THE NEXT GENERATION – ENERGY FROM WASTE FACILITY

IPC PUBLIC MEETING

14 MAY 2018

CLARE BROWN – URBIS

CHRIS BIGGS – DADI

OVERVIEW

1. THE APPLICATION
2. KEY OUTCOMES
3. RESPONSE TO DPE ASSESSMENT REPORT

THE APPLICANT

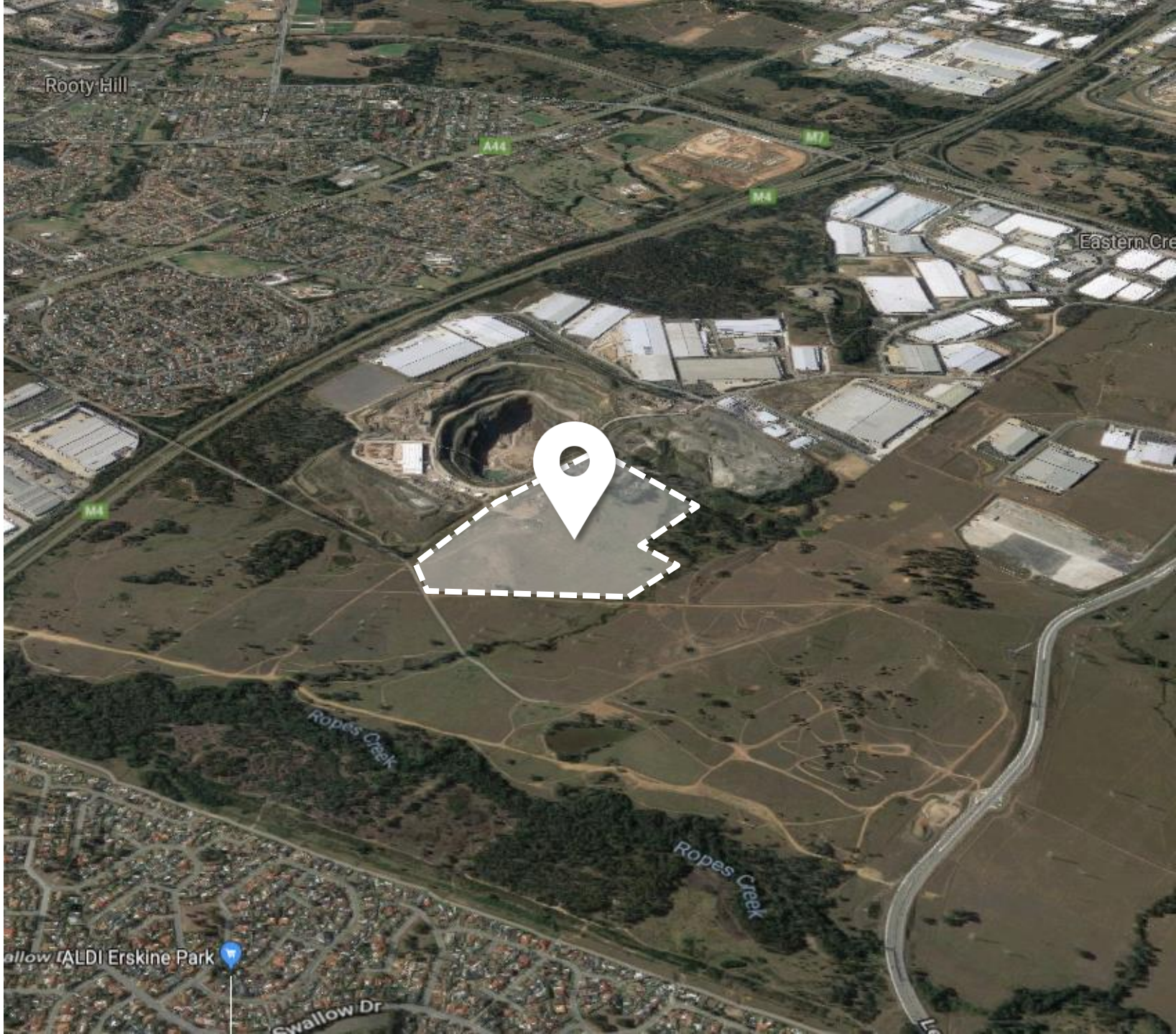
- **The Next Generation NSW Pty Ltd** – stand-alone company formed by Dial A Dump Industries and Genesis Xero Waste Facility to develop a low carbon electricity generating plan that will be fuelled by waste derived fuels.

