



zeotech



Investor Presentation
May 2023

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The information in this presentation relating to exploration results for the Toondoon Project is extracted from the announcement entitled 'ZEO Acquires High Grade Kaolin Project within Approved ML' released to the ASX on 23 August 2021 which is available on the Company's website www.zeotech.com.au.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement, and that all material assumptions and technical parameters underpinning the estimates in the original market announcement continue to apply and have not materially changed.

The Company confirms that the form and context in which the competent person's findings are presented have not been materially modified from the original market announcement

Investment Proposition



ESG positive company

An emerging mineral processing technology company, with a portfolio of exciting projects targeting circularity and sustainability, all utilising advanced materials



Sustainable proprietary process

Maximising green & sustainable processes for the production of manufactured zeolites, with low energy use, reduced production time and high reagent recycling



Intellectual Property (IP)

Developing core proprietary technology and IP, with a mix of patent-pending and trade secret processes, benefitting from in-house laboratory and strong relationships with university research partners



Climate change technology centric

Portfolio of projects targeting the reduction / mitigation of GHG emissions, including carbon sequestration, methane emissions control and carbon utilisation.



Agri-product development

Developing slow-release fertiliser compounds to improve efficiency, reduce nutrient pollution and protect/enhance soil carbon levels.



Integration and near-term cashflow

Approved Mining Lease (ML) provides high-grade raw ore kaolin for underpinning low-cost zeolite production and metakaolin integration, and potential accelerated DSO revenue opportunity

Corporate snapshot



\$77M

Market capitalisation



1,615M

Shares on issue



\$2.43M

Cash at bank
(31st March 2023)



\$0

Debt



\$0.048

Current share price

Board & Management

- Sylvia Tulloch - Non-Executive Chair
- Peter Zardo - Managing Director
- Rob Downey - Non-Executive Director
- Alister Morrison - CEO
- Dr. John Vogrin - Head of Projects, R&D
- Scott Burkhart - COO

