

APPENDIX 9

Kwinana Ethanol Bio-Refinery Website Text



Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary
Energy

Downloads

Feedback

Links

With huge amounts of greenhouse gas being pumped into our atmosphere, the threat of global warming and the steadily rising price of petrol, now more than ever, Western Australia needs a renewable, greenhouse friendly fuel made from Western Australian natural resources.

Western Australian wheat can be used to produce renewable, fuel grade ethanol, which can be blended with petrol to create a fuel which reduces greenhouse gas emissions and provides a domestic market for Western Australian wheat.

Primary Energy Pty Limited proposes to establish an Ethanol Bio-Refinery in the Kwinana Industrial Area, south of Fremantle in Western Australia. The proposed facility will use Western Australian wheat to produce up to 160 million litres of fuel grade ethanol per year, which could reduce net greenhouse gas emissions from the transport sector by 400,000 tonnes of carbon dioxide per year. The Bio-Refinery will also produce a number of other products, namely:

- Fertiliser;
- Aqueous ammonia; and
- Green electricity



Umwelt (Australia) Pty Limited (Umwelt) is in the process of preparing environmental documentation for the project, to be submitted to the Western Australian Environment Protection Authority and the Department of Environment in June 2006.

This website provides information on Primary Energy, the Kwinana Ethanol Bio-Refinery proposal and opportunities for community input into the proposal as a part of the community consultation program being undertaken by Umwelt.

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Kwinana Ethanol Bio-Refinery

[Home](#)

[The site](#)

[The process](#)

[Environment & community](#)

[Press releases](#)

[About Primary Energy](#)

[Downloads](#)

[Feedback](#)

[Links](#)

The site

Primary Energy proposes to build the Kwinana Ethanol Bio-Refinery within the Kwinana Industrial Area, south of Fremantle in Western Australia, within the Local Government Areas of the Town of Kwinana and the City of Rockingham.

The Bio-Refinery will be located in an area zoned for industrial development, adjacent to the Co-operative Bulk Handling (CBH) Kwinana export terminal, which currently ships more than half of Western Australia's export grain. Vehicular access to the Bio-Refinery will be via Kwinana Beach Road.



[Download map \(169 kb\)](#)



[Download location plan \(307 kb\)](#)



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Kwinana Ethanol Bio-Refinery

[Home](#)

[The site](#)

[The process](#)

[Environment & community](#)

[Press releases](#)

[About Primary Energy](#)

[Downloads](#)

[Feedback](#)

[Links](#)

The Process

The Bio-Refinery will use wheat, electricity, natural gas, water and other additives such as enzymes to produce fuel grade ethanol, fertiliser, aqueous ammonia and green electricity. Production will occur in four integrated processing units, namely:

- An ethanol plant producing fuel grade ethanol from grain (technology developed by Delta-T)
- An anaerobic digester plant producing bio-gas (consisting mostly of methane) to be used to generate heat and green electricity and a sludge to be used in fertiliser production (technology developed by Bioscan)
- A fertiliser plant for drying the 'sludge' from the anaerobic digesters and production of fertiliser (technology developed by Flo-Dry)
- A combined heat and power plant (CHPP) which uses the bio-gas from the anaerobic digester plant to produce green electricity and heat. Heat from the CHPP will be used to dry the 'sludge' in the fertiliser plant.

Water will be recovered from the process and recycled through the Bio-Refinery, ensuring that there is no waste water released from the process.



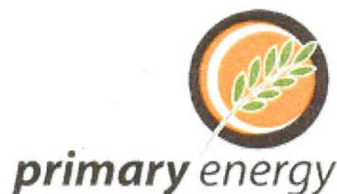
[View a flow diagram of the process](#) (19 kB)

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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary
Energy

Downloads

Feedback

Links

Environment & Community

Environment

The Kwinana Ethanol Bio-Refinery will have no process waste outputs, water will be completely recycled and heat generated in the process will be efficiently re-used. This will ensure that there will be no pollution of air, land or water during normal day to day operation of the Bio-Refinery. The major aspects of the proposal requiring further environmental assessment include:

- [Site context](#)
- [Noise](#)
- [Air Quality and Odour](#)
- [Traffic](#)
- [Hazard](#)

Community

The Kwinana Ethanol Bio-Refinery will deliver employment opportunities for Western Australia including:

- 50 direct positions;
- 350 indirect positions; and
- 500 jobs during construction of the Bio-Refinery.

