferrous and non-ferrous metals for recycling.
- These metals would otherwise end up in landfill. Recovering these will contribute to recycling targets and circular economy principles.

Ash Re-use

- Overseas, Incinerator Bottom Ash (IBA) is commonly reused in construction applications i.e. in road-base, pavers and bricks.
- We intend to do the same thing with the Facility's IBA, which will require the development of a new pathway for IBA reuse in NSW.
- Achieving ash re-use will result in over 95% of waste coming into the WSERRC being diverted from landfill.
- These supporting developments will also create another ~100 jobs for the waste industry in Sydney.

Flue gas treatment residue

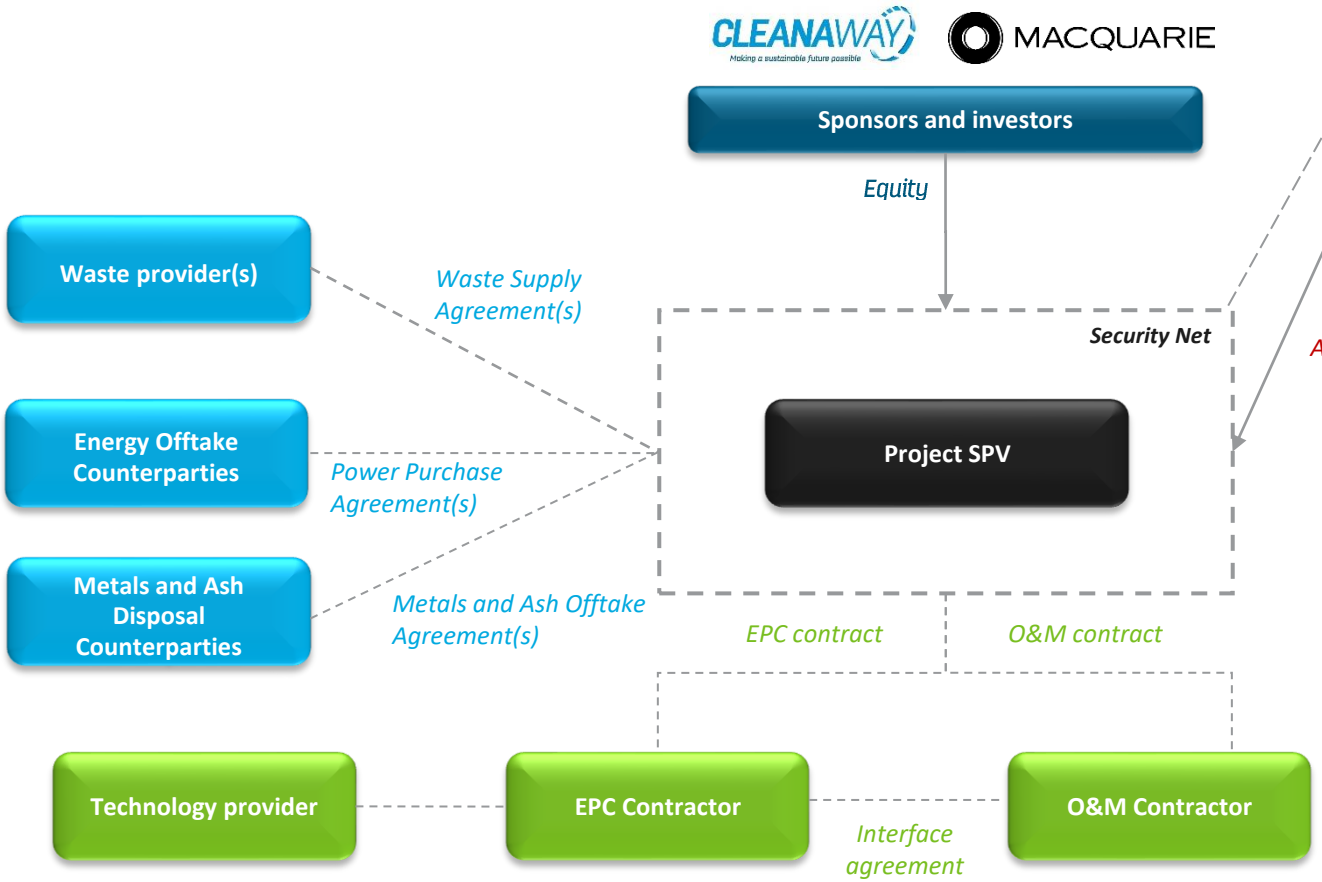
- Treated and disposed at landfill

Cleanaway Revenues, Expenses and Returns

CWY ROLE	❑ Waste Supplier ❑ O&M provider	❑ Energy from Waste Facility equity owner
Revenues		
	✓ Operating and maintenance fees	✓ Gate fees – Cleanaway and third-party
		✓ Electricity/Heat Supply
		✓ Potential carbon reduction benefits
		✓ Metal recovery/ Ash beneficiation
Operating Costs		
	- Energy from Waste gate fee	- Plant operating and maintenance fees
	✓ Avoided Landfill gate fees	- Residual sorting & treatment costs
	✓ Avoided Landfill levies	- Residual disposal costs
	- Operating and maintenance expenses	
Financing costs		
		- Interest and hedging expense
Value accrued	**100% to Cleanaway**	**51% to Cleanaway**

- Cleanaway will generate three sources of value - Targeting double digit post-tax equity returns for the Energy from Waste Facility based on reasonable price and cost assumptions that will be firmed up through the commercialisation phase.

Typical Structure for Large EfW Projects – SPV



Key notes re EPC

- ~10 EfW technology providers worldwide
- Tender process for EfW Contractors
- Contract will be for design, construction, commissioning
- EPC provider will provide performance guarantees for equipment
- Project cost are ~50/50 on Process Equipment vs Non-Process
- Expert O&M operators will train CWY employees over a number of years prior to handing over operations

Financing

Equity funding

Joint Venture

- Cleanaway (51%)
- Macquarie (49%)

Long-term ownership

- Cleanaway currently intends to retain its equity interest over the long-term as the owner-sponsor and be the long-term operator of the facility
- Macquarie's GIG will invest and be involved in the management of construction risk, into early operations

Expected Debt Financing

Funding Type

- Project Finance