Research partners

- The University of Queensland
- Griffith University

Industry partners

- Covalent Lithium
- Cleanaway Waste Management

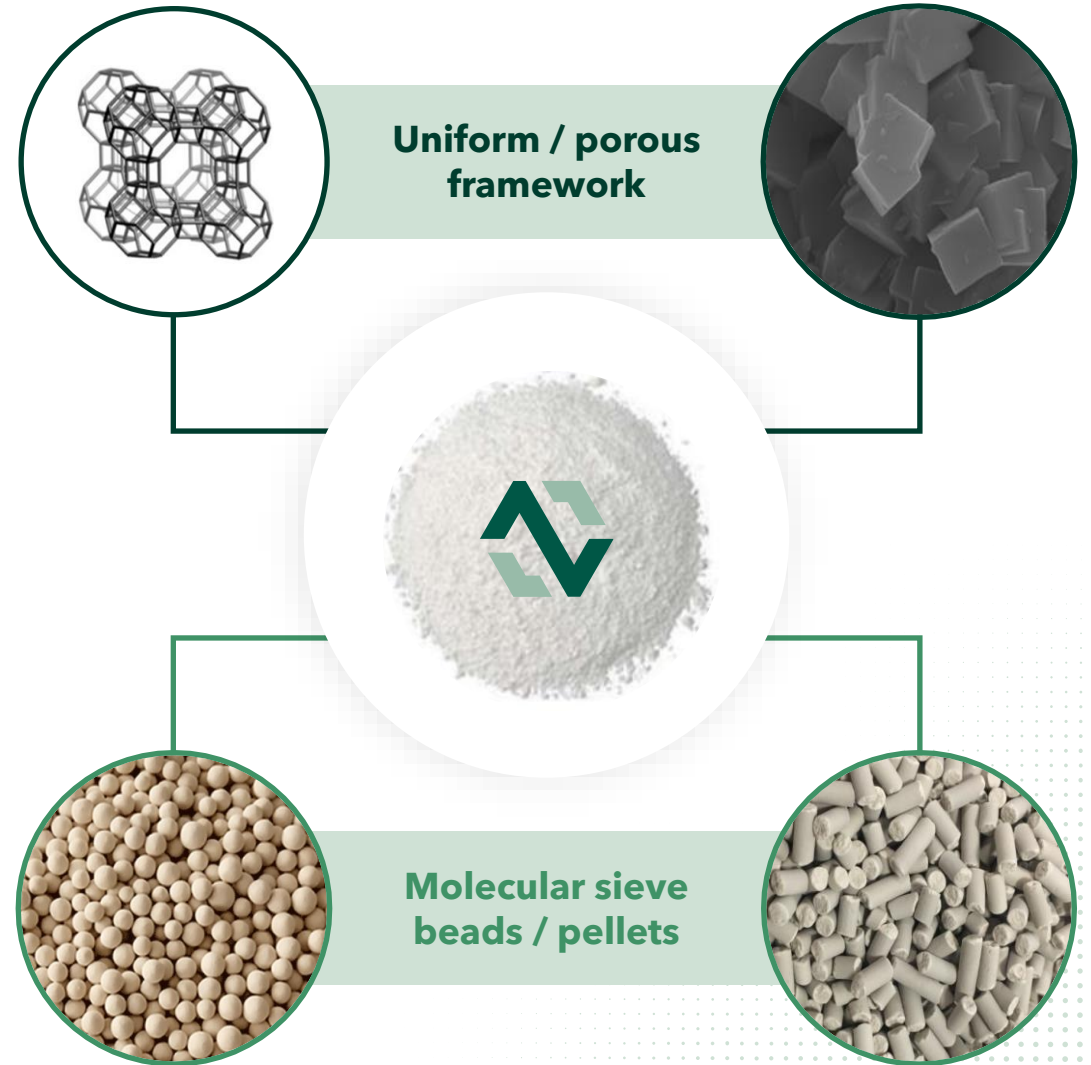
Share price and volume



Manufactured Zeolites

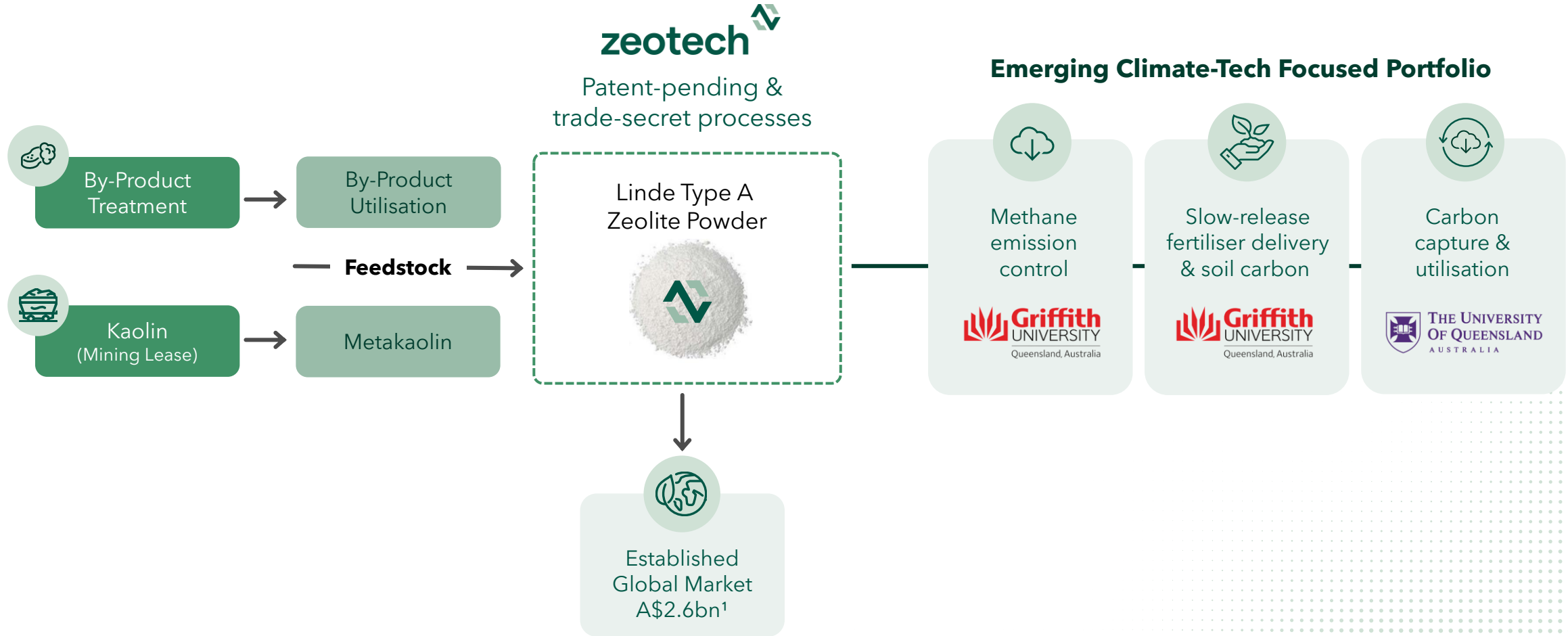
Zeolites are high performance adsorbents & catalysts with broad applicability

