



Investor Update
February 2020

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NEW STRATEGIC DIRECTION

A GREEN & SCALABLE TECHNOLOGY

Leaf Resource's proprietary **Glycell™** biorefinery process breaks down waste plant biomass using crude glycerol & produces cellulosic sugars. Lignin & refined glycerol are produced as co-products.

Leaf has restructured to a low cost business model to focus on:

- Licence fees generated from the exploitation of its proprietary Glycell™ intellectual property; &
- Royalty fees attaching to a share of the gross sale proceeds generated through the combination of its Glycell™ technology with various manufacturing & production processes.

The world wants renewable chemicals, evidenced by major chemical companies moving toward a sustainable green economy.

Leaf's primary focus is on biorefinery projects in Queensland & Malaysia and enhanced by our partnership with Gevo Inc, a renewable chemical and advanced biofuels company.

Leaf's objective is to reach commercial production in partnership with world class companies & governments.



WHAT LEAF HAS ACHIEVED TO DATE

THE BUILDING BLOCKS ARE IN PLACE

Commercial validation

- Joint development agreement with US-listed 'low carbon' advanced biofuel company Gevo
 - + Integrated engineering model to assess feasibility of a potential manufacturing facility in Queensland (underway)
 - + Goal to couple Leaf's technology with Gevo to produce 'green' jet fuel
- Application for funding under Malaysia's Technical Depository Agency (TDA) Industrial Collaboration Program (ICP)
 - + Fully assessed & accepted as complete – program has US\$11.2b for matching deployment on approved projects
 - + Successful outcome for Leaf will provide ~US\$5m in funding for the Malaysia project (through to Bankable Feasibility Study)
- Technology proven at pilot scale using existing commercial equipment

Technical validation – leveraging the best of biology & chemistry

- Independent engineer Leidos has confirmed Glycell™'s ability to produce cellulosic sugars & recover glycerol for recycling or sale
- Novozymes has independently verified yields of the Glycell™ processed biomass
- Aurecon has confirmed technical feasibility of Glycell™ & strong economics of proposed Malaysian biorefinery in FEL2 study
- Amalgamated Research LLC confirms 95% of glycerol recovered from Glycell™ process is recoverable using SMB chromatography
- FEL3 study underway to support Malaysian project investment package

Strong & expanding IP position

- Patents granted in 2014 covering core Glycell™ technology in Australia
- 20 patent applications across four families in other jurisdictions including Malaysia, USA & Europe
- Significant knowledge base & confidential know-how regarding the Glycell™ process platform



GROWING MARKET FOR LOW CARBON TRANSPORTATION FUELS & RENEWABLE CHEMICAL PRODUCTS



THE PROBLEM

Many countries & individual companies have stated objectives to bring biomass derived feedstocks into various supply chains including fuels & chemicals

- Fossil fuels emit greenhouse gases (GHG's)
 - Companies want to mitigate liability
 - Governments want to reduce emissions
 - Consumers care about pollution & want the GHG's addressed



THE SOLUTION

“Decarbonise” – lower the carbon footprint of fuels by moving to ‘green carbon’, using renewable energy in the production of mainstream liquid fuels.

- Carbohydrates (sugars) can be made & used from many sources – low cost biomass in Australia (sugar cane) & Malaysia (empty fruit bunch)
- Fermentable sugars produced using Glycell™ can lead to replacement of fossil carbon with low carbon replacement in many products currently derived from petroleum inputs



OPPORTUNITY FOR LEAF

Together with Gevo, Leaf sees opportunities in the following markets:

- Renewable jet fuel
- Renewable gasoline
- Specialty gasoline blendstocks
 - Animal feed
- Specialty chemicals & solvents

