LEAF RESOURCES LIMITED

Sustainable products from plant biomass

14 October 2015

Australian Securities Exchange Announcement

Scoping study for a renewable chemical project released

Scoping Study Highlights

- **Net present value after tax of US$720m**
- **After tax Internal Rates of return of over 81%**
- **Study shows attractive returns achievable for renewable chemicals made from biomass**

Leaf Resources recently commissioned ResourceInvest Pty Ltd to undertake a scoping study for a renewable chemical project based on expected inputs and revenue from a "typical" renewable chemical.

The study showed that the returns for a project taking biomass through to a "typical" chemical are very attractive delivering a NPV for the project of over US$720m after tax.

The scoping study, projects potential revenues from biomass derived chemicals that are now commercially viable and economically competitive against their petroleum based equivalents. This study is important given the recent announcements detailing MOU's to develop feasibility studies for potential projects.

Due to commercially sensitive discussions with several providers of technology to convert cellulosic sugars to renewable chemicals, Leaf Resources cannot disclose the chemical being modelled at this stage. However, the chemical being modelled has been nominated as one of the US department of Energy (USDOE) top twelve chemical building blocks that can be produced from biomass. It has a number of potential uses in mainstream applications and currently sells at over US$2,000 per tonne. Modelling assumptions in this study used a conservative price of at US$1,500 per tonne.

Leaf Resources' Glycell™ process improves the economics of producing renewable chemicals as it can produce cellulosic sugars, a significant input in their manufacture, for under $50 per tonne, when co-products credits are included. This is achieved by the high recovery of cellulose and its fast conversion into sugars. The Glycell™ process also enables co-product revenue with the ability to produce lignin and 99.7% pure glycerol. Both of these co-products have attractive potential markets in downstream chemical processes.

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Ken Richards, Managing Director of Leaf Resources said:

"This study is another step forward in building the economic case for a renewable chemical project based on biomass and Leaf Resources proprietary Glycell™ process. The economics of such a project are very attractive and because of that the opportunity for Leaf Resources to negotiate a free carry in any project is increased.

Governments around the world are keen to see biobased projects established especially as they create jobs in regional areas.

Leaf Resources is committed to progressing opportunities already identified around the world and the next 12 months should see the de-risking of these potential projects."

The financial results of the scoping study were:

Post Tax NPV	$720M
Post tax IRR	81.4%pa
Free cash flow (after debt repaid)	$102.9M
Payback period	~3 years
Tax Rate	30%
Debt	60% funded at 8% pa
Capital	$229M

Inputs into the study included:

- Leaf Resources FEL1[1] engineering estimate (based on Aspen[2] modeling).
- Leaf Resources previous work on the production costs of cellulosic sugars
- Fermentation costs (capital and operational) for the conversion of Leaf Resources' cellulosic sugars to a "typical" chemical sourced from peer reviewed sources.

Key assumptions:

- Cost of biomass $70 per bone dry tonne
- Glycerol: recovered at a higher value than purchased & sold at 30% discount to projected market prices.
- "Typical" chemical: sold at US$1,500 per tonne
- Lignin price projected at US$450 per tonne
- Pentose (C5) sugars recovered sold to market at US$265 per tonne
- 210,000 bone dry tonne plant per annum
- Discount factor 10%
- Numbers based on a 100% interest in the project by Leaf Resources

[1] FEL1 – Front End Loading engineering study

[2] Aspen Modelling - detailed dynamic modelling using itemised costing analysis for plant construction

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About Leaf Resources Ltd (ASX: LER)

Leaf Resources is commercialising the Glycell™ process.

The Glycell™ Process is an innovative technology that uses a low cost, recyclable, biodegradable reagent glycerol, in a simple process that breaks down plant biomass into lignin, cellulose and hemicellulose at low temperature and pressure. The cellulose is then converted to cellulosic sugars through enzymatic hydrolysis and the lignin, hemicellulose and glycerol become valuable co-products.

Cellulosic sugars are a major feedstock for green, renewable biobased chemicals, bioplastics and biofuels, products whose markets are multi $billions and fast growing. Many biobased products can now economically replace petroleum based products.

The Glycell™ process can produce cellulosic sugars at under $50 per tonne when co-products are included. This compares with $220 per tonne for sugars produced from the conversion of corn starch, the cheapest alternative and $280 per tonne for raw sugar.

By dramatically reducing the cost of the main feedstock for bio based chemicals, plastics and biofuels, the Glycell™ process has the potential to change the face of global renewable production.

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