- Manufactured zeolites are aluminosilicate minerals with a sponge-like structure (framework)
- Zeolites are made up of tiny pores that make them useful as adsorbents, catalysts and ultrafine filters
- Type A zeolites are commonly known as molecular sieves
- Can be designed to selectively adsorb molecules or ions dependent on their unique construction and can be regenerated repeatedly for re-use
- Manufactured zeolites act like a magnet that can hold cations, including heavy metals, ammonia, low level radioactive elements, toxins, petrochemicals, many different types of gases and a multitude of various solutions, offering diverse applications



Integrated mineral processing technology company

Proprietary technology, leading research and industry attraction advances commercialisation opportunities



(1) Aranca -Global Analysis 4A Detergent and 3A, 4A and 5A molecular sieves grade Nov 2020 (market data)

Landfill Methane

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Landfill Methane – Australian Market Opportunity

Methane (CH₄) is the second most significant greenhouse gas (GHG) and contributes ~20% of total anthropogenic (human-influenced) GHG emissions



300 tonnes

estimated methane (CH₄) emissions per hectare p.a.¹



28 X

Global Warming Potential (GWP) of methane (CH₄) over 100-years² = 8,400 tonnes of CO₂-e emissions per hectare p.a.



A\$330k

estimated value of methane emissions per hectare p.a. in CO₂-e at the current ACCU price³



1,168

operational landfill sites in Australia receiving c. 20 million tonnes of waste p.a.⁴

(1) Dr. Chris Pratt (Griffith University) - estimated average emissions from landfill cover soils (2) Clean Energy Regulator - Emissions factors for NGER reporting (3) Indicative ACCU price of A\$39.00 as of 04/04/2023 (4) Blue Environment for the Waste Management Association of Australia, Analysis of Landfill Survey Data (2013)

Landfill Methane Control Program

Aim to develop Zeotech products into a technology for controlling landfill methane emissions

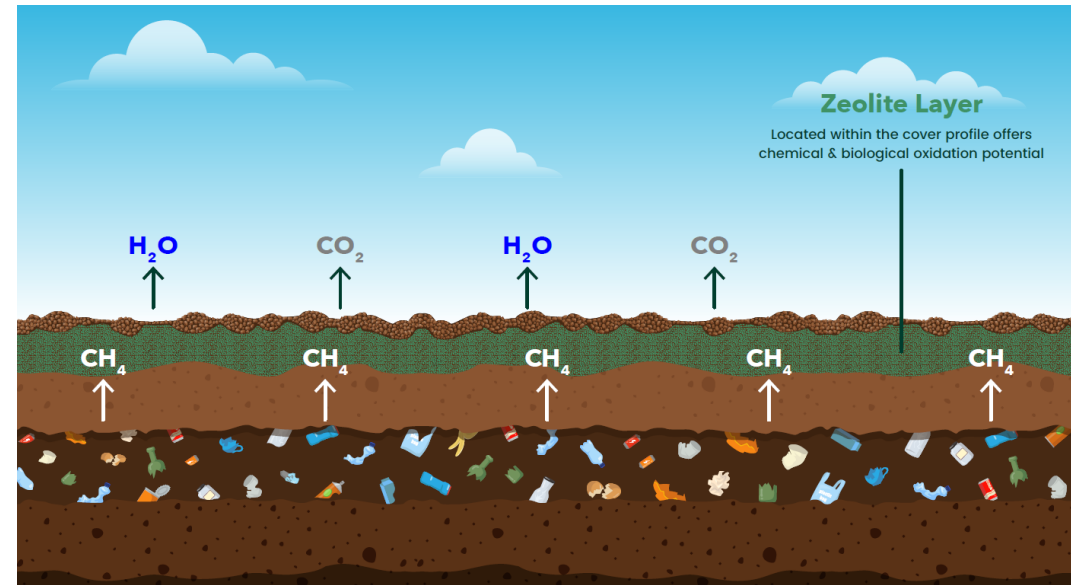
- Extended carbon market scoping study (Mar 22) finds manufactured zeolites have the potential to contribute to climate change mitigation for the three major GHGs - CO₂, CH₄ and N₂O
- Zeolite application to landfill cover soils to mitigate CH₄ emissions was identified as a key priority and quickly validated by commercial interest, leading to the development of the current program
- Zeolites' high surface areas offer strong prospects for combined chemical and biological methane oxidation.