Key Specialists:

COMPANY NAME	TECHNICAL DISCIPLINE
TNG: Ian Malouf / Chris Biggs	Owner/Operator
Urbis – Clare Brown / Stewart Doran	Planning
AECOM – Amanda Lee	Human Health Risk Assessment
ERM– Damon Roddis	Air Quality/GHG, Ozone, Noise & Odour
Ramboll – Martin Brunner / HZI – Dr Marc Stammbach	Technology
MRA - Mike Ritchie / Charlotte Wang	Waste

THE SITE

- Zone – IN1 General Industrial.
- Part of larger landholding – Genesis Xero Waste Facility and Landfill.
- Residential, commercial and industrial land uses.
- 1km buffer to low density residential housing areas.
- Connected via M4 Motorway and M7 Motoray.



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THE PROPOSAL

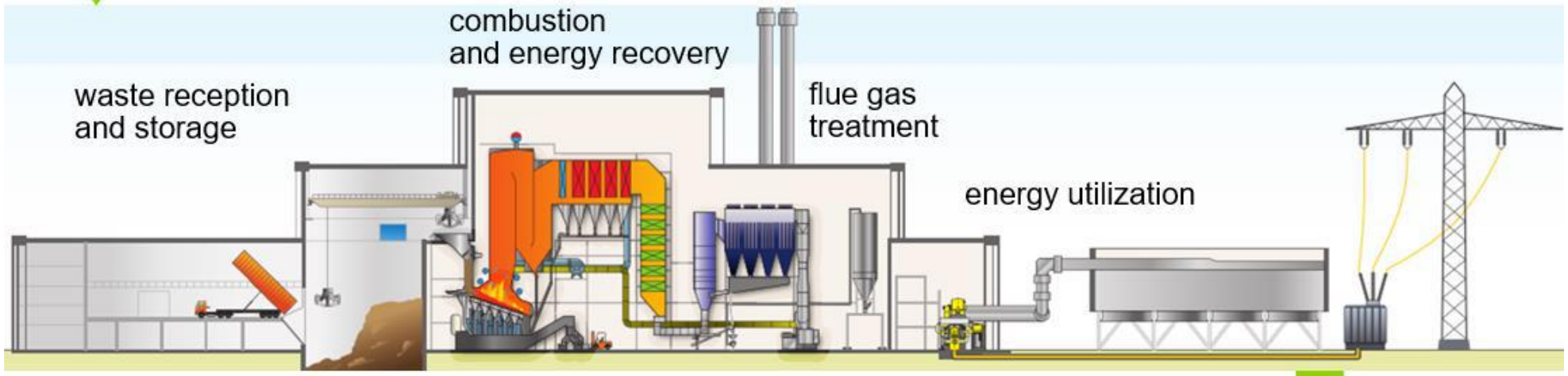
STAGE 1 FACILITY

- Complete construction of the Tipping Hall and Waste Bunker and combustion lines 1 and 2 comprising:
  - Two independent boilers.
  - Flue Gas Treatment systems.
  - Stack.
  - One Turbine.
  - One Air Cooled Condenser.
  - Auxiliary equipment including two generators.

THE TECHNOLOGY & PROCESS

- none-recyclable waste
- additives for flue gas cleaning

IN



- energy - electricity and heat
- aggregates & metals for recycling
- cleaned flue gas
- flue gas cleaning residues

