

18 December 2018

Australian Securities Exchange Announcement

## **Leaf validates fully integrated Glycell™ process & secures R&D financing package**

- **IDS now successfully progressed through installation qualification, operations qualification, water testing & operation on product using the Glycell™ process**
- **Streams of clean industrial sugars produced using EFB biomass from Malaysia**
- **IDS on track for completion end June 2019, with information required for bankable feasibility study to become available from April 2019**
- **Loan agreement with Radium Capital to provide Leaf advanced access to R&D tax rebate, with \$660,000 recently received**

Leaf Resources announced today that it has achieved important qualification milestones in the progression towards successful validation of its proprietary Glycell™ process on a fully integrated basis in pilot testing in Europe. Leaf's Glycell™ technology converts plant waste into valuable industrial sugars and other chemicals used in a wide variety of products and by downstream industries.

Leaf has partnered with Bioprocess Pilot Facility (BPF) in Delft, The Netherlands, to undertake a series of Integrated Demonstration Studies (IDS) that incorporate the necessary engineering and hardware components in pilot scale testing. This pilot testing is a critical component of the overall validation program for the technology, and an essential input to both the design and financing requirements for the Company's proposed biorefinery project in Malaysia.

Leaf has successfully completed the first two phases of the IDS process, with the recently completed second phase producing samples of C6 industrial sugars and lignin.

To undertake the final Phase 3 IDS, the Company was required to purchase and install a specialty separation process known as chromatographic separation. The associated unit, pictured below, was delivered and installed at BPF in November before achieving installation qualification (IQ). In the last two weeks Leaf has completed operations qualification (OQ) through commissioning, water testing and operation on actual product produced in the facility with the Glycell™ process.

An automated membrane press filtration unit, also pictured below, was also required, purchased and installed. This unit has also progressed through the IQ and OQ steps, and the Leaf engineering and technical team remain in Holland to continue integrated operations.

Incoming Leaf CEO, Alex Baker, said these developments represent an important milestone, as the Glycell™ technology package has now been validated in a pilot facility for the first time as an integrated process.

“Prepared Empty Fruit Bunch (EFB) from Leaf’s partner in Malaysia has been milled to specification, pre-treated under proprietary conditions, and further processed through filtration, chromatographic separation and hydrolysis. EFB biomass has been separated into its constituent products with separated streams of clean, industrial sugars produced as a result.”

Mr Baker said the Phase 3 design study will continue into the first quarter of 2019 with performance qualification (PQ) as the equipment and processes are optimised in an integrated, continuous fashion. BPF will work with Leaf personnel to perfect the process and prove out the parameters for the techno-economic model.

The data generated by the IDS will be integrated into the FEL 3 (Front End Loading) engineering study which will be undertaken in Malaysia and determines the final engineering design and capital estimate for the Segamat biorefinery site. An announcement on the appointment of international engineering consultants to undertake this critical study will be made before the end of the month.

Completion of the Phase 3 IDS and FEL 3 stages of the project will enable an institutional grade bankable feasibility study to be completed to support final due diligence and project financing. The IDS will be completed by the end of June 2019, with information for the bankable feasibility study from the IDS to progressively become available starting in April 2019.



Chromatographic Separation Unit installed at BPF



Automated Membrane Press Filtration Unit installed at BPF

## **Research and Development (R&D) finance**

Leaf Resources Limited has recently entered into a loan agreement with Radium Capital (Radium) for the advance payment of funds to be received under the Australian R&D tax incentive. Under this agreement Leaf has recently received \$660,000 from Radium, representing its expected R&D tax rebate for July-October 2018.

The loan agreement provides non-dilutive funding to the company at this key stage in its development. Leaf's management expects that, if required, it will be successful in receiving further advanced payments covering its R&D spend in subsequent months. The Company estimates that based on expected R&D spend this will provide an ability to drawdown up to an additional \$1.5 million.

Radium Capital provides funding to innovative Australian businesses running successful R&D programs, by providing R&D tax incentive loans in advance of their receipt from the ATO on favourable terms.

**ENDS**

### **About Leaf Resources Ltd (ASX: LER)**

Leaf Resources is one of the world's leading companies in converting plant biomass into industrial sugars. Our proprietary process for converting biomass-to-functional industrial sugars enable a myriad of downstream technologies for the production of renewable chemicals that will substitute petrochemicals used in manufacturing today. With our project development and continued technical innovation we are building a robust global business centered on renewable carbon containing products to deliver environmental and economic benefits to our shareholders and our planet. More on [www.leafresources.com.au](http://www.leafresources.com.au)

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