Key targeted outcomes and pathway to CH₄ oxidation:

- Optimising **chemical oxidation** given Zeolites' high gas exchange and high surface area.
- Boosting **biological oxidation** as methanotropic bacteria acts as a shelter and biofilter for soil.



Early field work - **Cleanaway** landfill site
(left) young capping cell (right) mature capping cell



Conceptual model for Zeotech product application to landfills

**Nutrient Management
& Soil Carbon**

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Nutrient Management

The global backdrop for nutrient management and fertiliser optimisation positions Zeotech as a beneficiary of escalating interest in agricultural economics and carbon markets



70%+

Population Growth & Food Security

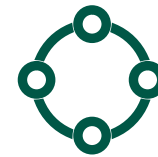
Food and Agriculture Organization of the United Nations (FAO) project that world food demand may **increase by 70% by 2050¹**



5%

Lower Agricultural CO₂ Emissions

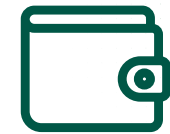
Nitrogen based fertiliser production & use accounts for approximately **5% of global GHG emissions²**



50-65%

Controlled Release Fertiliser

Enhancing the efficiency of fertiliser application that targets **reducing fertiliser 'runoff' of 50-65%³**



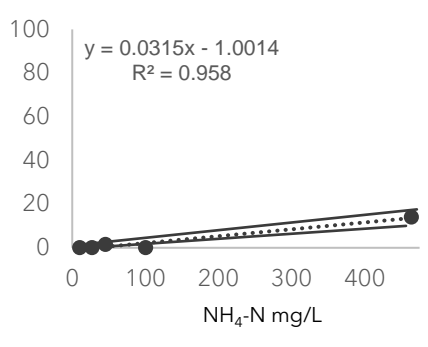
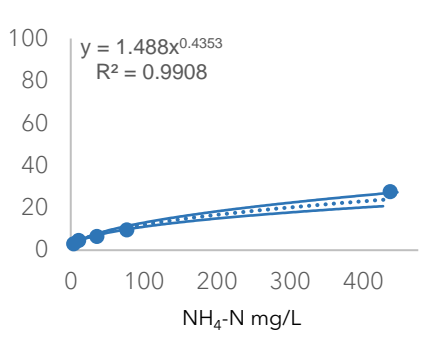
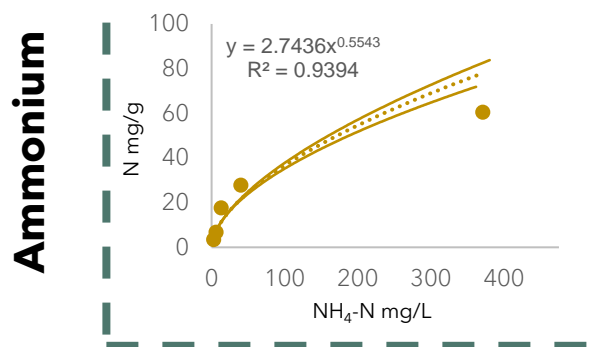
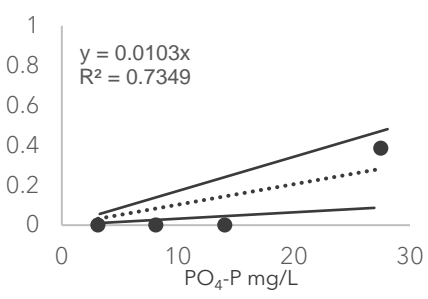
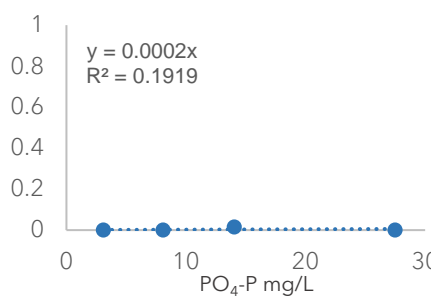
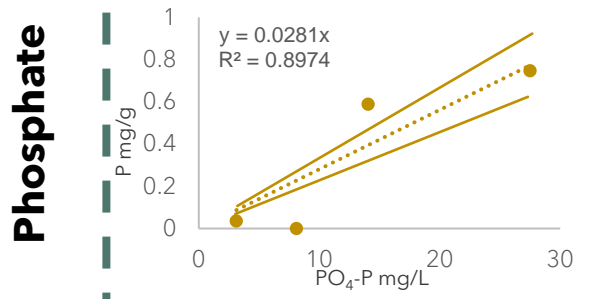
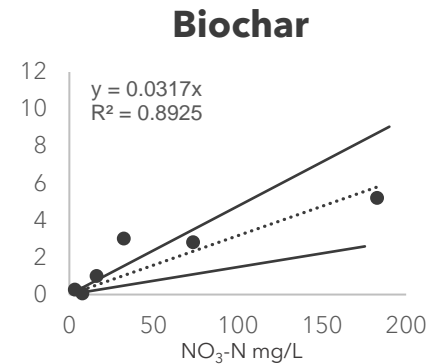
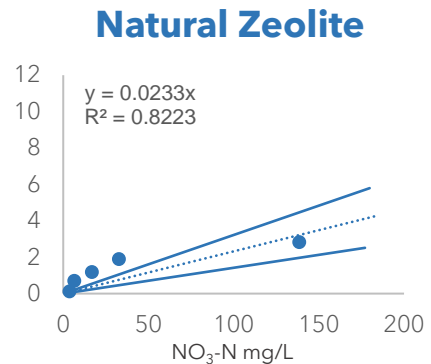
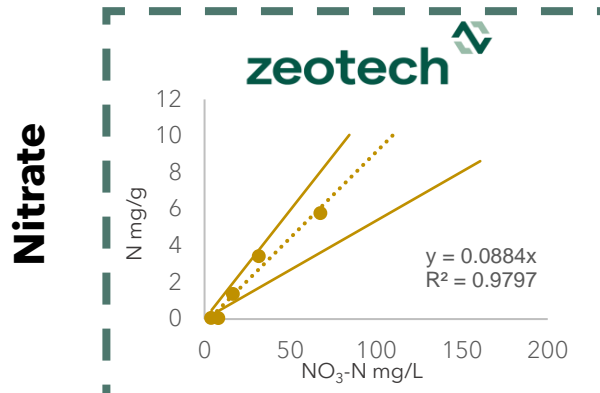
20%

