Application for Individual Licence Exemption: Electricity (Generation) Licence

Kwinana WTE Project Co Pty Ltd

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LIST OF ABBREVIATIONS

DWER	Department of Water and Environment Regulation
EP	Environmental Protection Act 1986
ERA	Economic Regulation Authority
GHG	Greenhouse Gas
KIA	Kwinana Industrial Area
MSW	Municipal Solid Waste
MW	Megawatt
PER	Public Environmental Review
RRF	Resource Recovery Facility
SWIS	South West Interconnected System

t/yr	tonnes per year
WARR	Waste Avoidance and Resource Recovery
WtE	Waste to Energy

1 Introduction

In accordance with the Economic Regulation Authority's licence application guidelines (ERA, *Licence Application Guidelines Electricity, Gas and Water Licences, November 2016*), Phoenix Energy Australia Pty Ltd (Phoenix Energy, acting on behalf of the Applicant, Kwinana WTE Project Co Pty Ltd (Project Co) (ACN 165 661 263)) is applying for an individual licence exemption (Electricity (Generation) Licence exemption) under the *Electricity Industry Act 2004*, for the proposed Kwinana Waste to Energy (WtE) Project, also known as a Resource Recovery Facility (RRF). Due to expected improvements in energy recovery and electricity generation efficiency, this application is seeking to increase a generation capacity limitation currently in place under an existing exemption order for the Project.

In addition, due to a subdivision of the Lot upon which the Project site is located, we wish to advise that the Project site has a new Lot number, though there has been no change to the physical location of the site. Please refer to section 5 Change of Project Site Details.

2 Generator Project Description

The Kwinana WtE Project will be a critical component of WA's long-term waste management infrastructure, having already secured Waste Supply Agreements (WSAs) covering 8 local councils in the Perth metro and Peel Region.

The facility will utilise the tried and proven moving grate combustion technology to process up to 400,000 t/yr of residual Municipal Solid Waste (MSW) into clean, base load renewable electricity. The process will recover energy in the form of electricity and other resources (such as recyclable metals) and employ Best Available Techniques to ensure that any emissions to the atmosphere comply with benchmark European emission limits. In addition, the project is seeking to demonstrate the reuse of solid residues (ash) from the combustion process, for use as alternative construction materials.

As a result, this new renewable energy infrastructure will not only deliver one of the cleanest forms of base load electricity, but it also seeks to divert 100% of the feedstock (MSW) away from landfill disposal. This will simultaneously reduce WA's reliance on both fossil fuel fired base load electricity generation, and landfill disposal. Because of the significance of the project to Western Australia, it has been endorsed by the State Government as a Level 2 project under the State's Lead Agency Framework, managed by the Department of State Development (DSD).

While this proposal is the first of its kind in Australia, it will join the ranks of hundreds of similar scale or larger WtE facilities using the same tried and proven combustion technology, which has been in commercial operation in most major cities around the globe for decades.

2.1.1 The Applicant

The proponent for the proposal and the Applicant for the exemption is Kwinana WtE Project Co Pty Ltd (Project Co) (ACN 165 661 263) registered at Traralgon, VIC, 3844. Project Co is a special purpose vehicle (SPV), which is currently 100% owned by Phoenix Energy Australia Pty Ltd.

Phoenix Energy has developed relationships with tier-one engineering, legal, and financial service providers, as summarised below. Phoenix Energy draws on any or all of these partners during the project development process. Table 1 provides a summary of some of our key project development and delivery partners.

Table 1 Kwinana WtE Project Development and Delivery Partners

Consortium Member Name	Description
Ramboll	Ramboll has be engaged as Owners Engineer. Ramboll is a globally renowned consultant to the Waste-to-Energy industry. Ramboll has worked on Waste-to-Energy projects in 45 countries (since the 1970s), providing consulting services for 145 new units and retrofits, with a combined operational capacity of in excess of 9 million tonnes per year.
Ashurst Australia	Legal advisor. Ashursts are leaders in advising, waste, power and renewables infrastructure projects in Australia and in the UK, where they closed 11 WtE Projects in 2015/16.

2.1.2 How will Project Co sell energy to the market?

There are a number of avenues under consideration by Project Co to sell the energy to the market:

- Firstly, Project Co is on the WALGA Preferred Supplier Panel for Energy Services, thus allowing Project Co to enter into contracts with WALGA Members (i.e. local councils) for the sale of contestable energy via a WALGA Panel Contract.
- Secondly, Project Co is in discussion regarding a potential PPA for a portion of the generation capacity.
- Thirdly, Project Co will look to sell any excess generation capacity into the balancing market.

Given that the RRF has an implementation timeframe of 36 months, covering detailed design, construction and commissioning, there is time for Project Co to market its electricity to potential customers.

3 Existing Individual Generation Licence Exemption

In 2015, Phoenix Energy (acting on behalf of Project Co) successfully applied for and was granted an individual generation licence exemption, which was gazetted on 8 January 2016. The exemption order states that "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".

