

## Kwinana Project Briefing | South Australia

*The Kwinana WtE Project:  
Renewable Cities - Adelaide*



23 May 2018

# Who is Phoenix Energy?



Phoenix Energy Australia is an Alternative Waste Treatment development company.

Established in 2009, Phoenix Energy develops AWT projects from concept through to Financial Close either directly or on behalf of Public or Private organisations.

We don't own technologies or licenses, and are thus able to independently develop a project by selecting the best technologies, builders, operators and funding models that optimise the outcome for the project stakeholders.

We engage resources that have extensive, demonstrable experience applicable to the project, there are no 'L' plates!

We establish all of the project requirements, from location, planning and environmental approvals, acquisition of waste supply contracts, grid connection, community engagement, funding, legal, commercial etc.....effectively a one stop shop.

This presentation will use the Kwinana Waste to Energy project as a case study to explore the complexity of bringing all of these together.....being the first in Australia, it has taken nine years to complete the above! Future projects would be expected to be 5yrs from concept to commercial operation

# Kwinana Waste to Energy Project

## Development status summary



Development Element	Overview	Status
<b>Environmental &amp; Development Approvals</b>	<ul style="list-style-type: none"> <li>All environmental &amp; development approvals required to commence development are in place and remain current</li> <li>Minor amendments to environmental approvals were successfully sought and received in early 2017</li> </ul>	All approvals complete
<b>Site Tenure</b>	<ul style="list-style-type: none"> <li>Site secured from the State Government (LandCorp, a government backed enterprise) under an Option to Lease</li> <li>Once exercised, the option provides an initial 24-year Ground Lease over the approved site (with options to extend for an additional 30 years)</li> </ul>	Complete
<b>Stakeholder Relations</b>	<ul style="list-style-type: none"> <li>Strong state government support – only WtE project in WA to receive Level 2 status (Project of significance) with WA DJTSI<sup>1</sup> acting as lead agency</li> <li>Strong local government support – local council which covers site (CoK<sup>2</sup>) has entered into WSA with project</li> <li>Site location in industrial area (with dedicated buffer to residential areas) minimises potential community concerns</li> </ul>	Positive relationships with state and local governments
<b>EPC &amp; O&amp;M Solution</b>	<ul style="list-style-type: none"> <li>Two well-credentialed groups were shortlisted to submit binding bids in a competitive EPC and O&amp;M tender process</li> <li>Binding bids were submitted in November 2017 and included design/solution, contracts and fixed and committed EPC and O&amp;M pricing</li> <li>Preferred option was selected from the two binding bids following a comprehensive evaluation process</li> </ul>	Preferred option from two binding bids was selected in December 2017