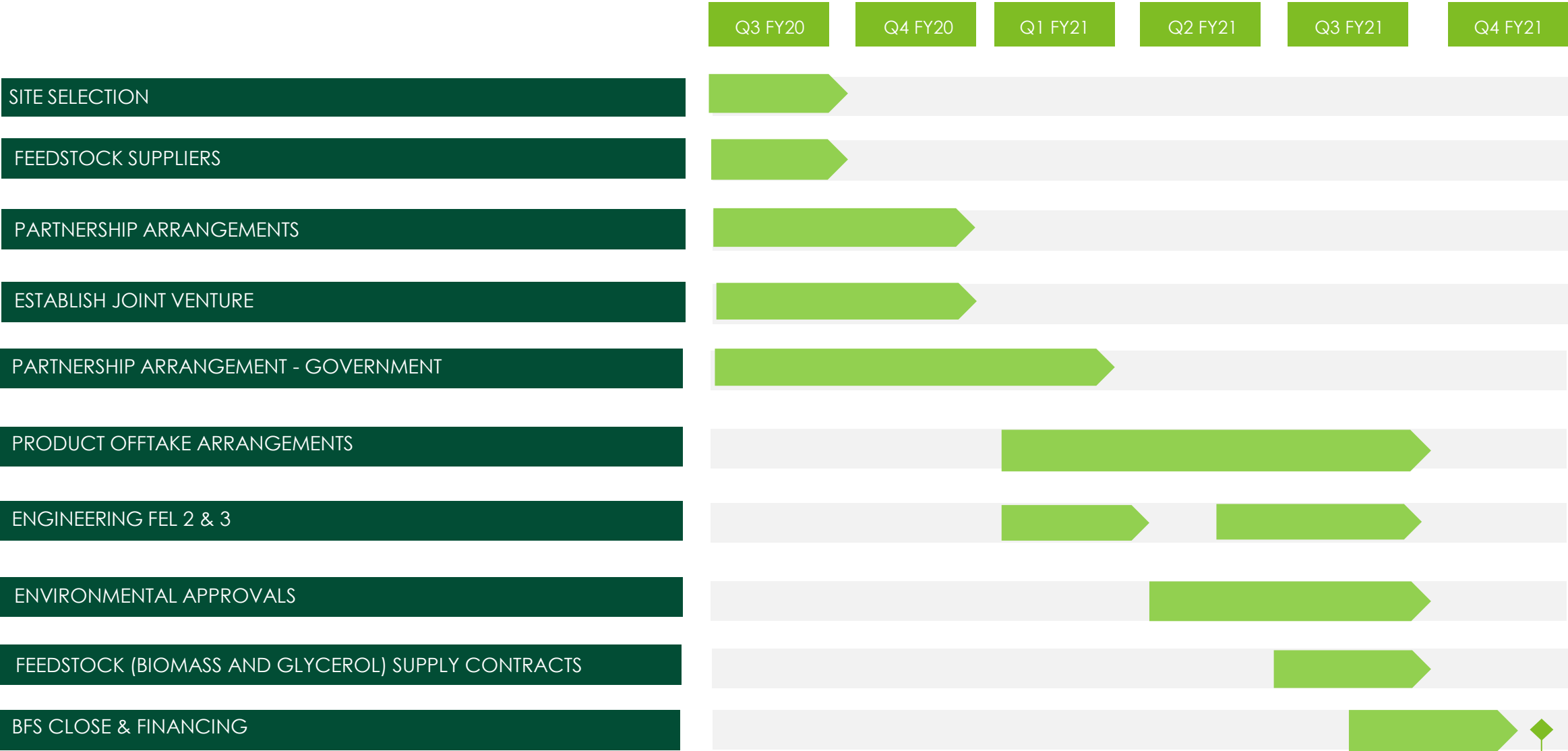


THE QUEENSLAND BIOREFINERY PROJECT

- The agreement with Gevo is structured around three phases of joint work designed to establish a bankable project
- Currently there is approximately 12 million bone dry tonnes of available biomass produced in Queensland with more than 90% of this material from the sugar cane industry
- Leaf & Gevo have agreed to participate jointly in a recently awarded grant program from the Queensland Government to investigate the commercial development & commercialisation of the project
- Leaf has commenced discussions with Queensland sugar cane groups on feedstock & site location



THE QUEENSLAND BIOREFINERY PROJECT



THE MALAYSIAN BIOREFINERY PROJECT

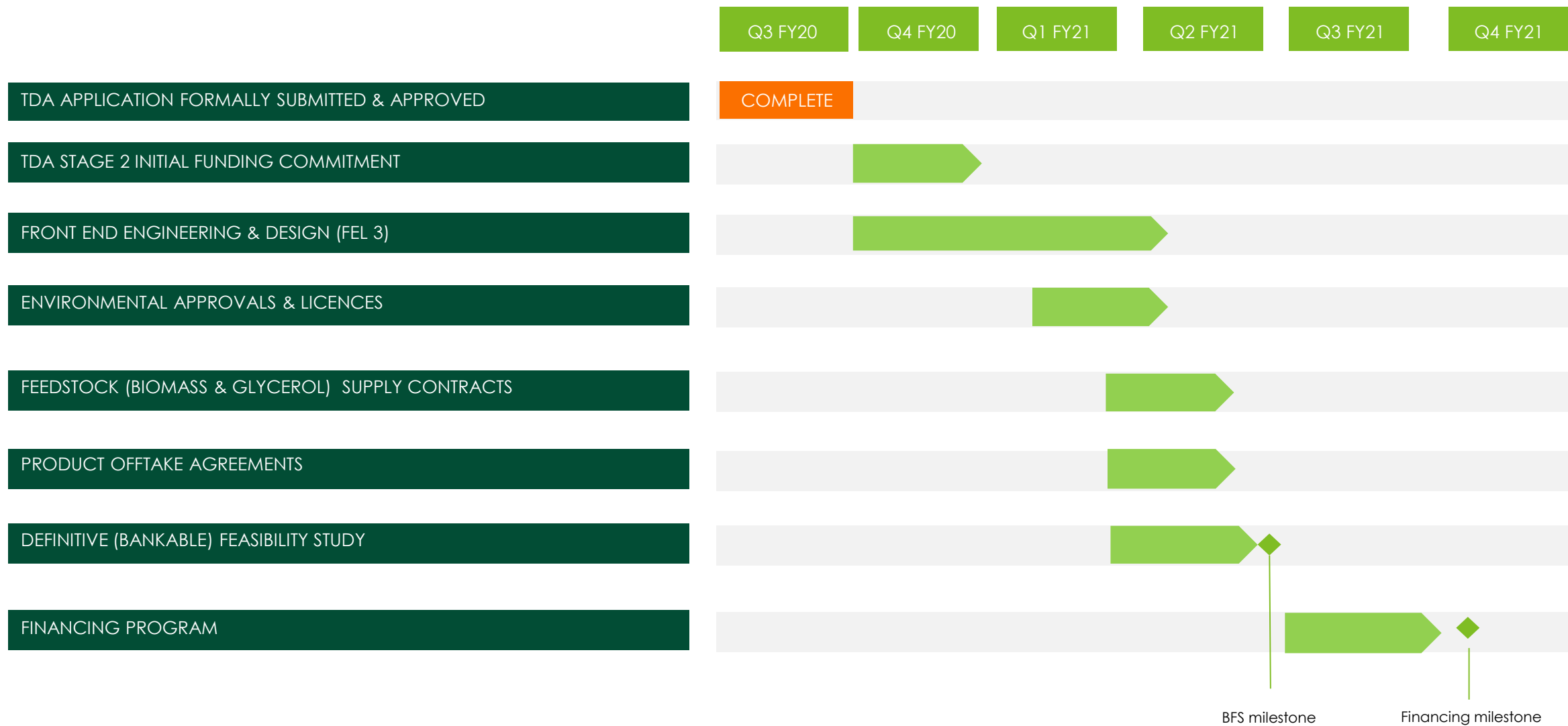
- Confirmation of a critical milestone with the receipt of correspondence from the Malaysian Technical Depository Agency (TDA) regarding the acceptance & completion of Leaf's application for funding consideration under the Industry Collaboration Program (ICP)