However, further progress of the design has delivered a number of benefits, none the least being a significantly improved energy recovery and electrical generation efficiency. This has lifted the gross generation capacity of the RRF to (up to) 45 MW, with a sent-out capacity of up to 38 MW, net to the SWIS. Since the original 8 January 2016 exemption order included the qualifier that the exemption would apply “if the generation capacity of the generating works is less than or equal to 36 MW", it is therefore necessary for Phoenix Energy to re-apply for an individual exemption on behalf of Project Co.

4 Basis for a New Individual Exemption

In accordance with the ERA's *Licence Application Guidelines Electricity, Gas and Water Licences, November 2016*), potential applicants who do not strictly meet the requirements for a class exemption can apply to the Public Utilities Office for an individual licence exemption under the *Electricity Industry Act 2004*.

This request for an exemption from the requirement to hold an Electricity (Generation) Licence is premised on the fact that:

(a) the Kwinana WtE Project has already been granted an individual licence exemption, having already satisfied the public interest test,

(b) the increase in gross generation capacity of up to 45 MW (with a sent-out capacity of up to 38 MW, net to the SWIS) will enhance public interest by improving the resource (energy) recovery efficiency of the facility, and

(c) the sent-out generation capacity is still relatively small compared to other baseload power generators, and it is unique as a baseload renewable energy generator and resource recovery facility.

It is intended that the Applicant (Kwinana WTE Project Co Pty Ltd) will apply for an Electricity (Retail) Licence during the construction phase.

In order to demonstrate that this exemption request would not be contrary to the public interest, Phoenix Energy (with the support of its project development consortium partners) has prepared the following assessment for consideration by the Public Utilities Office, in relation to the Kwinana WtE Project.

4.1 Public Interest Assessment

4.1.1 Environmental considerations

The primary purpose of the Kwinana WtE Project is to avoid the long-term storage of municipal solid waste in landfills where there are environmental legacy issues of fugitive methane emissions to atmosphere (methane is a potent greenhouse gas), potential for ground water contamination, ineffective resource recovery and the locking up of land areas from other more productive usage. Instead, combustion of this waste facilitates the immediate recovery of energy (as steam and electricity), which offsets the burning of fossil fuels, and the recovery of other resources, such as recyclable metals. This is consistent with the waste hierarchy, as presented in Part 1, Section 5 of the *Waste Avoidance and Resource Recovery (WARR) Act 2007*, which establishes that the recovery of energy from waste is classified as ***resource recovery***[1] and is therefore considered to be a higher order outcome than disposal.

Due to the significant portion of biomass (food waste, garden waste, wood, contaminated paper & cardboard and natural textiles) in MSW, the combustion of MSW to generated electricity is recognised as eligible renewable electricity generation by the *Renewable Energy (Electricity) Act 2000*. Due to the constant nature of waste generation (waste is collected weekly, throughout the year), the steady production of electricity provides baseload support for other forms of intermittent renewable energy.

Waste to energy is recognised internationally as a means of reducing lifecycle Greenhouse Gas (GHG) emissions due to the following offsets:

[1] resource recovery (including reuse, reprocessing, recycling and energy recovery) (page 5, Part 1, s. 5, *Waste Avoidance and Resource Recovery Act 2007)*

- Avoided fugitive methane (landfill gas) emissions, which arise even where landfill gas capture systems are in place,
- Avoided GHG emissions associated with the avoidance of the equivalent amount of base load energy generation from fossil fuel fired energy generation (relating to either steam or electricity generation or combined heat and power generation),
- Avoided GHG emissions associated with the recovery of recyclable ferrous and non-ferrous metals, which are readily recovered from the ash residue from the combustion process,
- Potential avoided GHG emissions associated with the reuse of ash residues from the combustion process for the creation of alternative construction products, as an alternative to quarried materials sourced from distant quarries and/or as an additive to conventional brick manufacture, and
- Avoided GHG emissions associated with transporting waste increasingly long distances to regional landfills for disposal.

The Project has undertaken a full Public Environmental Review (PER) and has received approval by the Minister for Environment under Part IV of the Environmental Protection (EP) Act 1986 (Statement 1016, 3 September 2015), while the DWER subsequently granted the Project its Works Approval under Part V of the EP Act 1986 (W5911, 31 March 2016). The Project was also granted Development Approval by the South West Joint Development Assessment Panel (JDAP) on 7 December 2015.

4.1.2 Social welfare and equity considerations, including community service obligations

The following considerations relate to social welfare and equity, including community service.

The project will provide:

- Increased awareness and uptake of renewable energy, as a unique form of baseload renewable energy generation, to complement intermittent renewable energy sources such as wind and solar,
- Reduced electricity prices in the long term due to cost competitiveness with traditional fossil fuelled generation,
- Alternative fuel for electricity production in times of gas supply curtailments,
- Reduced and predictable long-term waste disposal costs for local communities,
- Reduced land footprint occupied by landfill, and compared to other forms of renewable energy,
- An extension of the useful life of existing landfills, and in so doing, defer both the need for new putrescible landfills and the significant capital expenditure required for such replacement landfills,
- Ongoing education of school children and the broader community on responsible waste management following the principles of Reduce, Reuse, Recycle and Recovery (the fourth R).