OUT

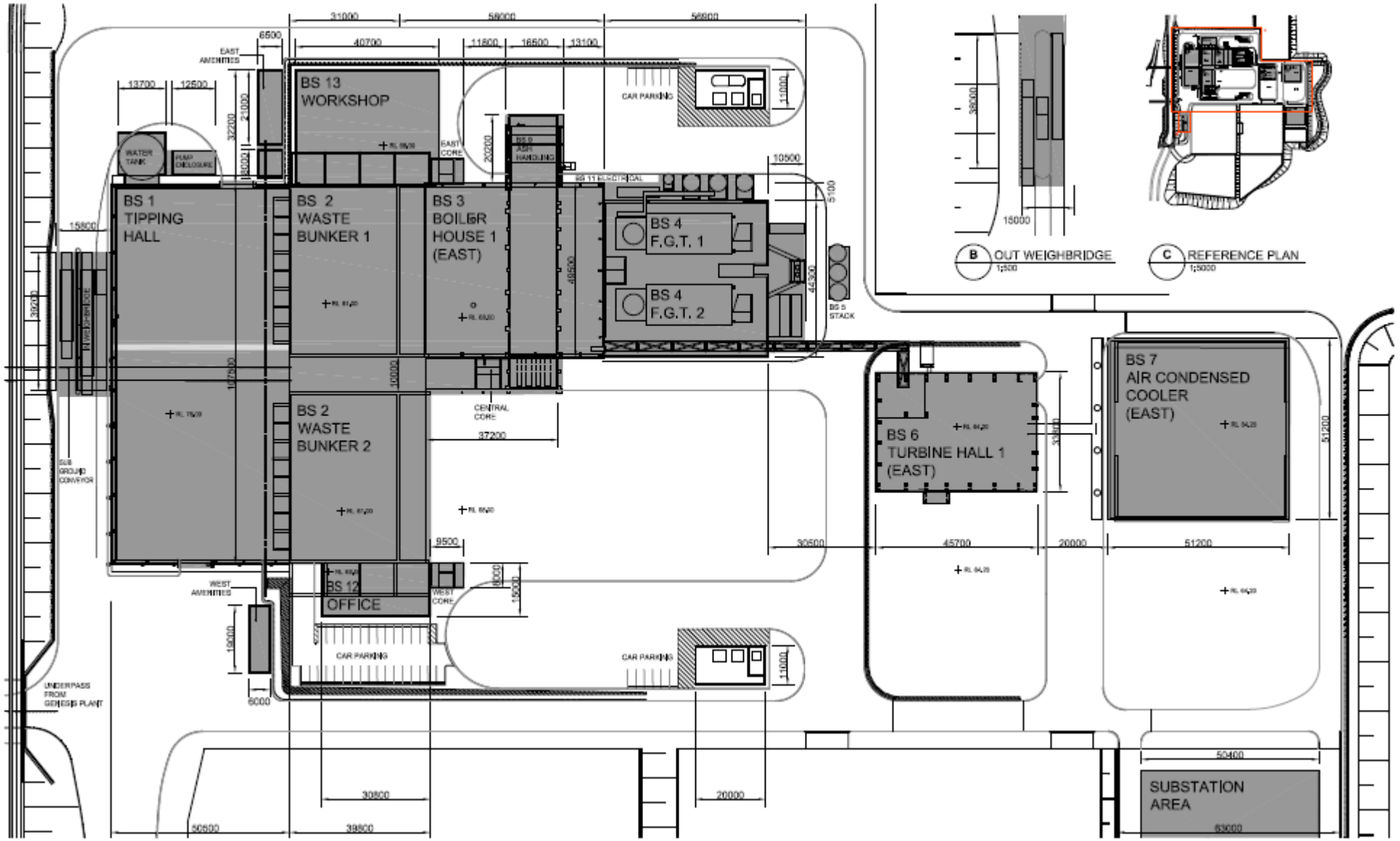
- **Moving grate system with water and air cooled grate bars** – offers the most flexible and cost effective solution for the fuel mix being considered.
- **Turbine exhaust cooling system** for the facility is an Air Cooled Condenser – preferred option as they do not require water and do not generate an effluent discharge.
- **No Visual Plume** – except for exceptional and limited climatic conditions.
- Export electricity via a substation to the grid.
- **QA procedures at Genesis Recycling Facility** to ensure compliance with NSW EPA Energy from Waste Policy and consistent fuel quality with no unacceptable materials.
- Generate three types of solid waste by-products:
  - Bottom ash.
  - Boiler ash.
  - Flue gas treatment residues (APC residues).