The Company has been advised that an initial candidate representing a major aerospace transport vendor has been identified with other candidates currently being assessed

- Gevo has expressed an interest in participating in the Malaysian project & this is now being commercially assessed by both parties



THE MALAYSIAN BIOREFINERY PROJECT



BOARD & MANAGEMENT

Doug Rathbone
Non-Executive Chairman

Chemical engineer who served as CEO & MD of Nufarm Limited from 1982 to 2015. Under his leadership Nufarm transformed itself from a \$20m business to one with more than \$2 billion in sales as it became one of the world's leading crop protection & seed companies.

Ken Richards
Non-Executive Director

Over 30 years of experience as a Managing Director in listed & unlisted companies across the agriculture, finance and technology sectors. Track record in managing, transitioning & growing companies.

Matthew Morgan
Non-Executive Director

Over 10 years of executive management experience in private equity funded portfolio companies and venture capital at Queensland Investment Corporation. Principal of Millers Point Company, an advisory business that provides consulting and advisory services to emerging companies with high growth or turnaround objectives

Bill Baum
Non-Executive Director

Mr Baum brings extensive chemical & energy industry experience from across the globe to Leaf having worked as an independent consultant in bio-based chemicals and fuels with companies such as Gevo, BASF, BP and Shell and SBI Bio-Energy

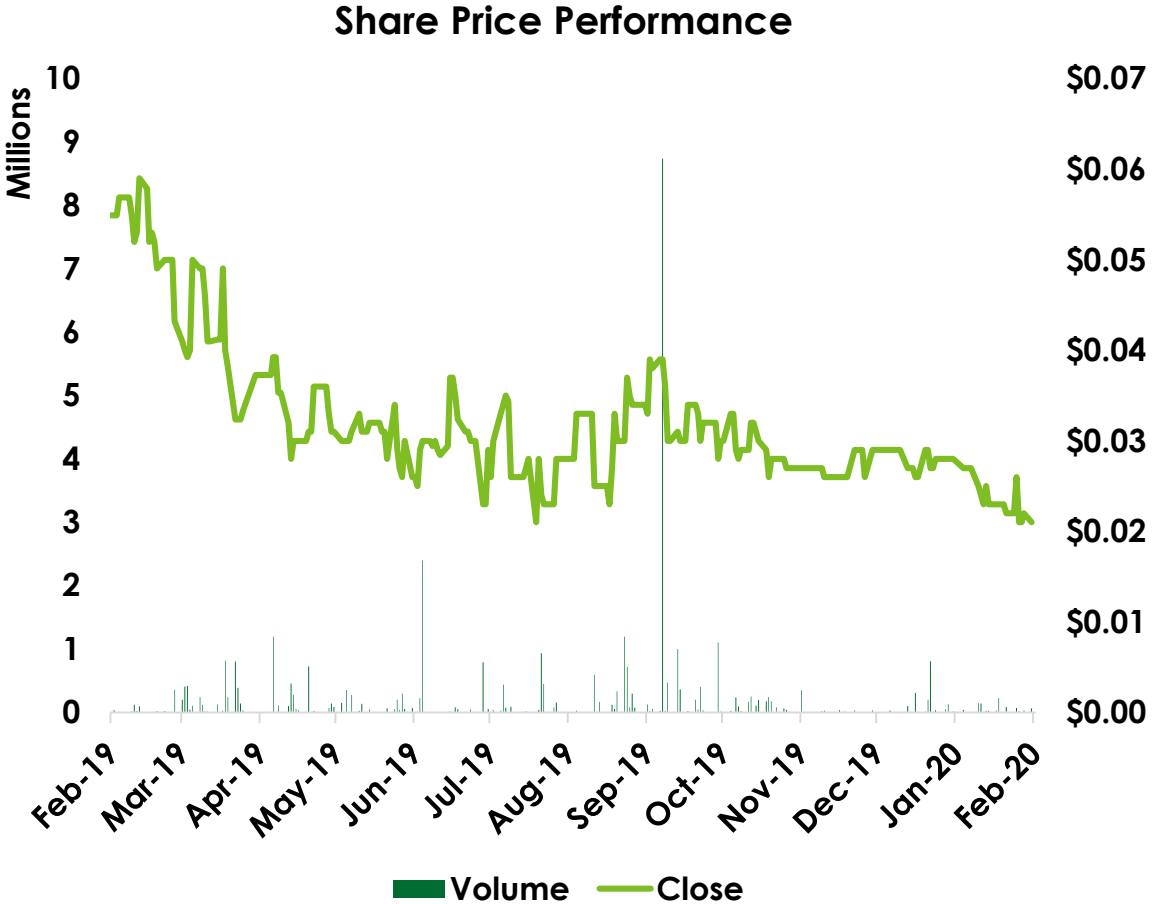
Alex Baker
Managing Director & CEO

More than 20 years multi-sector experience, specialising in product innovation in the broader life sciences sector. Previously Chief Operating Officer of Leaf Resources & was instrumental in the development & progress of Leaf's Glycell™ process.



