



**ASX CODE (GPP)**

**ABN 22 000 002 111**

### **ABOUT GREENPOWER**

Greenpower Energy is a clean energy technology developer, and is currently progressing the development of 'zero carbon' processes for converting coal to transport fuels, which it can then apply to the company's own sizeable inferred resource of Victorian brown coal. Go to [greenpowerenergy.com.au](http://greenpowerenergy.com.au)

### **CAPITAL STRUCTURE**

- Shares on issue	92,466k
- Unlisted options	0.7m
As at 30 June 2014:	
- Cash	0.4m
- Shares in listed co	0.6m
- Exploration assets	1.3m

### **CONTACT US**

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**GREENPOWER ENERGY LIMITED (ABN 22 000 002 111)**

### **STATEMENT TO SHAREHOLDERS AT THE ANNUAL GENERAL MEETING**

**Thursday 27 November 2014 at 15 Labouchere Road, South Perth, WA**

#### **A Very Brief Review Of The Companies' Present Activities.**

##### **First: Minerals And Hydrocarbons Exploration.**

We have reached a point where we have now concentrated all of our resources in this area on two property groups:

1. Coal, in particular Victorian Brown Coal exploration rights held in eastern Victoria, in the Latrobe Valley. We now hold 3 current licenses, which we estimate cover an estimated inferred 500 million tonnes of Victorian Brown Coal.
2. Perth Basin Oil & Gas: We hold a one half interest in Petroleum Exploration Permit No. 447 situated in the onshore North Perth Basin – near Cataby, north of Perth. Whilst we have good reasons to believe this property is prospective for conventional gas, the straightened conditions for hydrocarbon exploration presently prevailing have compelled us to review our continued involvement in this prospect, and we have commenced some discussions with our partner.

##### **Second: Coal To Liquids Technology Acquisition And Development.**

As shareholders have been informed previously, we have for about 5 years been scouring the world for an optimum process for converting coal, and Victorian Brown Coal in particular into useful liquids such as transport and other fuels or additives, and speciality chemicals, BUT, most importantly, doing it in a way which creates no, or very minimal greenhouse gas emissions.

In this quest we have examined 4 such processes, which were said to meet our criteria.

We are now concentrating all our efforts and resources on just one such technology, the one known as Oxidative Hydrothermal Dissolution.



In 2012 we signed an agreement with the holder of the world rights to this patented process to give us the exclusive sole Australian rights to use it in Australia, in return for supplying development funding.

Because this is now the company's main focus I will pass over to Alan Flavelle who will review who this process works and describe the up to date position with its development.

### PRODUCTION OF HIGH VALUE PRODUCTS FROM VICTORIAN BROWN COAL [VBC] USING THE OXIDATIVE HYDROTHERMAL DISSOLUTION PROCESS [OHD].

**Oxidative hydrothermal dissolution** (OHD) is an unprecedented, economically and environmentally appealing direct liquefaction technology for the conversion of low cost raw materials, including coal, to high-value liquid products including chemical feedstocks and fuels. Thermaquatica Inc. holds exclusive worldwide rights to this technology. Greenpower has the rights to the OHD technology for Australia and New Zealand.

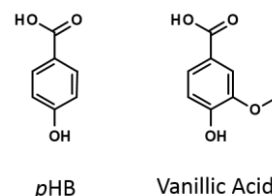
OHD works by reaction of the starting material, in this case coal, with dissolved  $O_2$  in hydrothermal water, i.e. high temperature, high pressure liquid water. Unlike other direct and indirect CTL/CTX technologies such as gasification or "liquefaction", which rely on overall reduction of the starting material, OHD utilizes oxidative bond scission to break up the overall molecular network. The process requires no exotic catalysts or solvents, produces little  $CO_2$  and no  $NO_x$  or  $SO_x$  emissions. Typical operating conditions for coal conversion are  $T=240-300^\circ C$ ,  $p=1500-2500$  psi. Under these conditions, in the presence of dissolved oxygen, rapid dissolution of the coal occurs. Essentially complete conversion of the coal is typically readily achievable with 70-90% of the initial carbon recoverable as low MW water soluble products.

In general, OHD products derived from coal consist of a mixture of monoaromatic acids and phenols, with lesser amounts of simple aliphatic acids and diacids. To some extent, the mixture of products can be manipulated by variation of key process variables, especially temperature, oxidant loading and contact time, but by and large the nature of the products generated is a reflection of the inherent structure of the original coal. The majority of products are di- or poly functionalized and many are of potential interest as feedstocks for production of polymers or for conversion to liquid fuels.

#### Application to Victorian Brown Coal:

Victorian Brown Coal (VBC) is a particularly attractive raw material for conversion by OHD due to (i) its inherent structural nature, (ii) high initial water content, (iii) low ash/mineral content, and (iii) availability of large, accessible reserves.

The typical distribution of products obtained by OHD of VBC mixture is a relatively simple mixture of monoaromatics, consisting of ~15-25% *para*-Hydroxybenzoic acid (pHB) + ~25-35% Vanillic acid. The product also contains ~ 10% mixed aliphatic diacids ( $C_4-C_{13}$ ). Other products consist primarily of other simple monoaromatic acids and phenols. This mixture of products is attractive for recovery of high value monomers for production of polyesters (and potentially other polymers) or, with appropriate post processing, for conversion to oxygenated liquid fuels. It is noted that pHB and vanillic acid are speciality chemicals used widely in the food, pharma and cosmetic industries.