FUEL SOURCE

- **Design fuel reviewed based on:**
  - Availability in Sydney Metro area.
  - Types that comply with EfW policy.
  - Calorific Values of the fractional components.
- Fractions of fuel types derived from **independently conducted audits** of the waste streams.
- **Design fuel composition developed** based on typical values for each fuel and estimated mix.
- **Input fuel will always be mixed** as part of normal operations to be as homogenous as possible.

FUEL SOURCE – CONT.

- **C&D Waste** in Europe is generally sourced separated on site manually by unskilled labour – in NSW, C&D Waste is not source or site separated and highly mechanised taking place at centralised waste collection facilities (Genesis).
- **Independent Waste Audits** identified chemical compositional attributes of CRW, MRF residual and Floc waste.
- **No asbestos or misc. items of concern found** in audited samples.
- Genesis procedures are very refined and **highly effective at removing all materials required.**
- High degree of homogeneity present in comparison to European examples – **results in a more efficient burn process** and less spikes during incineration.


BS 13
WORKSHOP
BS 1
TIPPING
HALL
BS 2
WASTE
BUNKER 1
BS 3
BOILER
HOUSE 1
(EAST)
BS 4
F.G.T. 1
BS 4
F.G.T. 2
BS 2
WASTE
BUNKER 2
BS 12
OFFICE
BS 6
TURBINE HALL 1
(EAST)
BS 7
AIR CONDENSED
COOLER
(EAST)
SUBSTATION
AREA
CAR PARKING
CAR PARKING
CAR PARKING
EAST
AMENITIES
WEST
AMENITIES
EAST
CORE
CENTRAL
CORE
WEST
CORE
WATER
TANK
PUMP
ENCLOSURE
SUB
GROUND
CONVEYOR
UNDERPASS
FROM
GENESIS PLANT
BS 5
STACK
B
OUT WEIGHBRIDGE
1:500
C
REFERENCE PLAN
1:5000

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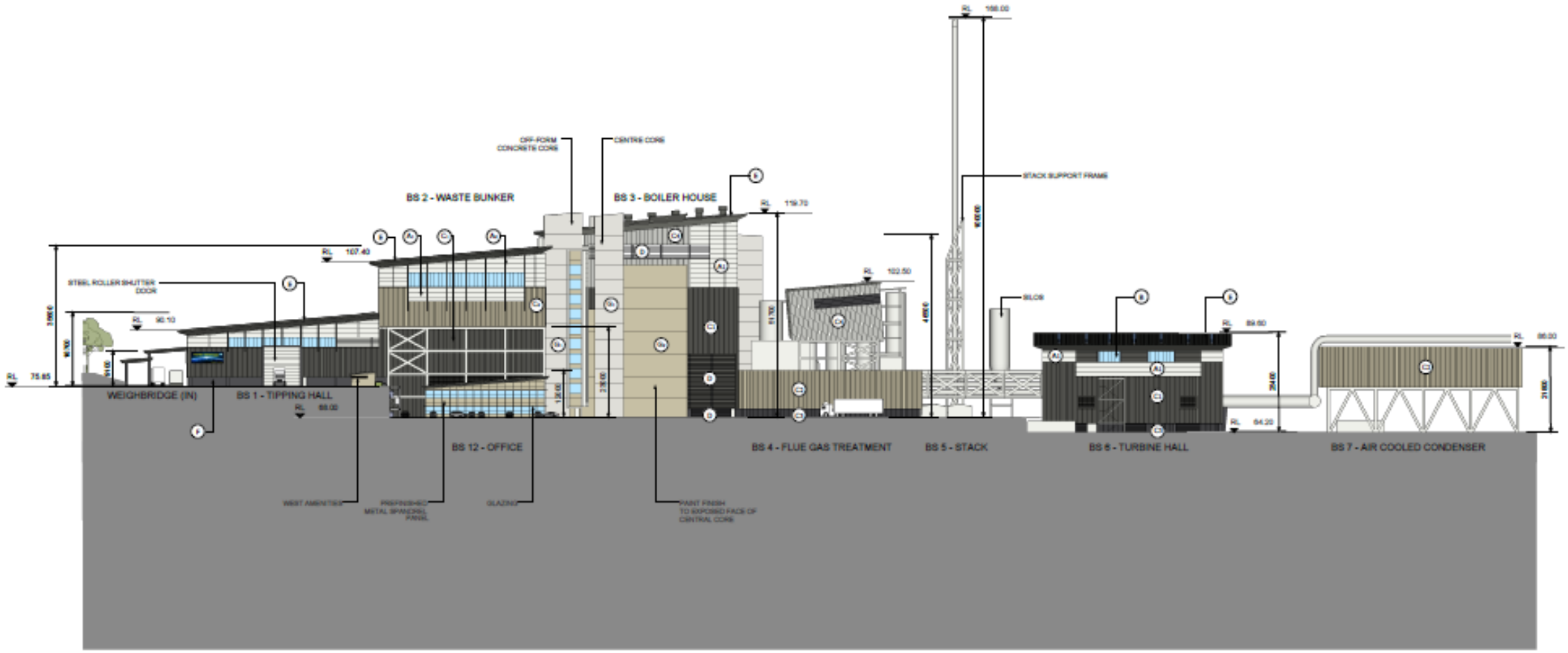