A community consultation program will be carried out by Umwelt during May and June, prior to lodgement of the Environmental Documentation with the EPA and DoE. Further information is available in the [Feedback section](#) of this





Kwinana Ethanol Bio-Refinery

[Home](#)

[The site](#)

[The process](#)

[Environment & community](#)

[Press releases](#)

[About Primary Energy](#)

[Downloads](#)

[Feedback](#)

[Links](#)

Site context

The proposed Kwinana Ethanol Bio-Refinery is located in the Local Government Areas of the Town of Kwinana and the City of Rockingham, in the Kwinana Industrial Area. It is proposed to locate the Bio-Refinery on land zoned for port related industrial use, adjacent to the CBH grain export terminal. The proposed site is situated adjacent to land zoned for recreation, and is in proximity to Kwinana Beach. The Bio-Refinery is also within the catchment of Cockburn Sound.



As water will be completely recycled within the Bio-Refinery process, the likely risk of pollution of Kwinana Beach and Cockburn Sound as a result of Bio-Refinery operations is negligible.

The closest residential area to the Bio-Refinery is the suburb of Rockingham, located to the south west of the site. Amenity issues such as noise, air quality, traffic and hazard are being addressed as a part of the environmental documentation for the Bio-Refinery with particular reference to the residential area of Rockingham.

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Kwinana Ethanol Bio-Refinery

[Home](#)

[The site](#)

[The process](#)

[Environment & community](#)

[Press releases](#)

[About Primary Energy](#)

[Downloads](#)

[Feedback](#)

[Links](#)

Noise

Noise is an issue of some concern to stakeholders within the Kwinana and Rockingham Local Government Areas. Primary Energy therefore aims to design a facility which will cause no significant increase in noise levels at the nearest residential areas to the proposed Bio-Refinery.

In order to achieve this aim, Primary Energy proposes to:

- Keep road traffic distant from residential areas;
- Shield noise sources through the use of an appropriate site layout;
- House major noise generating equipment within buildings; and
- Incorporate noise attenuation measures as necessary.

Noise modelling is being undertaken at present to determine both noise levels from the proposed Bio-Refinery itself and cumulative noise levels at the nearest residential areas.

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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary
Energy

Downloads

Feedback

Links

Air quality

The proposed Kwinana Ethanol Bio-Refinery will have a yearly direct emission of 21,000 tonnes of carbon dioxide at full production. However, there will be a total annual saving of 406,000 tonnes of carbon dioxide based on a full analysis of the production and use of the ethanol, from growing the grain right through to using the ethanol in a 10% ethanol fuel blend known as E10. This greenhouse gas saving is equivalent to removing 95,000 cars from Australian roads.

Through efficient design of the Bio-Refinery process, gas streams will be re-used where-ever possible throughout the Bio-Refinery. Gaseous streams will be treated and there will be negligible emission of air pollutants during normal operations.

Air from the grain handling areas of the Bio-Refinery will be treated in a bag house to remove particulate matter. Air from the ethanol plant itself will be treated to remove gaseous ethanol, and air from the fertiliser plant will be treated in a bio-filter to ensure air streams leaving the Bio-Refinery are free of odour.

An Air Quality and Odour Assessment is currently being undertaken for the Bio-Refinery and will form part of the Environmental Documentation to be submitted to the EPA and DOE.

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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary

Energy

Downloads

Feedback

Links

Traffic

Grain will be supplied to the Bio-Refinery from CBH by conveyor, and there will be a number of input and output products transported to and from the site which will need to be transported by truck including:

- Ethanol;
- Fertiliser;
- Wheat dust;
- Aqueous ammonia;
- Enzymes and substances for cleaning; and
- Material for fertiliser blending.

It is expected that there will be an average of 62 truck movements per day to and from the Bio-Refinery. Products will be transported from the site to receival facilities to the north in Kwinana Industrial Area and Fremantle.