# Kwinana Waste to Energy Project

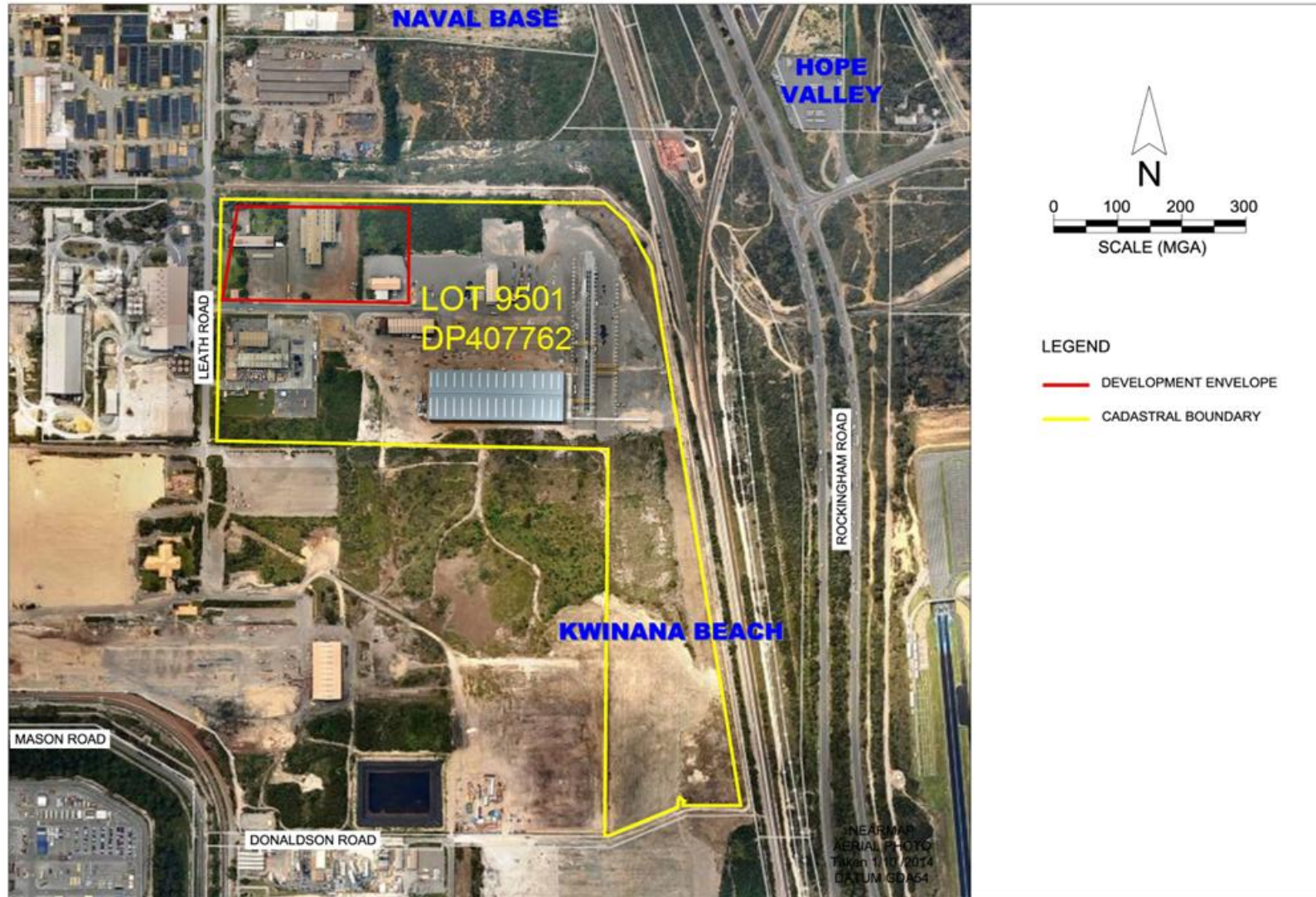
## Development status summary (cont.)



Development Element	Overview	Status
<b>Grid Connection</b>	<ul style="list-style-type: none"> <li>● Grid connection process well advanced with a binding connection offer targeted within ~6 months of FC</li> <li>● Site adjacent to existing grid infrastructure and small relative generation capacity de-risks connection process</li> </ul>	Binding grid connection agreement targeted within ~6 months of FC
<b>Waste Revenue</b>	<ul style="list-style-type: none"> <li>● Existing exclusive waste supply agreements with Rivers Regional Council (RRC) and CoK have underpinned commercialisation of the project</li> <li>● Other local governments currently in market seeking to contract MSW volumes under long-term contracts</li> <li>● Waste majors and C&amp;I parties increasingly seeking to enter into contracts for C&amp;I waste volumes</li> </ul>	Long-term WSAs already in place, with other opportunities being responded to as they arise
<b>Power Revenue</b>	<ul style="list-style-type: none"> <li>● Excess demand for LGCs remains a key driver of contracting by market participants</li> <li>● The Project Company is a preferred supplier on the WALGA Energy Services Panel (to Local Government members)</li> <li>● Opportunity exists to secure majority of load in a bundled long-term PPA</li> </ul>	Negotiations are being finalised with several bankable counterparties
<b>Commercial &amp; SPV</b>	<ul style="list-style-type: none"> <li>● The Project Company is structured as a Special Purpose Vehicle, and will be managed through a Management Services Agreement (MSA), via a similar structure to a PPP</li> </ul>	Finalising for FC