CORPORATE STRUCTURE

ASX code	LER
ASX price	\$0.02
Shares on issue	327,006,610
Market capitalisation	\$6.54 million
12-month price range	\$0.02 - \$0.059





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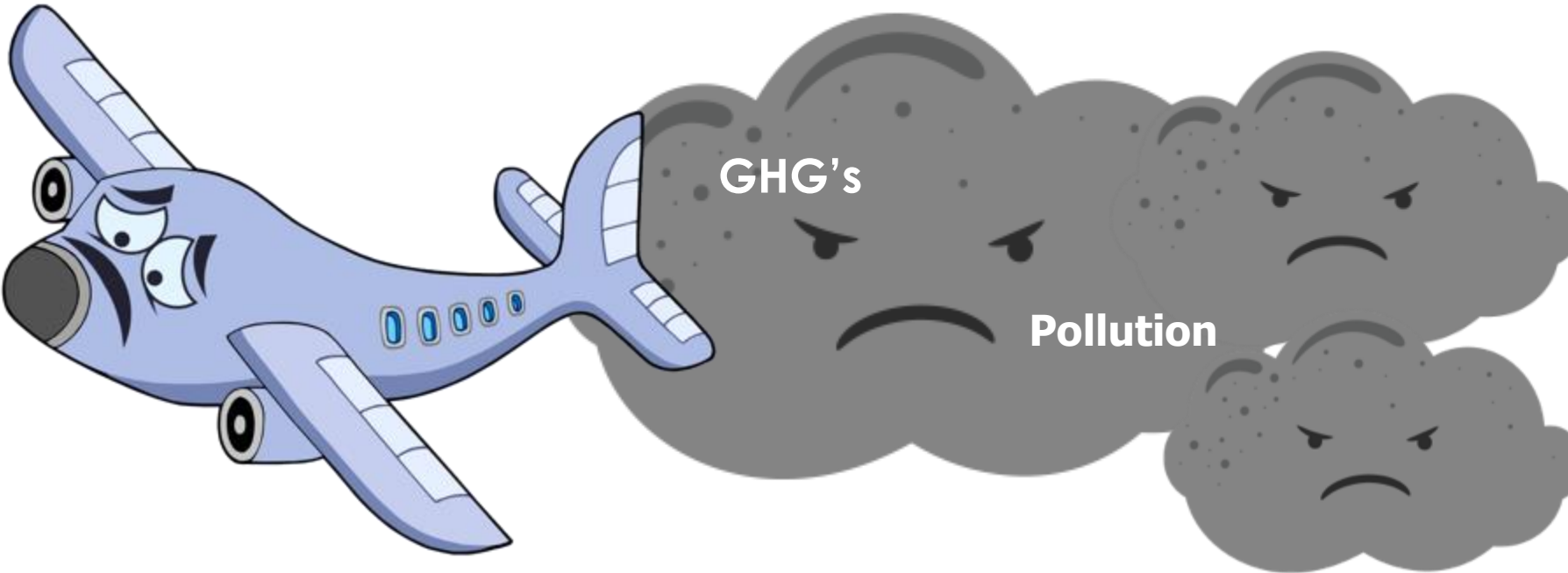
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TECHNICAL APPENDICES

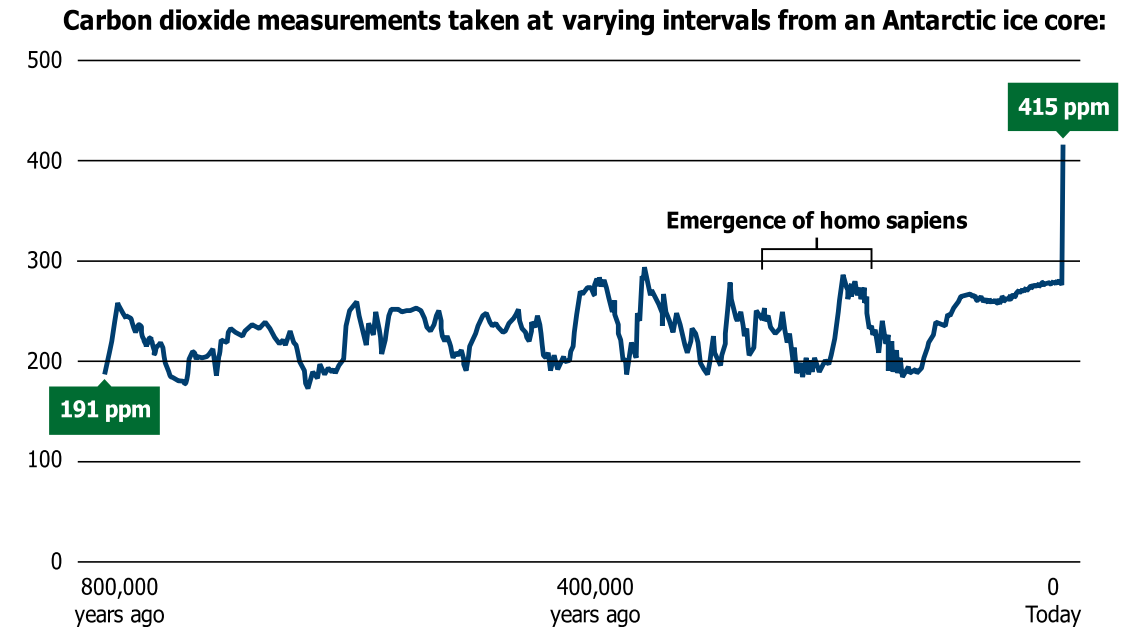
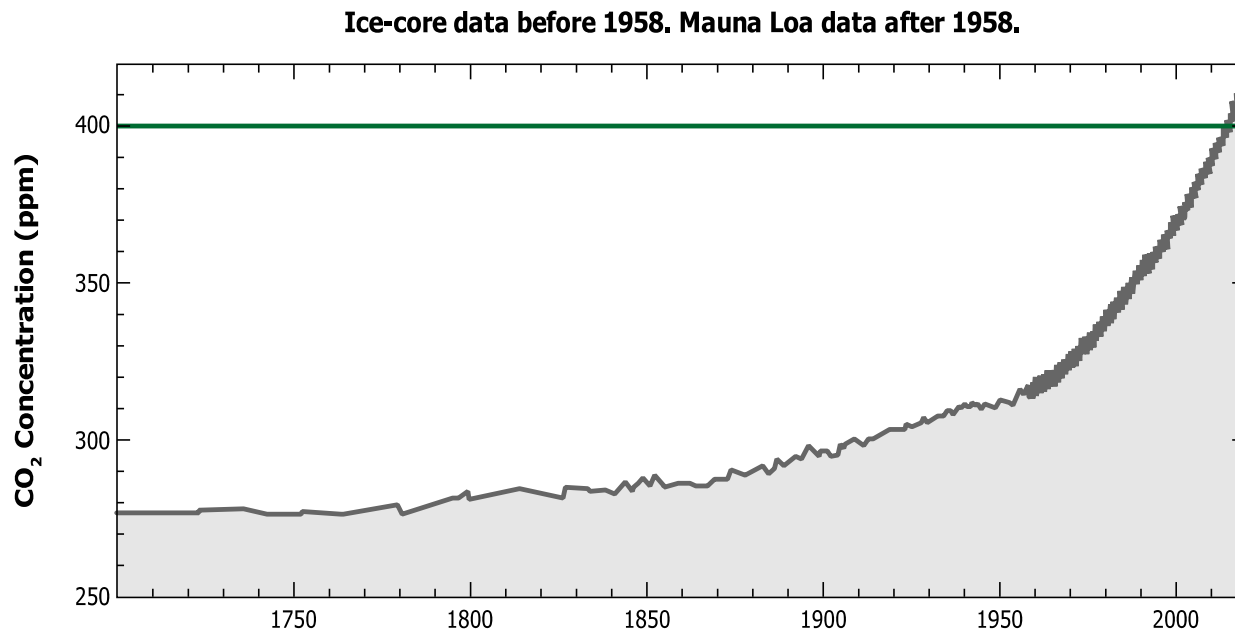


