



Essential Queensland Pty Limited
Sustainable Natural Plant Extracts

TRANSFORMATIONAL ACQUISITION OF ESSENTIAL QUEENSLAND PTY LTD AND EQUITY RAISING

DIVERSIFYING INTO PRODUCTION OF RENEWABLE
PINE CHEMICALS

DECEMBER 2020

DISCLAIMER: FORWARD LOOKING STATEMENTS

IMPORTANT: You must read the following before continuing.

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EXECUTIVE SUMMARY

LEAF DIVERSIFIES INTO ESTABLISHED ORGANIC PINE CHEMICALS MANUFACTURING MARKET THROUGH **STRATEGIC ACQUISITION**

DEC 2020
commissioning

JAN 2021
First revenue expected

JUN 2021
Target operational capacity of 8,000 tonnes per annum run rate



EQ brings late stage **plant construction** to LER

Clean, highest quality, low cost **production**

Secured long term feedstock **supply of pine logs**



Patentable process to extract rosin & terpenes (key extracts from pine used in numerous industrial processes)

Secured off-take arrangement with major group, **Yasuhara Chemical Company, Japan**






> VISION

To become a global supplier of sustainable natural chemicals

> MISSION

To enter the supply chain as the go-to provider of rosin terpene & bio-based chemical products

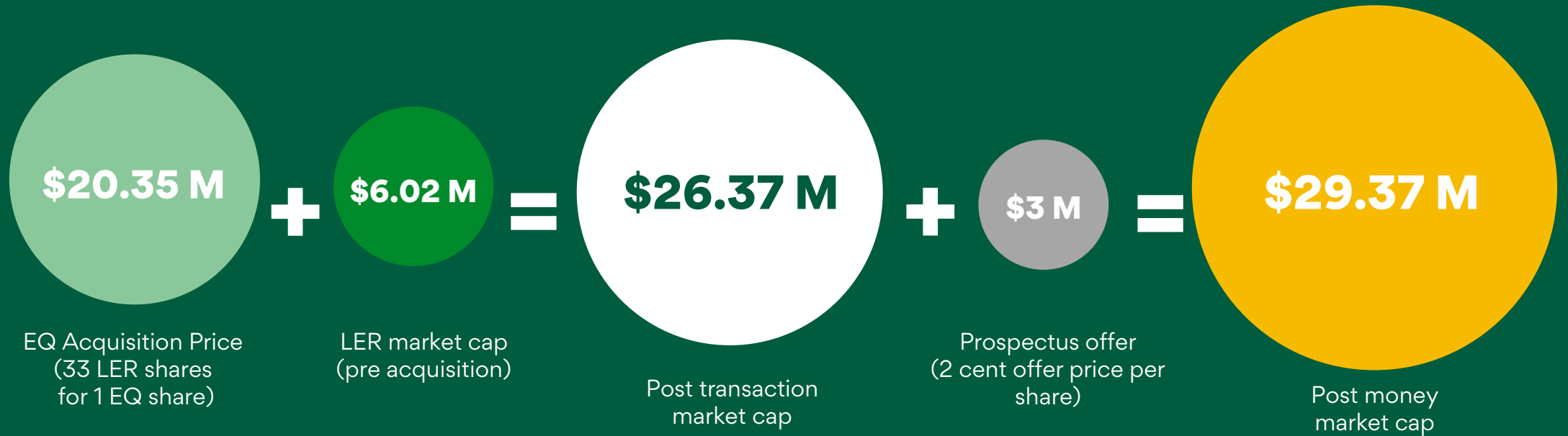




Essential Queensland is embarking on the biggest step-change the pine chemicals industry has experienced since the 1950's. It has developed a world-first, proprietary process for extracting pine chemicals in a sustainable and scalable way. The pine chemical market is estimated at US\$10bn.



TRANSACTION OVERVIEW



Transformational acquisition



Leaf Resources Limited (LER) **enters** global US\$10 billion renewable pine chemicals market



Plans to complete 100% scrip-based acquisition of Essential Queensland Pty Ltd (EQ)



PINE CHEMICALS MARKET



\$100B

global organic chemicals market



\$10B

global pine derived chemicals
industry



Global pine industry is expected to achieve a CAGR of 5% in coming years¹

Pine chemicals are a group of naturally occurring renewable compounds derived from various pine tree species. These chemicals are extracted through the distillation of oleoresin or carbonization of wood. A significant part of refined pine chemical products are produced from pine stumps, gum, logs, and sulphate mash. The pine chemical products are typically used as intermediate chemicals by a variety of manufacturing industries for the production of many products.