- Non-recourse debt

Potential Sources

- Domestic and international lenders
- Superannuation funds

Gearing and amortisation

- Gearing level will reflect debt service coverage ratio (DSCR) of contracted and uncontracted cash flows
- Debt amortisation profile will reflect the facility's operational life

Timetable

Milestone		Progress
Cleanaway & Macquarie JV	May 2019	●
Site acquisition	Oct 2019	●
Scoping Report submission	Nov 2019	●
Development and Commercialisation		◔
EIS public display completed	Nov 2020	●
Development approval		○
Target Financial Close		2021/2022
Construction		~3 years
Commissioning		2024/2025

Next steps

Environmental Impact Statement

- Public display ended 16 November 2020
- 630 total submissions
- >50 submissions received objecting to the proposal => the Independent Planning Commission is the consent authority for the application
- Further information to support submission allowed until 14 December 2020
- Project has 3 months to respond to issues raised in submission

Independent Planning Commission

- Expect 3-6 months assessment period

Commercialisation

- Source additional feedstock supply
- Negotiate electricity offtake agreements
- Further community & stakeholder engagement

Energy from Waste: Summary

CLEANAWAY WESTERN SYDNEY ENERGY & RESOURCE RECOVERY CENTRE

People		**Construction** • ~900 direct jobs • ~1200 indirect jobs **Operations** • ~50 direct jobs		• Joint Venture with Macquarie • EIS exhibition complete • ~3-year construction period • 30+ year operation period
Earth		• ~95% landfill diversion • ~390k t CO2-e avoided • Industry leading emissions scrubbing technology		• Equivalent to 79,000 cars off the road
Markets		• ~500k t municipal and C&I waste diversion • ~55MW / 460 GWh baseload electricity • Recovered metals • Residual waste solution		• One in three people in local area were aware of the project and 2/3 felt positive based on what they knew • Following provision of information about the project 89% of respondents in the Sydney and project area were positive
Assets		• Moving grate technology • Proven, safe and reliable in over 500 facilities		• Proven reference facilities with similar technology and waste streams are used to provide empirical evidence of the outputs of our facility.
Financials		• ~$650-700m Capex • NSW Landfill Levy ~$143/t		• Investment Into Western Sydney • Cheaper and more environmentally friendly alternative to landfill

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Questions

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