WE ALL HAVE A PROBLEM, AND WE AREN'T GOING TO IGNORE IT

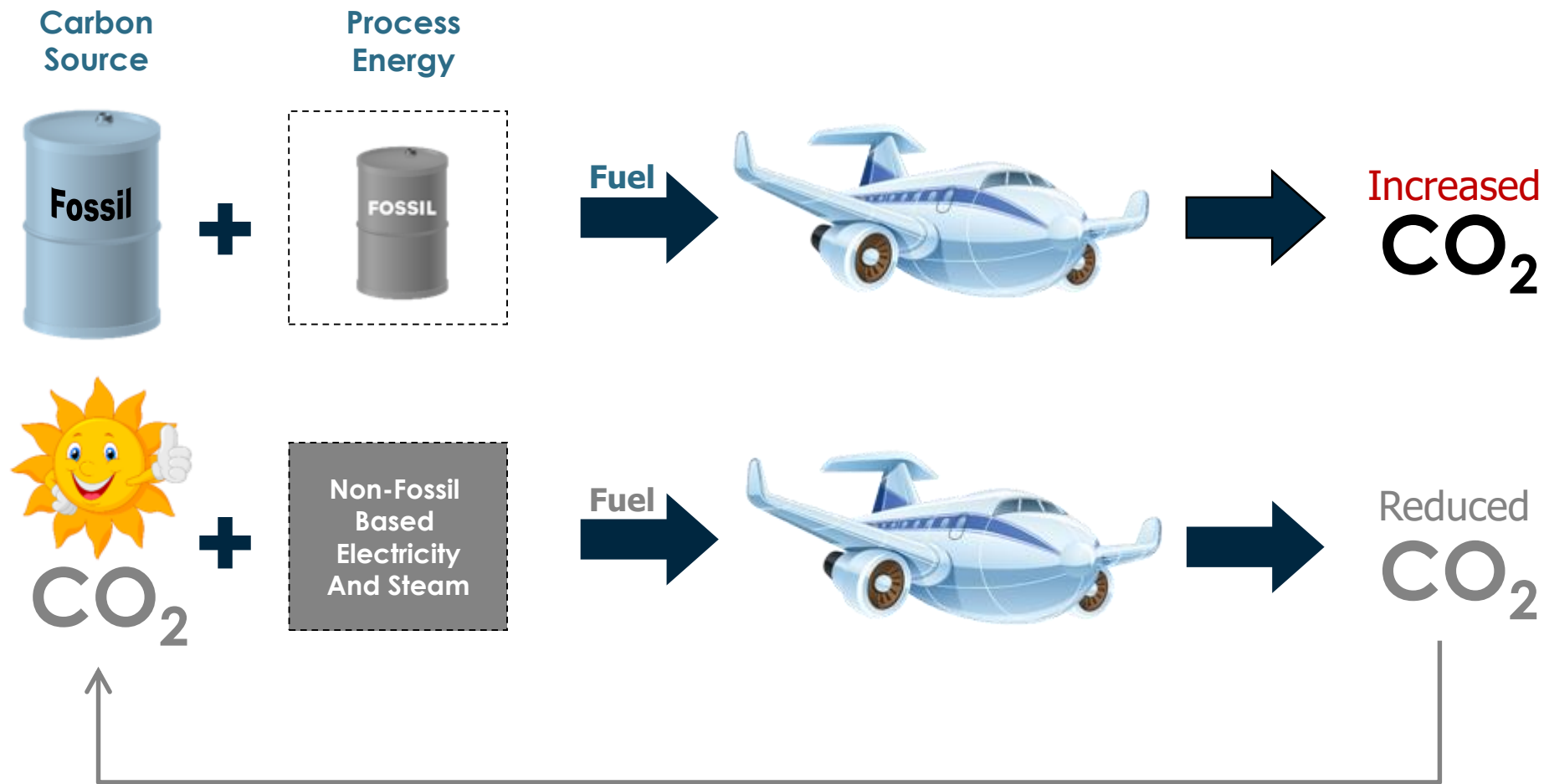


A NEW WORLD RECORD EVERY YEAR

- Carbon dioxide has doubled since the age of fossil fuels
- Levels will continue to rise unless we change