Reduce Fertiliser Costs

Targeting 20% reduction in conventional fertiliser application costs by enhancing the efficiency, and in turn, reducing application rates

Nutrient Management

Zeotech products exhibit superior phosphate, nitrate and ammonia retention capacities than natural zeolite and biochar products



Zeolites have strong adsorption capacity for nutrients, particularly cations

- Focusing on **phosphate, nitrate** and **ammonium**
- Tested nutrient adsorption capacity over range of solution concentrations.
- N=3 for each data point with trendlines representing mean, upper and lower model fits for the regression relationships.

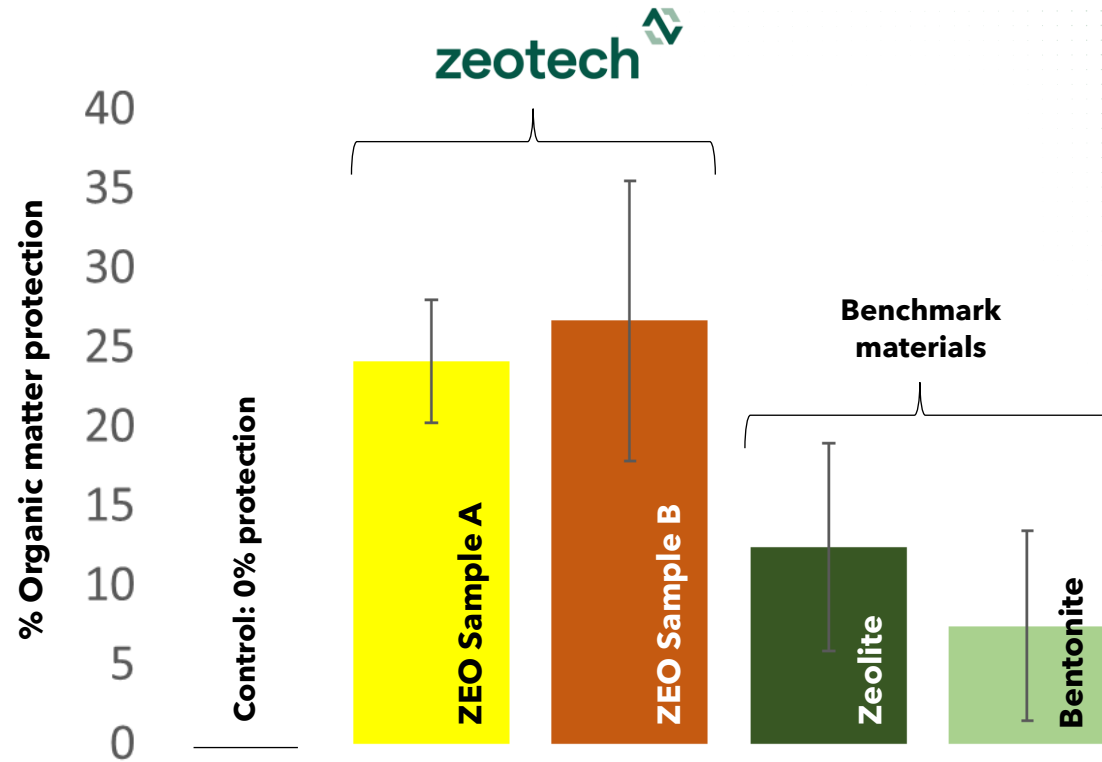
Soil Carbon

Summer trials provided early validation of the potential to sequester soil organic carbon