# Located in the Kwinana Industrial Area



# Primary and secondary approvals



The Sponsors have successfully obtained all key statutory approvals required by the Project Company for the preparation, development and construction of the plant

Approval Number	Description	Approval Date
<b>Environmental</b>		
<b>Ministerial Statement No. 1016</b>	<p>Minister for Environment: Statement that a <b>proposal may be implemented</b> (under Part IV, EP Act 1986) in response to EPA Report and Recommendation No. 1538 (assessment and recommendations from the Public Environmental Review of the Kwinana WtE Project).</p> <p><b>Approved capacity: 400,000 tonnes per year of MSW and similar wastes.</b></p> <p>The approval also accommodates an on-site Brick making plant for the ash residue.</p> <p>Note: The approval was initially received on 3 September 2015. The approval was subsequently amended in 2017 to broaden the plant technology from Martin GmbH to “<b>proven grate combustion technology</b>”. The approval is subject to the technology being provided by a supplier with a track record in providing grate combustion systems to WtE resource recovery facilities, which recover energy from municipal solid waste at a similar scale to the proposal, and which is consistent with the Environmental and Health Performance of WtE Technologies under section 16(e) of the EP Act, April 2013.</p> <p>Note: <b>The WA EPA has adopted the EU Atmospheric Emissions criteria as part of the EPA Advice to the Minister under s16e (EPA Report 1468).</b> The EU Atmospheric Emissions criteria is known as the EU Waste Incineration Directive (WID) 2000/76/EC, recast in 2010 as the Industrial Emissions Directive (IED) 2010/75/EU. It is a comprehensive directive, covering all emissions to air, water and land from WtE facilities, not just atmospheric emissions.</p>	3 September 2015
<b>Works Approval W5911/2015/1</b>	Approval (under Part V of the EP Act 1986) is granted in respect of activities to be carried out on the Premises, subject to conditions. This approval allows <b>for the construction and commissioning</b> of the Kwinana WtE Facility, but not for the proposed on-site Brick Making Plant.	31 March 2016 (commencement date 4 April 2016)
<b>Licence Approval</b>	<b>Approval to operate a prescribed premises</b> under Part V of the EP Act 1986 (can only be granted after the Facility has successfully completed its commissioning tests).	Future

# Primary and secondary approvals (cont.)



The Sponsors have successfully obtained all key statutory approvals required by Project Co for the preparation, development and construction of the plant

Approval Number	Description	Approval Date
<b>Planning</b>		
<b>Building Permit Exemption</b>	Exemption obtained for the WtE Plant “building”, although areas trafficked by the public (e.g. observation corridor) will require a building approval prior to construction.	6 October 2015
<b>Planning Approval</b>	Planning Approval was granted subject to conditions under: Part A – City of Kwinana Town Planning Scheme No.2, and Part B – Metropolitan Region Scheme JDAP: approved that project has substantially commenced	7 December 2015
<b>Other</b>		
<b>Electricity Generation Licence (Electricity Industry Exemption Amendment Order 2016)</b>	Kwinana WtE Project is exempt from the Electricity Industry Act 2004 section 7(1) in relation to the construction and operation of generating works on the Kwinana site if the generation capacity of the generating works is less than or equal to 36 MW	8 January 2016
<b>Electricity Retail Licence</b>	Typically required prior to first sale of electricity, where there are 2 or more contracted electricity customers.	Future
<b>WEM Rules Participant and Facility Registration</b>	Phoenix Energy is registered as a Wholesale Electricity Market Rules Participant and the Kwinana Facility (Generator) is a named facility under that registration. The Facility will be transferred to Project Co at an appropriate time.	Future

# Key Project Milestones



The Kwinana Waste to Energy Project has entered into exclusive negotiations with an EPC and O&M party and made significant progress on the financing of the Project.