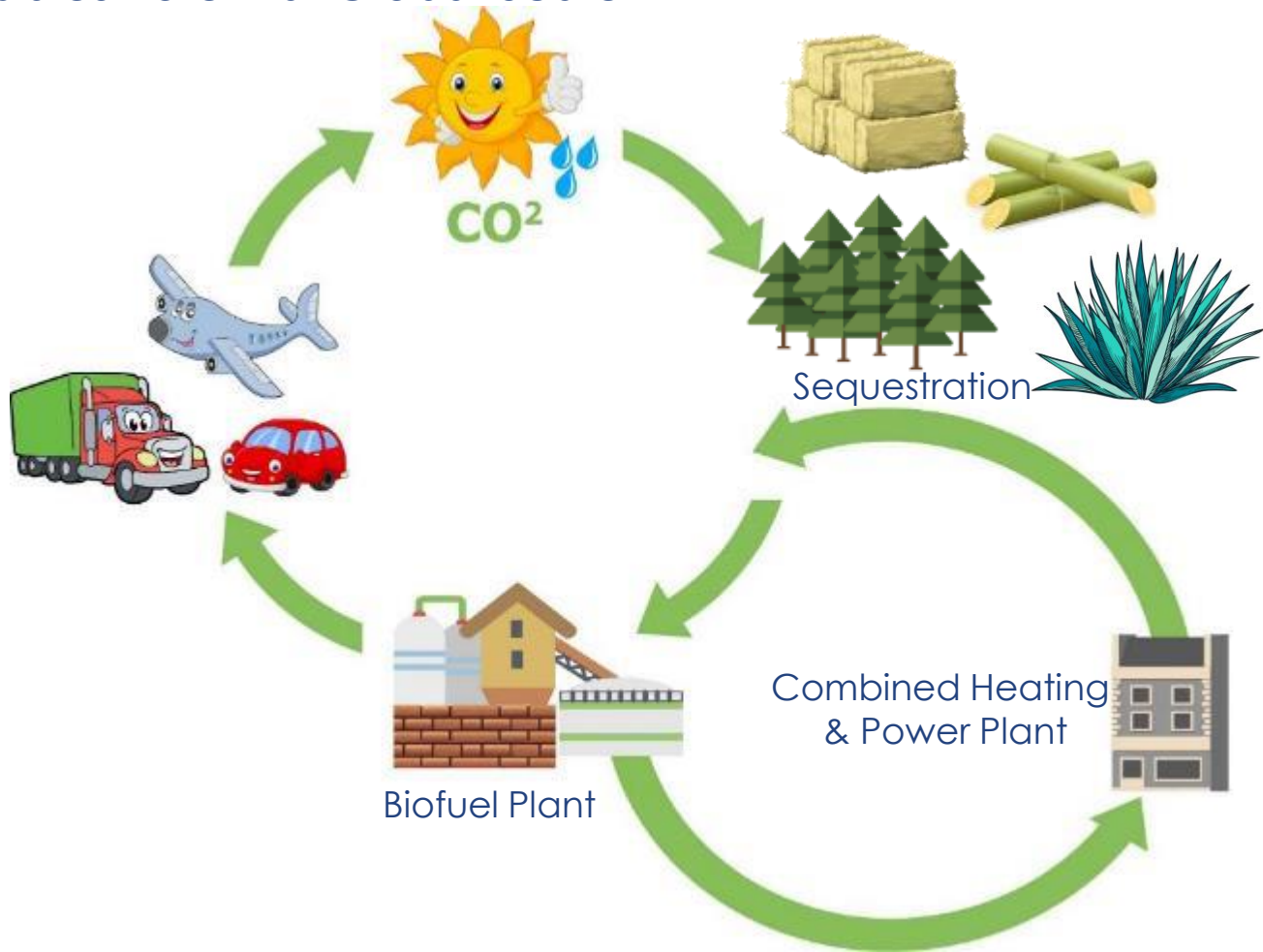


REPLACE THE **CARBON SOURCE & ENERGY SOURCE** TO
ELIMINATE GHG'S FROM FUELS



CELLULOSIC FEEDSTOCKS ARE ENABLED

Enables Potential Global Scale



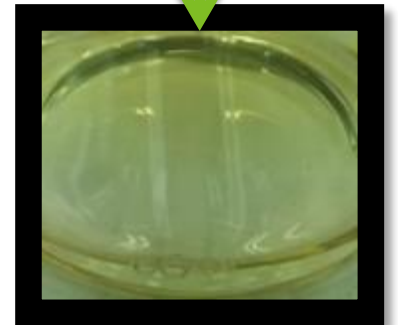
Cane, Molasses, Bagasse, Rice Straw, Wheat Straw, Corn Stover