- Treatments containing Zeotech products consistently exhibited higher organic matter/carbon contents than controls for all soil and organic amendment conditions
- Effectiveness of Zeotech products at protecting against organic matter/carbon loss was much higher than benchmark materials (natural zeolite and bentonite).

Additional benefits:

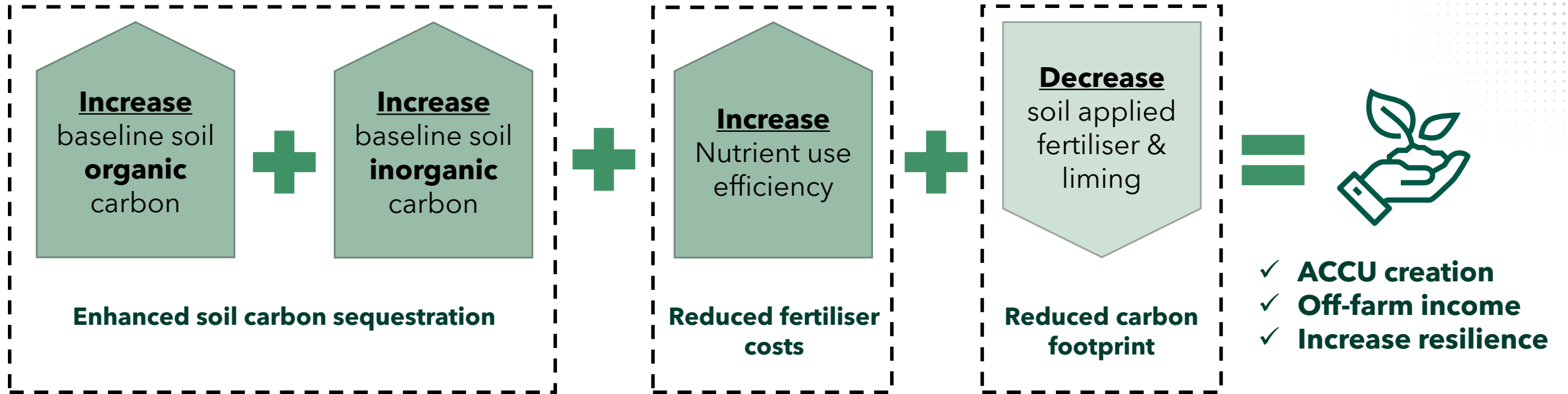
- **Reduce acidification**, reflected by the buffering of Ph in soil, which protects key nutrient loss and inorganic carbon.
- **Enhanced moisture retention** to promote microbial community development.



Organic matter (OM) protection by treatment, expressed as a % of OM retained relative to OM lost by controls

Soil Carbon

The addition of Zeotech products to agricultural soils has the potential to deliver multiple benefits that could accelerate ACCU creation



Protect and **retain up to 30% of added carbon** in soil. This results in estimated additional carbon sequestration of 110t/ha¹ equal to \$4,300 in additional off-farm income per ha over 5-years at current ACCU prices².

Superior nutrient retention, in particular phosphate, nitrate and ammonia.

Zeotech products aim to **reduce fertiliser costs by 20%** without compromising crop yield.