These products are predominantly intermediates that are used as raw material inputs by other manufacturing industries in the production of downstream products

1. <https://www.factmr.com/report/4517/pine-chemicals-market>





MULTI BILLION DOLLAR END USE MARKETS



ADHESIVES



CHEWING GUM



INKS



PAINT



CAR TYRES



FOOD ESSENCES



DISINFECTANTS



PERFUMES

REPLACING
PETROLEUM BASED
CHEMICALS IN
THE SUPPLY CHAIN



EXISTING SUPPLY

Essential QLD sources pine logs from plantations, extracts and distills rosin and terpenes respectively (gum rosin & terpenes). Essential QLD will be an efficient, sustainable, low cost producer in the global market.

Essential QLD believes its new supply will fulfill the current demand supply deficit for gum rosin, initially replacing hydrocarbon resins and ultimately the potential to replace the existing high cost seasonal producers, in particular, “Tappers” production, which currently **makes up 25-30% of global supply.**

THERE ARE THREE PROCESSES COMMONLY USED TO EXTRACT ROSIN AND TERPENES FROM PINE TREES:



CRUDE TALL OIL (CTO)

a by-product of the pulp-making process, is fractionated to produce rosin and terpenes (tall oil rosin & terpenes). Whilst CTO is renewable it is an environmentally unfriendly process as it creates serious waste streams with potentially harmful impacts.



CRUDE WOOD OR EXUDATES (OLEORESIN)

is collected from incisions (Tappers) made in the tree trunk which is then distilled into terpenes and rosin (gum rosin & terpenes). This process is seasonal and highly labour intensive. This process is the primary production process used in China and ROW.



PINE WOOD (STUMPS)

is solvent-extracted using petroleum based solvents such as Hexane and then distilled to separate terpenes and rosin (wood rosin & terpenes).



COMPETITIVE ADVANTAGES



**A TRUE
SUSTAINABLE
SOLUTION**



LEAF/ESSENTIAL QLD pine chemicals

Low relative capex



Low waste



No toxicity



Sustainable



Semi automated



Not labour intensive



Food safe quality



Pine chemical producers (gum tappers)



Petroleum based chemical producers



BUSINESS MODEL



Supply of logs from forest owners



Proprietary sustainable extraction of pine chemicals



Offtake agreements for commodities





INITIAL FOCUS & GROWTH

APPLE TREE CREEK SITE

1

NOW

\$5.6M

ALREADY INVESTED

- Single product, pilot plant, manual process
- Pilot completed and operational

2

DEC 20

\$2.3M

ALREADY FUNDED

- Complete Rosin Extraction Plant
- Output capacity +8,000 tonne p.a. pine chemicals

3

JUN 21

\$3M

USE OFFER PROCEEDS

- Complete Plant Optimisation
- Increase plant efficiency to expand output capacity

4

MID 21

Growth

By PLANT DUPLICATION

- Multiplier effect with the potential for multiple plants in Australia and internationally.
- Begin assessment of greenfield and/or brownfield expansion





OPERATIONAL CAPACITY

THEORETICAL AT FULL CAPACITY

Single Operating Plant Apple Tree Creek site	Agreements in place	Operating at expected Plant Capacity	Potential Revenue Per tonne AUD
ROSINS	Deep Commodity market	6,800 tpa	\$3,421
TERPENES	Five year order Blue chip Japanese group , Yasuhara Chemical	1,200 tpa	\$5,539
WOOD CHIP	Domestic offtake demand	27,500 tpa	\$36



Short term growth
from plant expansion



Medium term growth
driven by multiple sites
in multiple locations

Source: Rosinet 12th Dec 2020 USD Spot price per tonne: Rosin \$2,600 Turpenes \$4,210 ; AUD 0.76
Actual deal price may be higher or lower than quoted price above.