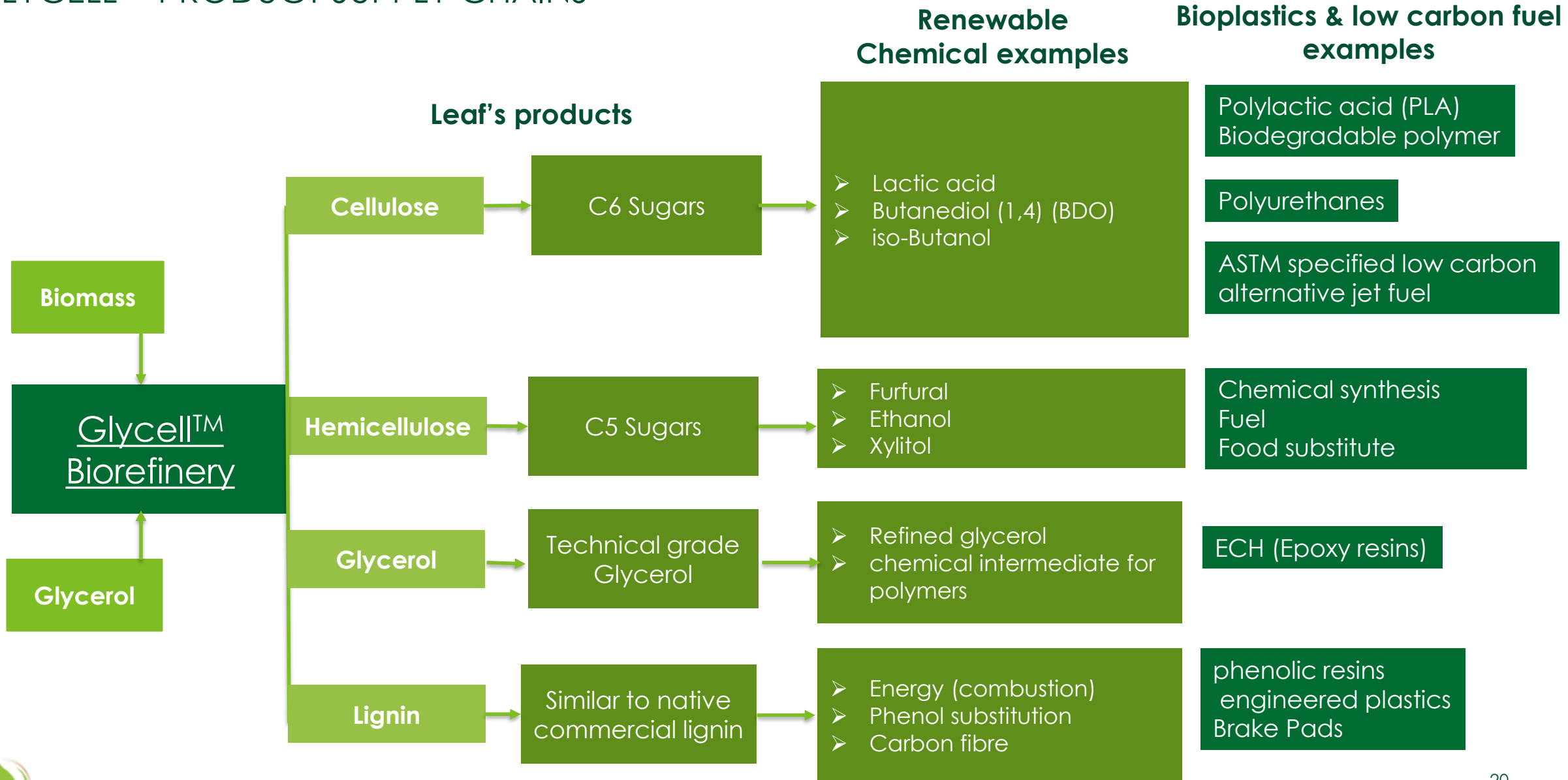
Wood, Forestry Residues, Slash, Stover



- Glycell™ Process Design package is based on:
 - Glycerol assisted pre-treatment;
 - Enzyme hydrolysis (Novozymes), and;
 - Specific separation technologies including SMB.
- Industrially available equipment
- High Cellulose recovery
- High conversion of Cellulose to Sugars
- Low sugar decomposition profile
- Highly fermentable sugars
- FEL 2 design report supported by TPD pilot data:
 - US base design (hardwood residues);
 - Malaysian specific design (Oil palm waste fibre).
- Competitive sugar production costs cf. other biorefinery technologies.



GLYCELL™ PRODUCT SUPPLY CHAINS



THE GLYCELL™ BIOREFINING PROCESS

TRANSFORMS THE ECONOMICS OF PRODUCING CHEMICALS FROM AGRICULTURAL WASTE

THE PROCESS UTILISES RENEWABLE INPUTS IN AN ENERGY EFFICIENT PROCESS TO PRODUCE LOW CARBON FEEDSTOCK TO PRODUCE RENEWABLE LOW CARBON BASED CHEMICALS, PLASTICS & ADVANCED FUELS



Glycell™ carbohydrate yields compared with other conversion processes provide a 10-25% yield increase depending on the biomass feedstock & composition



Process works with a range of readily available supply sources of low-cost biomass feedstock



Glycell™ chemistry uses low grade glycerol & recovers it at greater than 95%, opening up the opportunity to add refined glycerol as a co-product



Process integrates existing industrially available equipment



TECHNICAL VALIDATION OF THE GLYCELL™ BIOREFINERY

Leidos Engineering - acting as independent engineer – has confirmed that Leaf has demonstrated process feasibility of producing cellulosic sugars and recovering glycerol for recycling or sale

Novozymes has independently verified yields of the Glycell™ processed biomass from multiple species

1 and 5 tonne per day demonstration studies have been conducted with over 700 hrs of operating data captured; >50 tonnes EFB processed material for sample preparation and supply available

Fermentability by common industrial yeasts and bacteria showed excellent fermentation results

FEL2 reference design engineering reports completed; FEL3 (to support Malaysian project investment package) underway