OFF-FORM CONCRETE CORE
CENTRE CORE
BS 2 - WASTE BUNKER
BS 3 - BOILER HOUSE
STACK SUPPORT FRAME
STEEL ROLLER SHUTTER DOOR
WEIGHBRIDGE (IN)
BS 1 - TIPPING HALL
BS 12 - OFFICE
BS 4 - FLUE GAS TREATMENT
BS 5 - STACK
BS 6 - TURBINE HALL
BS 7 - AIR COOLED CONDENSER
WEST AMENITIES
PREFINISHED METAL SPANDREL PANEL
GLAZING
PAINT FINISH TO EXPOSED FACE OF CENTRAL CORE

ENVIRONMENTAL OUTPUTS

- **European Industrial Emissions Directive IED 2010/75/EU** has been used as the basis for the development of the NSW EfW Policy.
- IED limits considered the **most stringent requirements** for EfW plants worldwide.
- Facility **designed to operate** within these limits as a minimum.
- **Emissions from stack monitored 24/7** by an automatic computerised system and reported to NSW EPA.
- **Methods and standards used for monitoring** are consistent with the IED or as directed by NSW EPA.

ENVIRONMENTAL OUTPUTS – CONT.

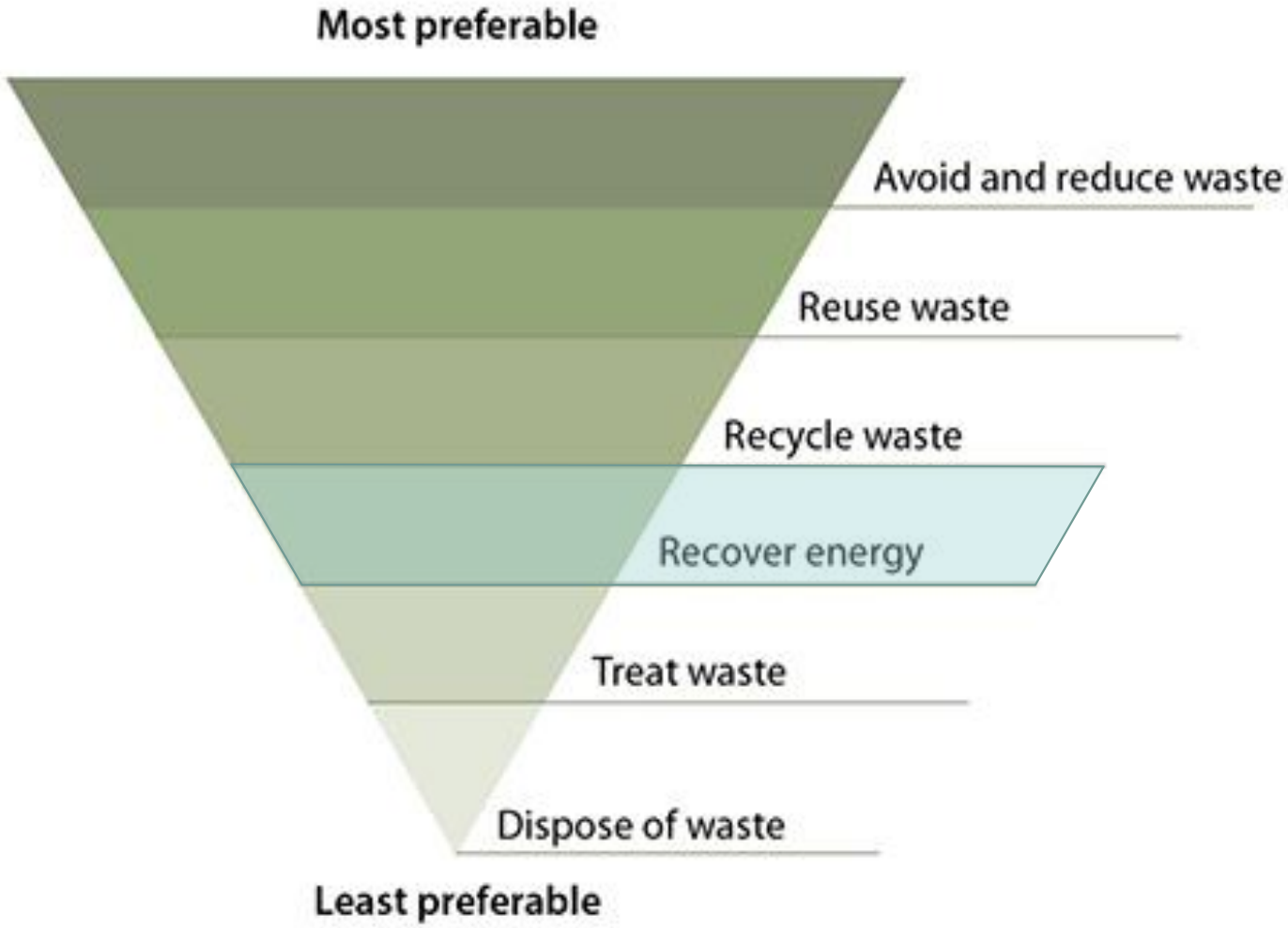
- **Unprocessed waste or waste not subject to resource recovery** will not be delivered direct to the EfW Facility.
- Processed waste will be **delivered via an electrically driven covered conveyor** system or by truck.
- **Pre-processed waste streams by others** will be subject to Genesis quality assurance measures to ensure hazardous material is removed.