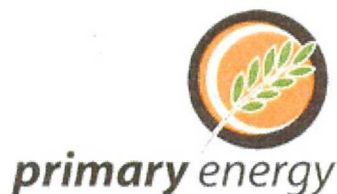
In addition, fertiliser in raw materials will be brought into the site on a campaign basis. It is expected that this will occur 49 days per year, and there will be 143 trucks per day during these campaigns.

Primary Energy aims to keep truck traffic away from residential areas and to ensure that there will be no significant increase in truck movements on Rockingham Beach Road. Traffic is being assessed as a part of the environmental assessment for the Bio-Refinery, and will be documented in the Environmental Documentation for the facility.

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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary
Energy

Downloads

Feedback

Links

Hazard

The Bio-Refinery proposal will involve the storage of some chemicals onsite including:

- Ethanol;
- Aqueous ammonia;
- Methane gas;
- Caustic; and
- Other chemicals.

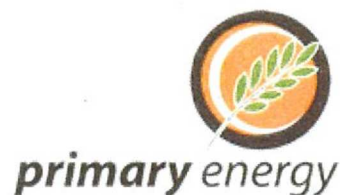
A Preliminary Hazard Analysis (PHA) is currently being undertaken for the Bio-Refinery. This analysis will identify the risks associated with the proposal and will allow Primary Energy to make sure that the health and safety of the local community is protected.

Once the PHA is complete, issues identified in the PHA will be addressed in consultation with the Department of Consumer and Employment Protection.

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Kwinana Ethanol Bio-Refinery

[Home](#)

[The site](#)

[The process](#)

[Environment &
community](#)

[Press releases](#)

[About Primary
Energy](#)

[Downloads](#)

[Feedback](#)

[Links](#)

About Primary Energy

- Primary Energy is a private company owned by Tamworth farmer Matthew Kelley
- Primary Energy is proud of its association with well known environmental group, Clean Up Australia
- The founder of Clean Up Australia, Ian Kiernan, AO, is the chairman of Primary Energy
- Primary Energy was a founding partner in Clean Up Australia's Clean Fuels campaign
- Primary Energy is currently developing Bio-Refineries in Kwinana, Western Australia, Brisbane, Queensland, and Gunnedah in northern New South Wales.

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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary
Energy

Downloads

Feedback

Links

Press releases

- [Primary Energy to Construct \\$100 Million Ethanol Facility](#) (download size 94 kb)

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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary

Energy

Downloads

Feedback

Links

Downloads

- Handout of presentation to the Community and Industries

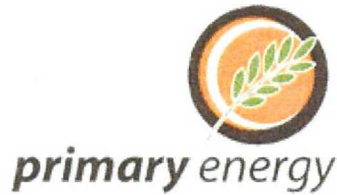
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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary
Energy

Downloads

Feedback

Links

Community feedback

Umwelt is currently carrying out a community consultation program in the Kwinana and Rockingham areas on behalf of Primary Energy.

Feedback on the proposed Bio-Refinery can be forwarded to Umwelt electronically by:

- [Filling in the feedback form](#)
- Email to mail@umwelt.com.au

or by mail addressed to:

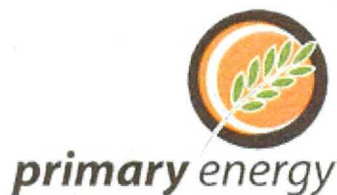
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Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary

Energy

Downloads

Feedback

Links

Feedback form

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Email address

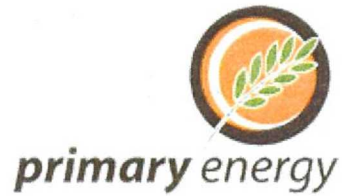
Your suburb

Your contact details (postal address, phone etc)

Your comments

Submit comments

Umwelt is committed to protecting your personal information. Information collected in this feedback form is for the purposes of this study only.



Kwinana Ethanol Bio-Refinery

Home

The site

The process

Environment &
community

Press releases

About Primary

Energy

Downloads

Feedback

Links

Links

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