Kaolin & Metakaolin

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Kaolin Opportunity

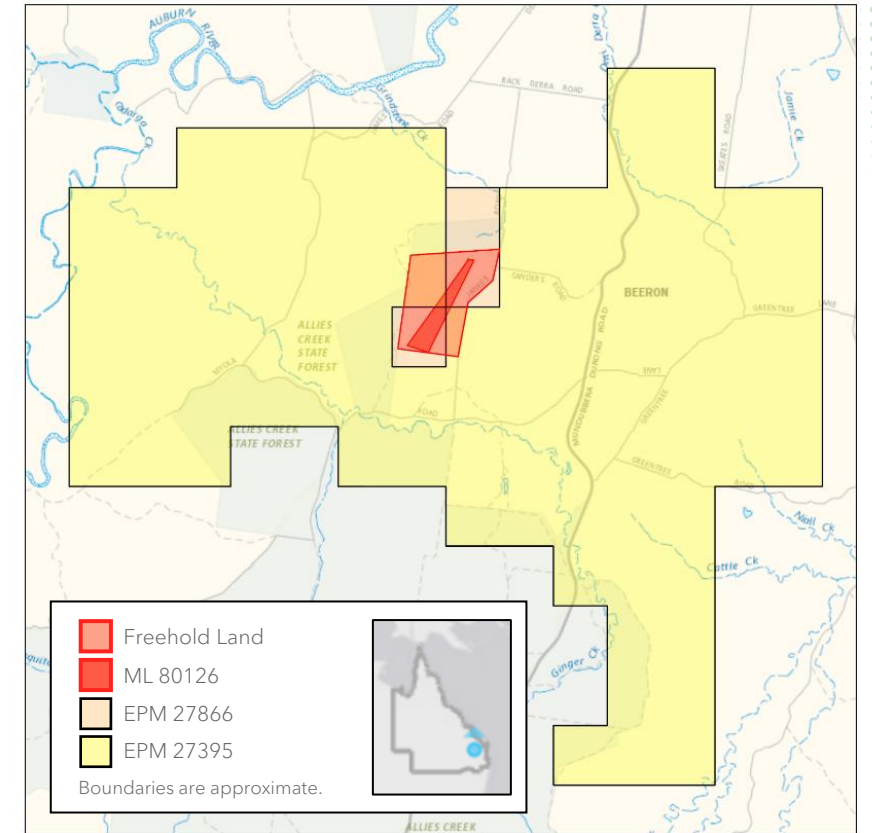
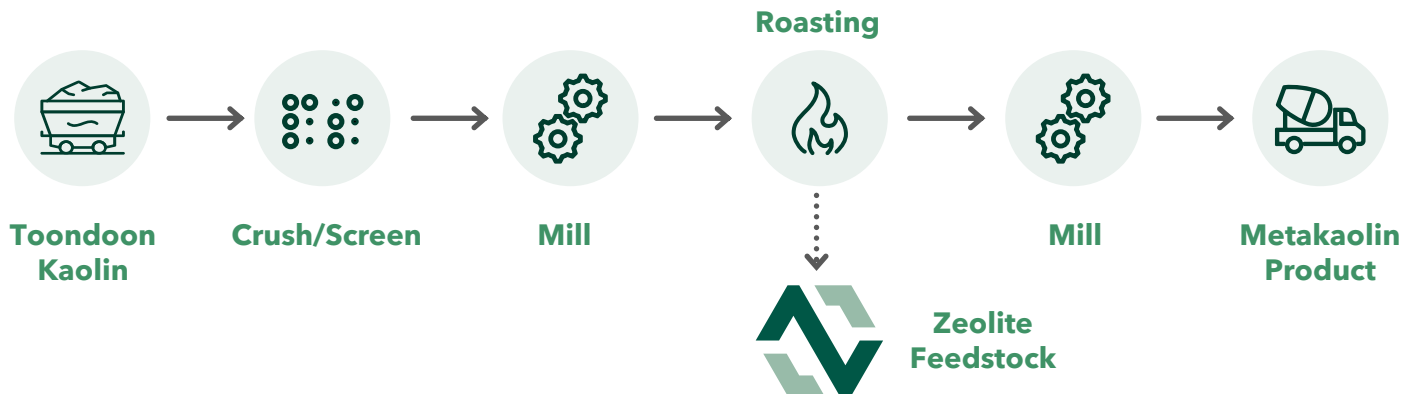
Providing optimal zeolite feedstock and optionality for near term cash flows

Kaolin

- Granted ML (80126) together with two granted Exploration Permit for Minerals (EPM 27395 & 27866) across 28,000ha.
- Ownership of the underlying freehold land of approximately 682ha.
- High-grade raw ore kaolin with low iron, high alumina and scale brightness, offering an immediate DSO opportunity with highway access to major ports and near surface low impact mining operations.

Metakaolin

- Potential to exploit a metakaolin product (activation step for zeolite production) as a supplementary material for cement production for the global green cement market.
- Early engagement and interest from a leading Queensland cement producer.