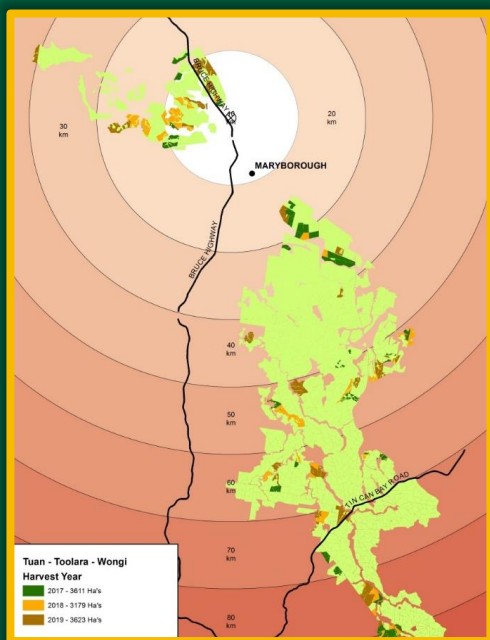




APPLE TREE CREEK SITE

5 YEAR FEEDSTOCK AGREEMENT IN PLACE

Significant forest capacity
within 150kms of plant



Initially 15,000 tonnes per
year supply agreement with
first choice over resinous logs



Agreed delivery at
competitive fixed rate



Long established relationship with
forest owners is a significant
barrier to competition





LOGICAL OPERATIONAL COMBINATION

THE ACQUISITION BRINGS TWO HIGHLY COMPATIBLE TECHNOLOGIES TOGETHER

Both companies

- ✓ **Focus on sustainable & renewable products produced from woody biomass**
- ✓ **Possess valuable proprietary organic solvent extraction technologies**

The combined group

- ✓ Enhances the extraction value from softwood biomass
- ✓ Has combined technologies to create a strong position to address large and growing global markets for pine chemicals and renewable industrial chemicals
- ✓ Secures near-term cash earnings while providing long term growth opportunities from the Glycell technology
- ✓ Allows EQ technology to enable LER to apply Glycell technology to pine and softwoods, not previously possible, being the largest plantations for woody biomass in the world

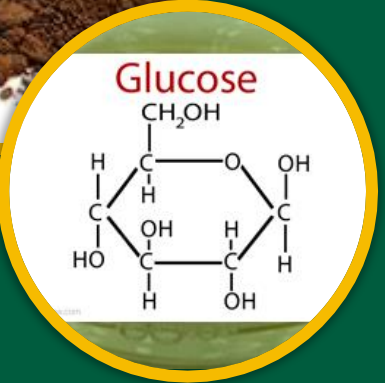




PINE WOOD CHIP TO PROVIDE NEW STRATEGIC FEEDSTOCK FOR GLYCELL PROCESS



Glycell™
Lignin



Cellulosic
sugars
i.e. glucose

Supply of woody chip from EQ stream

Glycell™ Proprietary sustainable extraction of cellulosic sugars and lignin

Partnerships for commodities Offtake



DIRECTORS



KEN RICHARDS
CHAIRMAN

Over 35 years of experience as a Managing Director in various listed and unlisted companies across the finance, agriculture, technology and renewable chemical sectors.



GRANT YEATMAN
EXECUTIVE DIRECTOR

Grant is a co-founder of EQ having been involved in EQ since its incorporation in 2017, providing guidance on intellectual property development and the management and growth of the company.



RAY MOUNTFORT
MANAGING DIRECTOR

For the last 20 years Ray has been primarily involved in the pine chemicals industry, working to establish his vision of sustainable natural hydrocarbon based chemical production.



DOUG RATHBONE ^{AM}
NON-EXEC DIRECTOR

Doug has extensive experience in chemical engineering and commerce. He is currently the Chairman of Rathbone Wine Group and Delta Agribusiness, a Director of Cotton Seed Distributors, GO Resources, Queenscliff Harbour, AgBiTech, and Cann Group (ASX:CAN). Mr Rathbone is the former Chief Executive Officer of Nufarm Ltd (ASX:NUF).



TERENCE GRAY
NON-EXEC DIRECTOR

Terence has deep knowledge of funds management and the Australian equity market providing expertise in company valuation, corporate financing and mergers and acquisition activity.



ADVISORY BOARD

ENSURES CONTINUITY OF KNOWLEDGE



ALEX BAKER

Alex Baker is an experienced executive with over 25 years multi-sector experience in the life sciences, biopharma and industrial biotechnology areas delivering product innovation, leadership and business management.



BILL BAUM

Independent consultant in the bio-based chemicals and fuel industry since 2014. From 2010 to early 2014, Bill was Executive Chairman and Chief BD Officer at Genomatica, where he negotiated and closed major partner and licensing deals. He served on the Genomatica Board from 2006 to 2016.





SUSTAINABLE PINE
INDUSTRIAL CHEMICALS

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