## EPC and O&M Solution

- EPC and O&M contractors have been selected after an exhaustive competitive process
- Project team has selected the best value solution from two compelling binding offers
- Technical, pricing, deliverability and legal positions were considered for both bids
- The Project team has now entered into final exclusive negotiations with Acciona (EPC) and Veolia (O&M)<sup>1</sup>



## Technical and Commercial Due Diligence

- Technical due diligence completed on design and delivery, with report provided to councils
- Waste due diligence completed
- Electricity market due diligence completed
- Legal due diligence well progressed



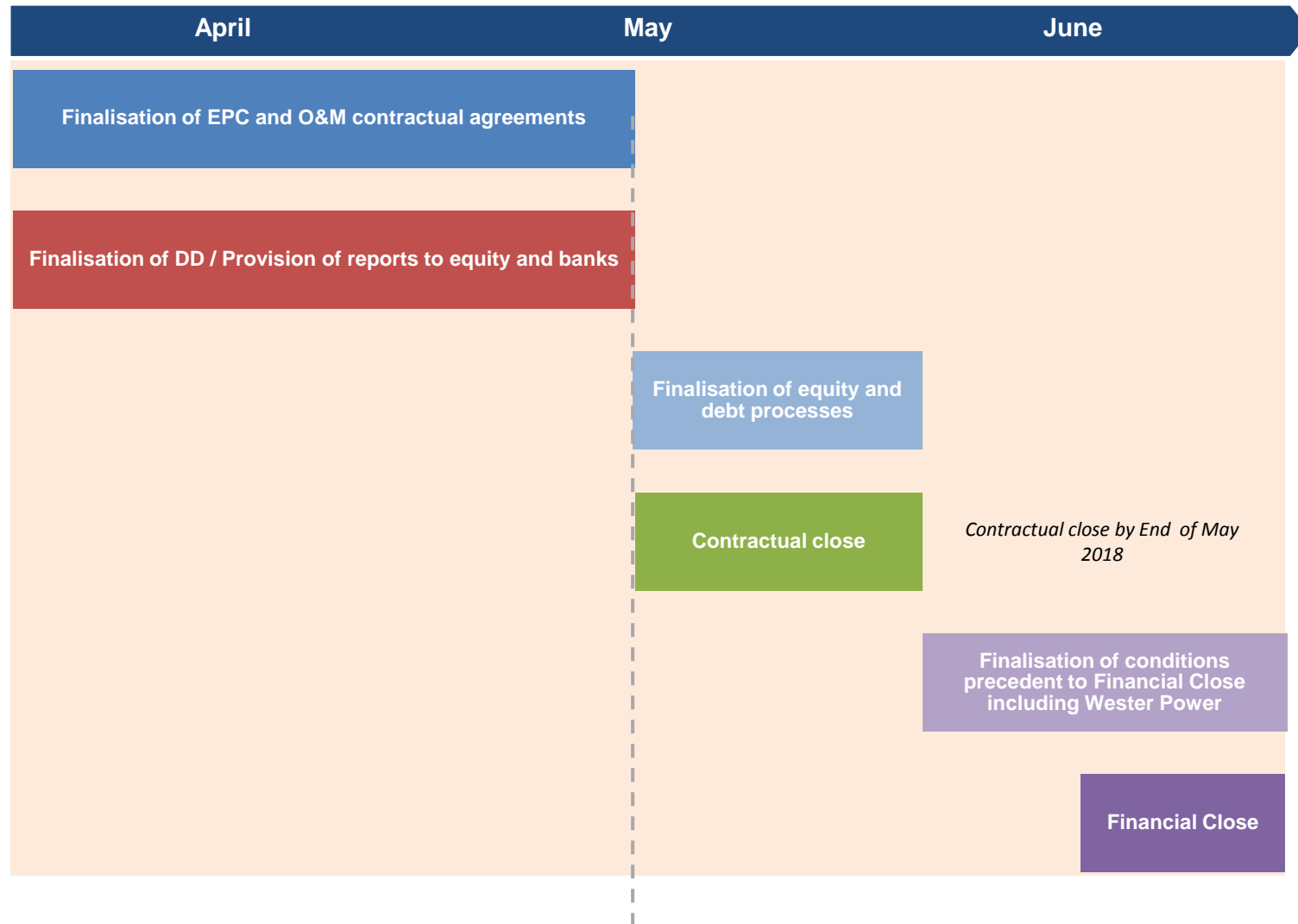
## Financing

- Banks have confirmed their interest in financing the Project, having finalised most elements of due diligence and being well progressed on the remainder
- Banks will finalise due diligence now the EPC and O&M contractors are in place
- Strong interest in equity investment from Macquarie and external parties, both domestic and offshore
- Financial Close by end of June 2018