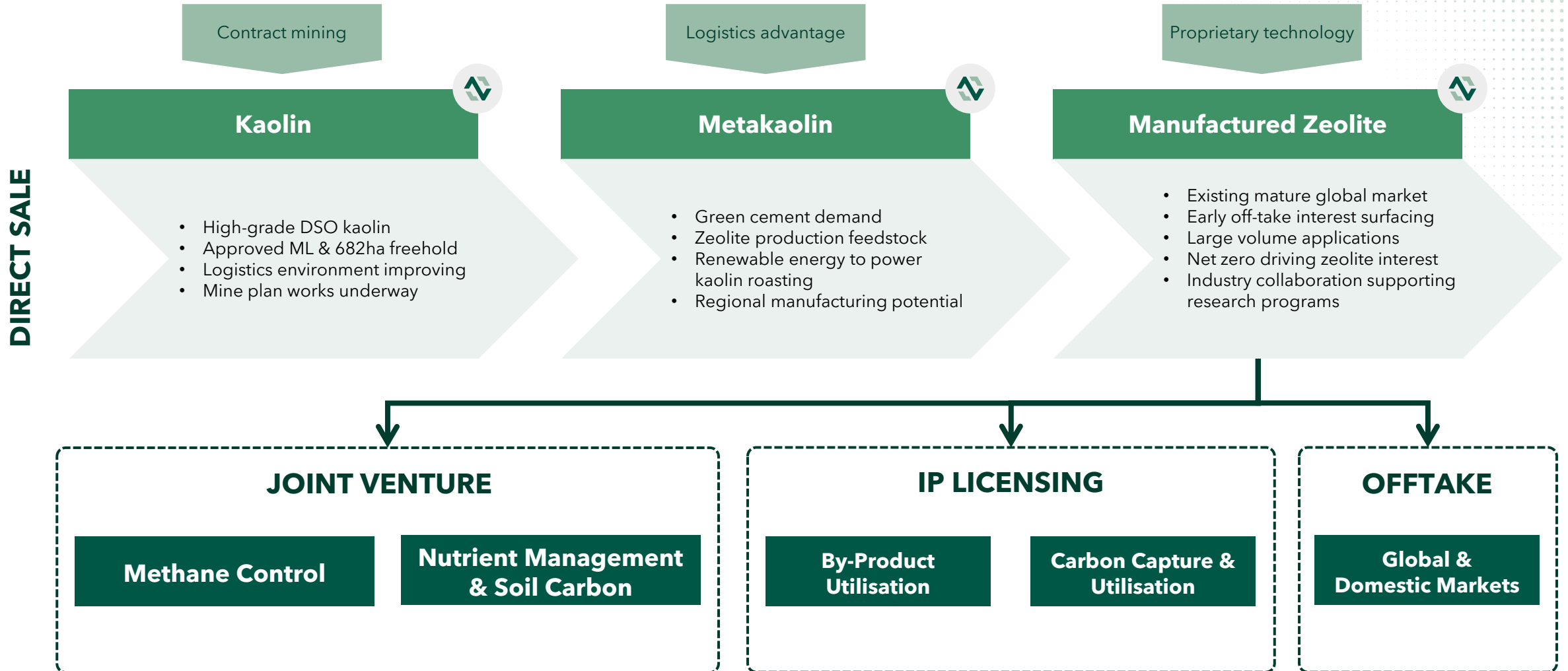


Roadmap Forward

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Integrated Commercialisation Strategy

Proprietary technology, leading research and industry attraction is advancing commercialisation opportunities



Looking Ahead

A robust pipeline of research and commercialisation milestones in the near term



Landfill Methane Control

Develop and validate landfill methane emissions control technology

- Characterisation of chemical & biological methane oxidation potential
- Configuration & oxidation methodology development
- Field validation at Cleanaway landfill site



Developing Agri-soil Products

Progress to product formulation & methodology development

- Complete carbon plant growth trials
- Commence organic & inorganic soil carbon methodology alignment & development of field trial activity planning
- Commence fertiliser industry partner attraction initiative



Kaolin & Metakaolin

Accelerate mine planning and metakaolin test work

- Continue engagement with China market following renewed DSO interest
- Complete environmental approvals & a traffic impact assessment
- Commence metakaolin test work to aid continued engagement with a QLD cement producer



Process By-product Utilisation

Circular approach for converting by-product(s) into advanced materials

- Critical Minerals Trailblazer assessment
- Advance in-house coal fly ash & lithium by-product to zeolite IP. Develop & complete (new) patent application process
- Engage by-product providers for next phase discussions



Carbon Capture & Utilisation

Advance development of carbon capture & utilisation IP

- Establish scope for membrane carbon capture through the Advance QLD Fellowship
- Assess GETCO2 research opportunities for carbon utilisation
- Progress GlobH2E and carbon utilisation zeolite catalyst development


THANK YOU



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