BIOMASS FLEXIBILITY

Poplar



Palm empty fruit bunch fibre



Bagass



Eucalyptus



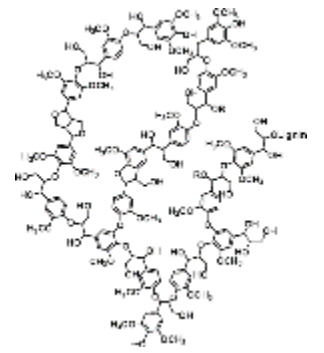
PILOT PLANT SCALE 3-5 TPD - USA



INTEGRATED PILOT WORK FOR PROJECT ENGINEERING, MALAYSIA



DEVELOPMENT OF THE LIGNIN MARKETS



Lignin type	Suppliers	Volume (kta)
Ligninsulfonates	Borregaard, Norway	500
	Tembec, Canada	570
	Aditya Birla, India	120
	Cartiere Burgo, Italy	45
	Total	1,235
Kraft	Meadwestvaco, USA	35 - 60
	Metso, Sweden (Demo plant)	8
	Domtar, USA	25
	Stora Enzo, Finland	25
	Total	93 - 118
Soda	Greenvalue, Switzerland	6
Organosolv	a few pilot plants	<1
High acid	a few pilot plants	<1
Other processes	a few pilot plants	<1
Glycell	First 300 t (DB)/d plant	70 - 80



\$450 to >\$2,000/tonne

Dispersants, Emulsifiers, Aromatics



Mostly \$450/tonne



\$1,000 to \$1,200/tonne

Animal nutrition, Foams,
Polymers, glues



Glycell lignin has properties like soda lignin
& likely expected to fit into the higher value market applications.



LIGNOCELLULOSIC BIOMASS AS A BIOECONOMY PLATFORM

Towards a Low Carbon Economy

- Circular bio(based)economies have set drivers focusing on lignocellulosic biomass as a platform chemical feedstock to produce intermediates for industry to take further along the low carbon renewable value chain.
- As part of this, biorefineries are regarded as a cornerstone of a bioeconomy & can be deployed & integrated to transform biomass to usable useful chemicals.
- Additionally biorefineries provides local economic opportunities to local workers, farmers, * support & service industries.

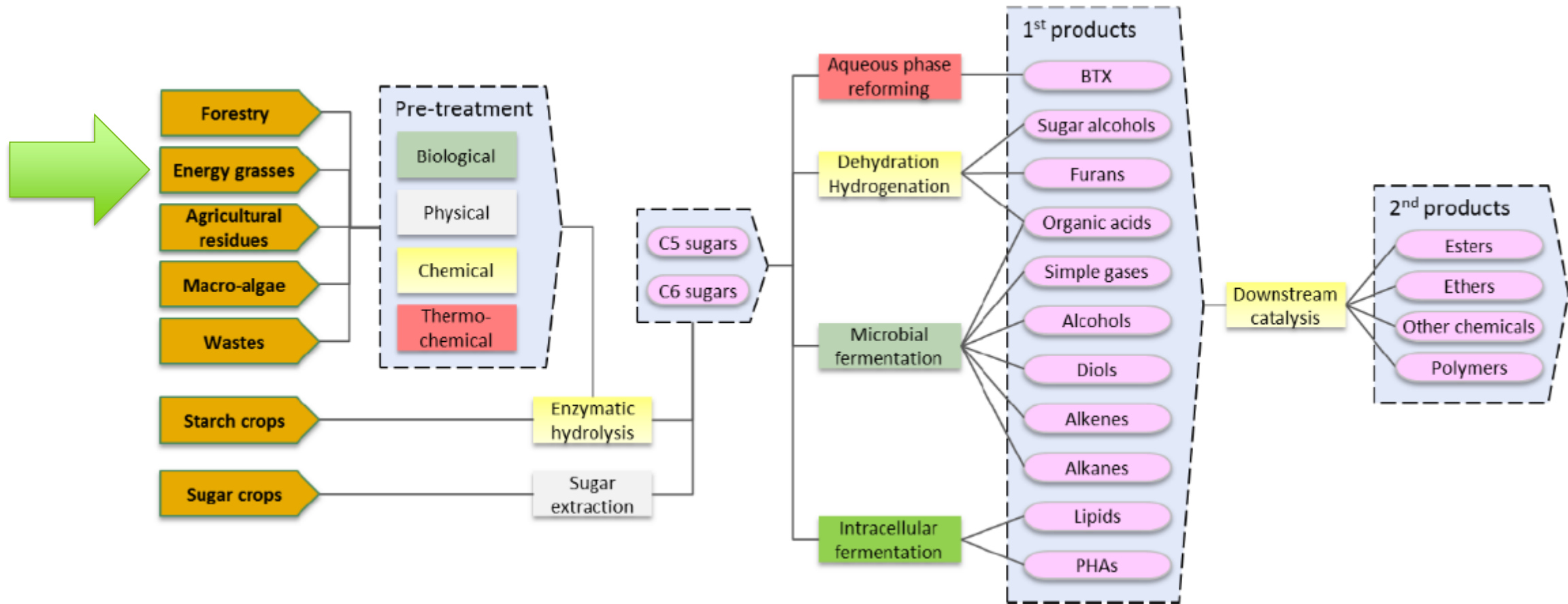


SEVERAL CELLULOSIC BIOREFINERIES HAVE BEEN ESTABLISHED – TECHNOLOGY WORKS

First commercial scale plants continue their trajectories towards higher utilization



RENEWABLE LOW CARBON MOLECULE PLATFORMS



"Sugar Platform to biofuels and biochemicals"
Final report for the European Commission Directorate-General Energy
N° ENER/C2/423-2012/SI2.673791 April 2015 V2.1