4.1.3 Economic and regional development factors, including employment and investment growth

The project will provide the following economic benefits:

- $400 million investment in capital for the engineering, construction and commissioning of the project, which will be located in the south west of WA,
- 500-1000 jobs during the detailed design, construction and commissioning period,
- ~40 direct, ongoing operational jobs,
- Potential for additional indirect maintenance and operations support jobs associated with local trades and traders, providing goods and services to the Facility and its workforce,

- Educational and traineeship opportunities,
- Potential synergies with other large manufacturers in the Kwinana Industrial Area (KIA), in relation to energy, scrap metal recovery and potential reuse of ash residue for the manufacture of construction products, as an alternative to quarried materials,
- Tourism opportunities, since the Facility will be a showcase for Waste to Energy to the eastern states, and
- Strengthening of ties with key Asian markets, through the provision of technology into WA.

4.1.4 The interests of customers generally or of a class of customers

There are three groups of customers:

1. Local councils supplying their waste as fuel to the RRF, as part of their essential service of waste collection and resource recovery to the communities they serve
2. Commercial waste suppliers who will have a viable competitor to landfill disposal, and
3. Electricity customers, who will be either local councils purchasing back electricity generated from their own waste streams, or large scale industrial customers located within the KIA and elsewhere (with any excess generation capacity available to the balancing market for general consumption within the SWIS). This project will provide an alternate supplier of electricity and a source of renewable electricity not currently available in Western Australia.

4.1.5 The interests of any licensee, or applicant for a licence, in respect of the area or areas to which the order, if made, would apply

There are several other electrical generators already in the KIA. This project will be relatively minor in output in comparison with the existing installed capacity and is not considered a significant impact on existing licensees or new applicants for a licence.

Other generators in the area already have exemptions from holding a Generation licence due to either generating below the 30 MW threshold, or a significant proportion of the electricity generated being for onsite consumption.

4.1.6 The importance of competition in electricity, gas or water supply markets

Although this generator will be relatively small in comparison to the existing market, it will introduce a new form of competition in terms of renewable baseload capacity with an alternate (renewable) fuel source.

4.1.7 The policy objectives of government in relation to the supply of electricity, gas or water services including that which is not limited to providing safe reliable services

- The operation will have no bearing on the safety and reliability of the power system as it will be located within the centre of a large number of other generators and large consumers,
- Operation will be in accordance with the Technical Rules and Wholesale Market Rules.
- It supports government policy of increasing the uptake of renewable energy,
- It diminishes the need for government subsidies to increase the uptake of renewable energy, and
- It improves market efficiency by facilitating the production of electricity via an alternate low-cost fuel.

The project meets the following aspects against each of the Objectives of the Wholesale Electricity Market (WEM):

The objectives of the market are —

(a) *to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system;*

The project will deliver reliable baseload renewable electricity at a cost comparable to fossil fuel generation.

(b) *to encourage competition among generators and retailers in the South West interconnected system, including by facilitating efficient entry of new competitors;*

This will be new generation technology (to this market) from a new competitor.

(c) *to avoid discrimination in that market against particular energy options and technologies, including sustainable energy options and technologies such as those that make use of renewable resources or that reduce overall greenhouse gas emissions;*

The project utilises sustainable methodology for the processing of municipal solid waste, considered to be a renewable resource, to reduce overall (lifecycle) greenhouse gas emissions.

(d) *to minimise the long-term cost of electricity supplied to customers from the South West interconnected system; and*

The cost of the electricity produced will be comparable to fossil fuels and is competitive with other forms of renewable energy.

(e) *to encourage the taking of measures to manage the amount of electricity used and when it is used.*

The project will be located in the Kwinana Industrial Area, where a number of other generators and large consumers are also located. This will ensure efficiency of utilisation of transmission systems.

The generation will be baseload. This will support the use of distributed generation (Solar PV) and wind power which are intermittent and consequently, may not be available when consumers need the generation capacity.

4.1.8 Any other matters considered appropriate and relevant which may impact on the public interest

Because of the significance of the project to Western Australia, it has been endorsed by the State Government as a Level 2 project under the State's Lead Agency Framework, managed by the Department of State Development (DSD).

5 Change of Project Site Details

Since the original exemption order was granted, the land owner (LandCorp) has further subdivided the Lot, to allow for the extension of Donaldson Road, to the south of the Project site. As such, the Lot number has changed to Lot 9501, deposited on plan 407762. However, the subdivision has not impacted the original site boundaries or development envelope, and therefore, the coordinates provided by Project Co in relation to the site boundaries have not been changed.

The site location is therefore Lot 9501 Leath Road, Kwinana Beach.