Note 1: The waste to energy facility will be delivered via a fixed price, fixed time engineering, procurement, and construction (EPC) contract. The facility will be operated and maintained via a fixed price operations and maintenance (O&M) contract.



# Timetable to Financial Close



## Strategy

- ✓ Legal documentation nearing completion for both EPC and O&M contracts and their schedules
- ✓ Most due diligence reports have been completed and reviewed by debt and equity parties
- ✓ Financiers close to final credit approvals
- ✓ “Contractual close” is imminent
- ✓ Team focused on satisfying all conditions precedent to Financial Close – including Western Power
- ✓ Financial Close to be reached by end of June 2018

# EPC and O&M Solution



The Acciona / Veolia / Keppel Seghers consortium has been selected on the basis that it achieves best quality and value for the Project

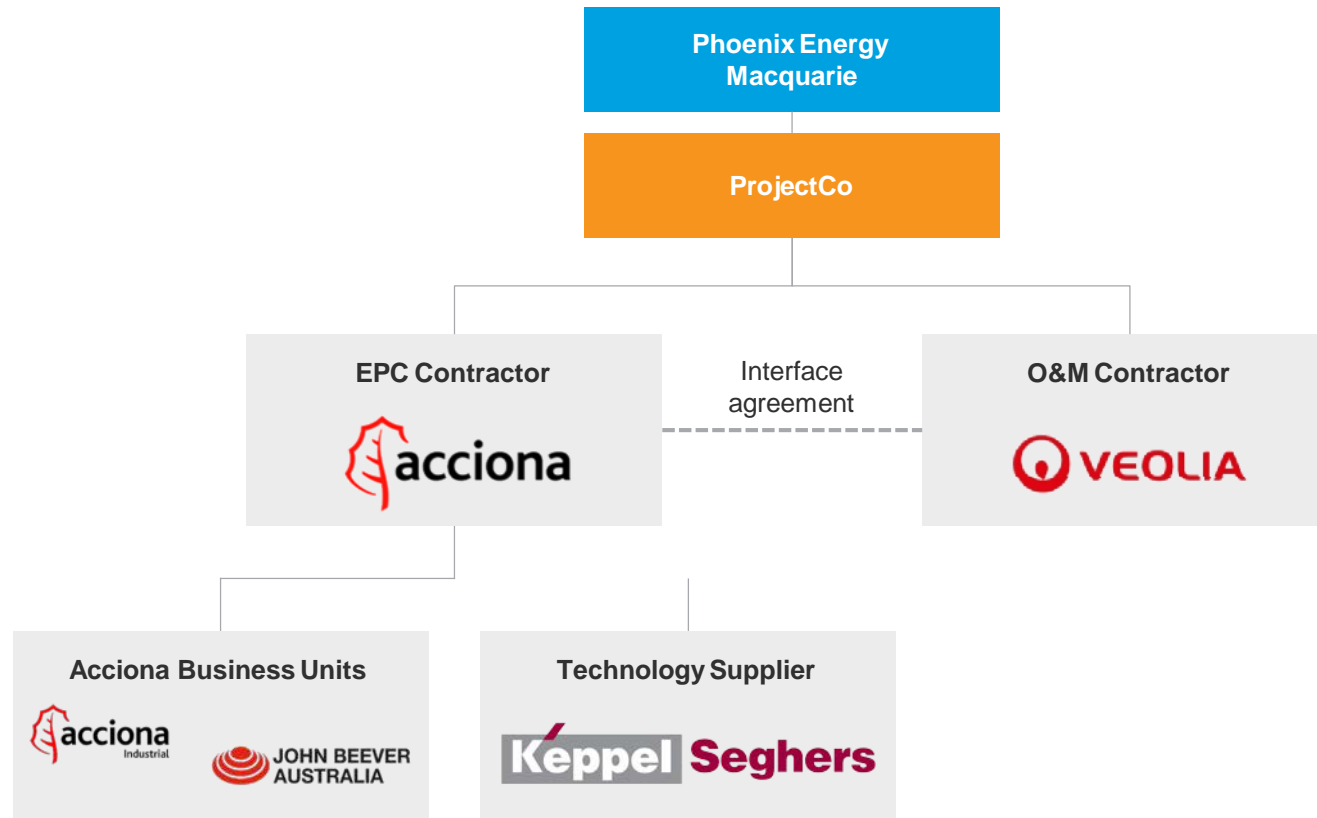
## Extensive experience

- Acciona has extensive experience as a general EPC contractor, including in Western Australia
  - EPC contractor for the Manduring Water Treatment Plant in Western Australia
  - EPC contractor for the Sanguesa 25MW biomass power generation plant in Spain
    - Scope and technology similar to that of a Waste to Energy plant, including the stoker, boiler and flue gas treatment
- Veolia is highly experienced in providing O&M services for Waste to Energy projects, and currently operates 63 plants globally
  - Includes the ongoing O&M of ERF Tyseley in the United Kingdom, with a plant capacity of ~400,000 tonnes per annum
- Keppel Seghers has successfully provided the technology for more than 100 Waste to Energy plants globally
  - Includes the provision of technology for Baoan II WTE, which has an annual throughput capacity of over 1,000,000 tonnes

# EPC and O&M Solution



Veolia proposes to provide O&M to the Project, whilst EPC will be managed by Acciona assisted by Keppel Seghers as the technology provider