- **Cleared waste will be stored inside the bunker.** Sufficient storage for 5-7 days at full load is provided to cater for disruptions in fuel supply.
- EfW Facility will operate 24/7.
- **Tipping hall will be kept at negative air pressure** ensuring a constant inward flow of fresh air and ensure no odour escape.

ENERGY OUTPUT

- EfW Facility has capacity to **generate net 68.65 Mega Watts** of electrical energy (MWe).
- Exceeds the energy requirements under **NSW EfW Policy.**
- **The EfW Facility will meet the definition of recovery –** being the recovery of energy and resources from the thermal processing of waste.

TNG DELIVERING THE MISSING LINK FOR NSW

- TNG is part of an integrated waste management operation that will reduce landfill.
- Utilises residual waste that has been pre-screened for reuse and recycling materials.
- Process 552,500M tonnes of residual waste.



PROJECT BENEFITS

- Technology - tried and proven.
- Reduce waste going to landfill
- Encourages resource recovery.
- Delivers the missing link in the resource recovery framework.
- Delivered by a tier 1 construction team.
- Utilise Best Available Technology.
- Generate up to 68.65 MWe of energy – power for 100,000 homes.
- Net positive greenhouse gas impact, potential elimination of 13.6 to 17.1 Mt CO2-E over a 25-year period.
- Create 55 full time operation jobs and approximately 500 construction jobs.