The OHD mixture as produced by the PDU unit is ~98% water. Its usefulness in agriculture as a soil conditioner and source of carbon-in-soil is being investigated.

Finally, as has been reported the OHD liquor will readily grow mould which contains lipids. As lipids are the basic building block for bio-diesel, commercial significance of the mould growing propensity is being investigated and quantified.

**Development Status:**

Proof of concept laboratory-scale work is fully complete. International IP is in place. Patents issued in USA, Australia, South Africa, Russia and pending in multiple other jurisdictions including EU, Japan, China and others). Development and exclusive Australian license option agreement with Greenpower Energy is in place. Initial scale up to pilot engineering scale (up to 5kg/hour) successfully completed, with ongoing testing and development work continuing. Downstream refining and separation process testing is in progress. Engineering modelling for preliminary design/specification of multi tonne/day demonstration scale facility is in progress. GAP analysis for the design/specification of a 20 tonne/day pilot plant [PP] has been completed. This plant will be sited in Victoria [Latrobe Valley].

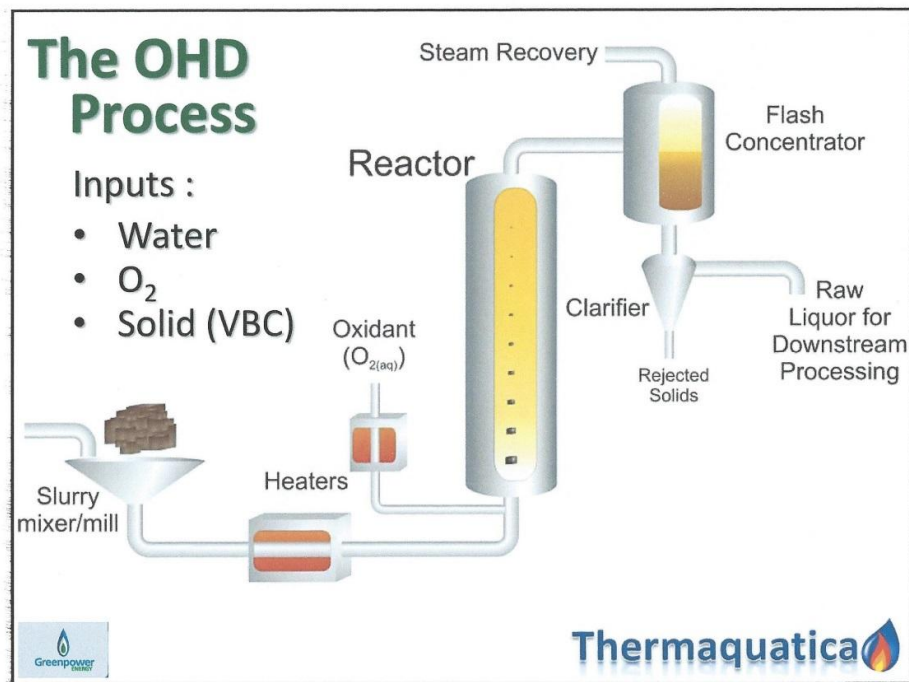
As planned, the PP will process 20tonnes of VBC per day and for a working year of 335 days, 6700 tonnes per year. Ethanol will be also a major input [ 978 tonnes/year]. Outputs will be:

1] Oxygenated fuels	1950 tonnes/year
2] pHB [aka Paraben]	750 tonnes/year
3] Ethyl vanillate	730 tonnes/year

The output stream can be modified so that 100% of it can be converted to oxygenated fuels.

A major work in progress is the creation of a manufacturing chain starting at pHB and ethyl vanillate and culminating in the production of bio-degradable plastics\*\*.

The development of products useful in soil enhancement is a second major work in progress. When one considers the reliable repeatability of the process and the ability to produce large volumes there is an excellent prospect that the OHD liquor can enable soil improvements to be implemented on a broad acre scale.



A third major development thread which is in the early stages of implementation devolves around the ability of the OHD liquor to grow mould. In qualitative terms it is known that the mould contains lipids and if unchecked the mould seems to consume all the chemicals in the liquor. This is very much a work in progress. Over the next 6 months we hope to quantify lipid production and OHD liquor/mould conversion efficiency.

Ends

#### Compliance Statement

The technical information quoted in this announcement has been compiled by Mr Alan Flavelle and geoscientists under his supervision. Mr Flavelle is a Fellow of the Australasian Institute of Mining and Metallurgy and is a member of the Society of Petroleum Engineers. Mr Flavelle has consented to the inclusion in this report of the matters based on the information in the form and context in which it appears.

#### Competent Person Statement

The information in this report that relates to Exploration Results and Inferred Resources based on information compiled by John Watts who is a Fellow of The Australasian Institute of Mining and Metallurgy and CEO of Greenpower Energy Limited. John Watts has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". John Watts consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.