# Technical Due Diligence



Ramboll (Owner’s Engineer) and Fichtner (Lender’s Technical Advisor) have assessed and signed off on both EPC and O&M consortia’s technical proposals

### Preferred Solution

- According to Fichtner (Lender’s technical adviser), the Acciona consortium offers a Keppel Seghers grate and a boiler with steam temperatures that can be considered as well proven and conventional
  - The Acciona consortium has offered a grate of the forward pushing type. It is composed of fixed, sliding and tumbling air-cooled tiles
- The Acciona consortium proposes a total project time of 36 months which is as expected comparing it to other projects with similar size and technology
- Fichtner has found no concerns with the plot plan suggested by the Acciona consortium
- Fichtner has also found the combustion diagram to be in compliance with the calorific value range defined in the EPC contract

### Technical Due Diligence Reports

**FICHTNER**  
Consulting Engineers Limited

MACQUARIE  
Kwinana WTE  
Contractor Evaluation  
16.11.2017  
Dr. Matthias Johnsen  
John Weatherby  
Maximilian Schrade  
David Bertram

MACQUARIE  
Kwinana WTE  
Bid Evaluation  
29.11.2017  
Dr. Matthias Johnsen  
John Weatherby  
Arthur Dietrich  
Fernando Sanchez  
Maximilian Schrade

**RAMBOLL**

Project  
Kwinana WTE facility Perth Australia  
Date  
December 2017

**TECHNICAL EVALUATION  
KWINANA WTE**  
  
RAMBOLL

# Commercial & Legal Due Diligence



Commercial / legal due diligence reports are complete or well progressed

## Waste Market

**Kwinana Waste to Energy Project**

Independent Review of Volumetric Forecasts and Commercial Gate Fee Analysis for the Perth Metropolitan & Peel Region

SLR Ref: 416-05793-00002

November 2017

Environmental Engineering Consultants  
Waste Management Specialists

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Waste Management Specialists