RESPONSE TO DPE ASSESSMENT REPORT

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CONSISTENCY WITH KEY REQUIREMENTS OF THE NSW EFW POLICY STATEMENT

- **Interpretation of broad language and terminology within NSW EfW Policy**
  - Wording of ‘like waste streams’, ‘similar jurisdictions’ should not be interpreted as ‘identical’.
- **Misapplication of the NSW EfW Policy**
  - No requirement to demonstrate quantities of waste available to the applicant for use in the project.
  - Due weight has not been given to the state of increasing waste in NSW in the assessment of the proposal.

CONSISTENCY WITH KEY REQUIREMENTS OF THE NSW EFW POLICY STATEMENT

- **Comparison with Operational Reference Facility**
  - Ferrybridge Multifuel 1:
    - UK similar jurisdiction.
    - Complies with IED Limits.
    - Comparable capacity and compositional analysis of waste streams.
    - Identical supplier and technology (HZI).
    - Continued and current operation since 2015.
  - UK waste stream categories and inputs are different to Australia.
  - NSW EfW requires ‘like’ waste streams.

The proposed facility and Ferrybridge reflect like, or common, input streams.

CONSISTENCY WITH KEY REQUIREMENTS OF THE NSW EFW POLICY STATEMENT

- **Floc waste**
  - Defined as the shredding of motor vehicle and metal consumables.
  - Not specified in the NSW EfW Policy – allocated under mixed C&I waste.
  - No definition as floc waste as ‘hazardous wastes’.
  - Emission treatment technology is capable of ensuring that harmful emissions are neutralised.
- **Temperature Requirements**
  - Independent waste audits and composition analysis confirm that the waste will not contain more than 1% chlorine.
  - 850 degrees Celsius operation meets the temperature requirements of the IED.

AIR QUALITY & HUMAN HEALTH

- **Air quality emissions**
  - Air pollution control technology is designed to handle a range of waste derived fuel without changes to air emissions.
  - Air performance of example reference facilities (including Ferrybridge) with varying waste fuel are operating below the IED emission limits and have done so for years.

  Based on an assessment of Ferrybridge and comparison with the proposed development, it is demonstrated that there can be continual compliance with the IED emission limits.

AIR QUALITY & HUMAN HEALTH

- **Human health risk has been overstated**
  - Conservative assumptions with the human health risk estimates have not been accounted for.
  - The margin of safety presented in the DPE Assessment Report does not reflect the compounding conservatism included within the HHRA.
  - In the unlikely event that the IED emission limits will be triggered, the plant will go into shut-down and there will be no chronic exposure to any harmful emissions.

There remains no human health risk with the proposal, even accounting for increased margins of safety.

SCALE OF THE FACILITY

- **The scale of the facility is appropriate**
  - Only pursuing with Stage 1 of the facility to respond to community concern.
  - No requirement to justify the scale under NSW EfW Policy – this is a commercial decision for the applicant.
  - Sufficient waste availability in NSW, taking into account:
    - Introduction of landfill levy in Queensland.
    - Cessation of exportation of waste to China.
    - Additional pressures placed on landfills.
    - Shortage of landfills in NSW.
    - Future waste projections account for alternative solutions.

RESOURCE RECOVERY CRITERIA

- **Feedstock review is not overestimated**
  - DPE technical experts have misinterpreted the two independent parts of the Feedstock Report.
  - MRA justified the planned expansions to the applicant's existing facility.
  - All waste will undergo the highest order of resource recovery at the Genesis Facility. This will be the lad point of call before being processed at the EfW Facility.

ISSUE RAISED IN SUBMISSIONS

- **All issues have been comprehensively addressed as part of the application process**
  - The site is zoned IN1 General Industrial.
  - Use of the site for ‘electricity generating works’ is permitted with consent under the Infrastructure SEPP.
- **Community Consultation**
  - Level of community acceptance of the proposal is acknowledged.
  - Applicant has gone above and beyond the standard exhibition requirements.
  - Complete community acceptance is not a relevant planning consideration.

RECOMMENDATION

- Proposal lodged following extensive engagement and application amendments to respond to the community.
- A clear framework is in place to construct and operate the facility to deliver on the substantial benefits and vision for waste in NSW.
- The proposal presents a clear public benefit and represents an important pillar of the waste hierarchy.

Recommendation: Approve the application subject to conditions.

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THANK YOU