**RFP-KWTE-0014 WASTE MARKET ASSESSMENT TASK 1 CLEARING PRICE**

OCTOBER 2017 REVISION

November 20, 2017

Prepared by Bowman & Associates Pty Ltd

## Electricity Market

REPORT ID: PHOENIX ENERGY  
4 OCTOBER 2017

**KWINANA WASTE TO ENERGY**

WEM BACKGROUND AND PROJECTIONS

## Legal

Our ref: R00/CY/09 3003 0958  
2 November 2017

**MEMORANDUM CONFIDENTIAL & PRIVILEGED**

**KWINANA WTE - FRAMEWORK OF LOCAL GOVERNMENT**

1. INTRODUCTION AND NO RELIANCE

1.1 Context

(a) Ashurst is engaged by, amongst others, Kwinana WTE Finance Co Pty Limited and Kwinana WTE Project Co Pty Ltd (together the **Client**) in relation to the development and operation of a proposed waste-to-energy project in Kwinana, Western Australia (**Project**).

(b) Kwinana WTE Project Co Pty Ltd has entered into waste-to-energy agreements with

DRAFT

Our ref: R00/CY/09 3003 0958  
11 December 2017

**MEMORANDUM CONFIDENTIAL & PRIVILEGED**

**KWINANA WTE - EPC CONTRACT AND O&M CONTRACT COMMERCIAL RISK POSITIONS SUMMARY**

1. INTERFACE AGREEMENT

Issue/Risk	Allocation/Principle
Interface Agreement	EPC Contractor and O&M Contractor will enter the Interface Agreement to detail their obligations in relation to each other and transition from the EPC phase to the operations phase, including access, design hand, defect notification and dispute resolution procedures between them and to enable direct recovery as between them.

2. EPC CONTRACT

The table below sets out critical key terms of the proposed EPC Contract and identifies the extent to which Project Co is exposed to certain "gaps" between its upstream obligation in the RFP, Kwinana WSA and the Lease and entitlements in relation to the design, construction, testing and commissioning of the facility and the obligations and entitlements of the EPC Contractor under the EPC Contract.

Issue/Risk	EPC Key Terms
Performance Guarantee	Performance Guarantee

Our ref: R00/CY/09 3003 0958  
13 November 2017

**MEMORANDUM CONFIDENTIAL & PRIVILEGED**

**ENVIRONMENTAL APPROVALS FOR KWINANA WASTE-TO-ENERGY PROJECT**

1. INTRODUCTION AND NO RELIANCE

1.1 Context

(a) Ashurst is engaged by, amongst others, Kwinana WTE Finance Co Pty Limited and Kwinana WTE Project Co Pty Ltd (together the **Client**) in relation to the development and operation of a proposed waste-to-energy project in Kwinana, Western Australia (**Project**).

(b) Kwinana WTE Project Co Pty Ltd (**ProjectCo**) is developing a waste-to-energy generation plant in Kwinana, Western Australia (**The Facility**).

Our ref: R00/CY/09 3003 0958  
13 November 2017

**MEMORANDUM CONFIDENTIAL & PRIVILEGED**

**APPROVALS FOR KWINANA WTE FACILITY**

1. INTRODUCTION AND NO RELIANCE

1.1 Context

(a) Ashurst is engaged by, amongst others, Kwinana WTE Finance Co Pty Limited and Kwinana WTE Project Co Pty Ltd (together the **Client**) in relation to the development and operation of a proposed waste-to-energy project in Kwinana, Western Australia (**Project**).



## Key takeaways

- Nearly 20% of a household energy need is disposed of in the waste bin each week!
- Over 50% of energy generated is considered renewable (biomass)
- No legacy issues for future generations
  - landfills take up to 150yrs to breakdown waste,
  - produce fugitive methane emissions
- Crisis' such as failures in the recycling and composting sectors can be managed effectively by diverting these to energy recovery rather than landfill
- As we reduce (reuse, & recycle) more waste, then ultimately a waste to energy plant can be shut down and dismantled without any legacy environmental impacts
- Carbon footprint reduced, compared to landfill gas emission, coal power generation and long transport distances to landfill
- Skilled jobs with stable employment
- The facility becomes a local attraction rather a dirty, smelly hole in the ground!

## When is the right time to do this?

- 25yrs ago! We have a lot of catching up to do

# Just a few examples!



# Thank-You



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