PLASMALEAP

Technologies

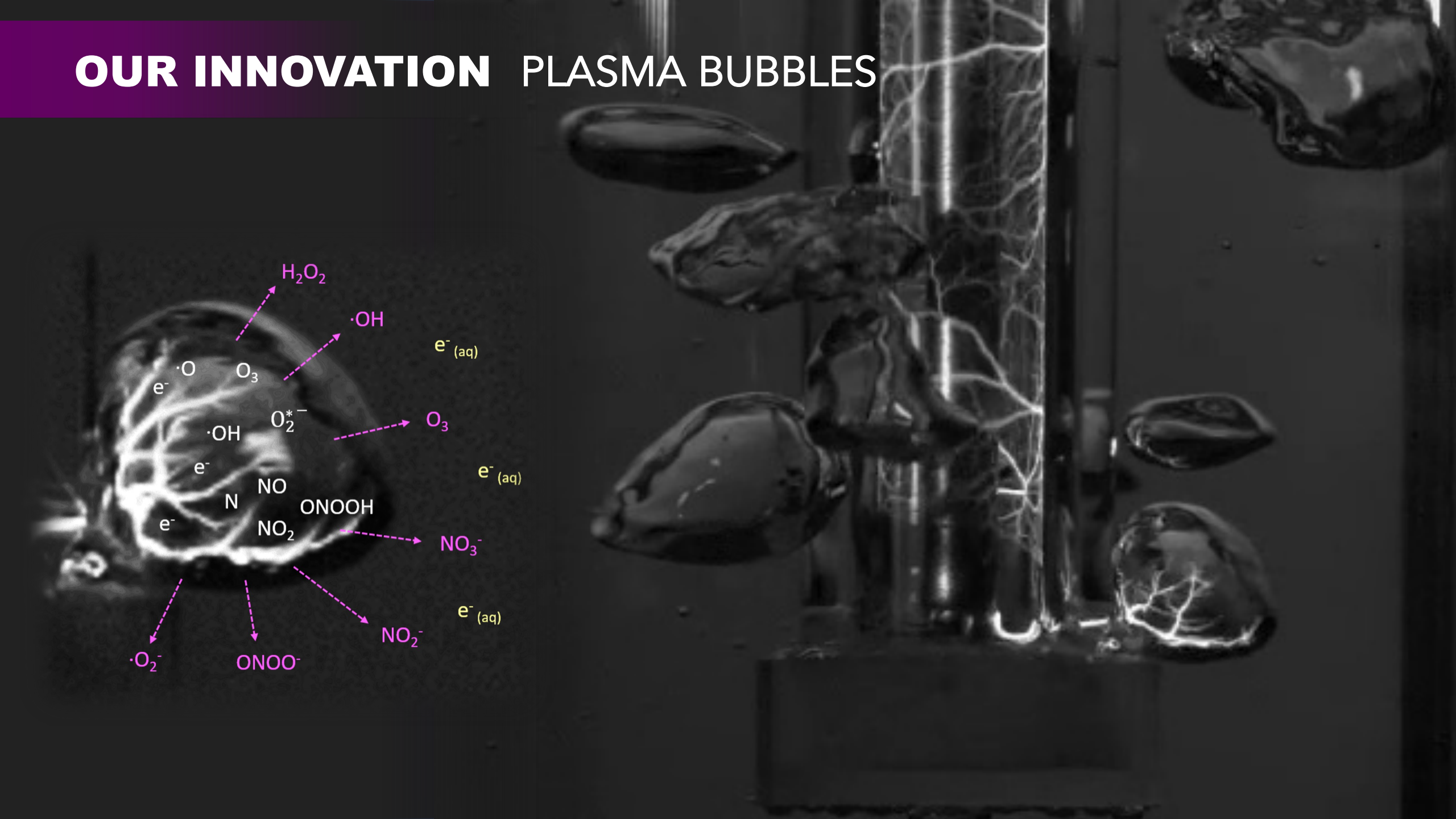
ZERO-EMISSIONS eFUELS & CHEMICALS

CONFIDENTIAL

MISSION

Build a sustainable world using
green electrons.

OUR INNOVATION PLASMA BUBBLES



TECHNOLOGY

Our reactors discharge at high-voltages to excite air and other gasses into plasma, and react this with water under atmospheric conditions

Image: PlasmaLeap Bubble Column Reactors

Scalable

- Based on principles of fluid dynamics, the technology maintains performance and energy efficiency at scale.
- Operates at atmospheric conditions (temp & pressure)
- Vertically & Horizontally scalable

Compatible

- High-energy electron approach to chemistry allows many applications via new reaction pathways
- Compatible with wide range of catalysts & electrochem systems

Efficient

- Highly energy efficient for Ammonia synthesis
- Surpasses energy performance in other plasma-systems
- Out-performs energy efficiency frontiers of competing market technologies.

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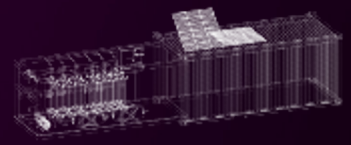
PRODUCTS

PlasmaLeap has scaled its plasma reactor technology into world-leading products and industrial prototypes for zero-emission eFuels & chemicals synthesis

	Leap100 Laboratory-grade reactor	Ammonia Synthesis Ammonia Modular Base Unit	eFuel Synthesis Hydrocarbon Modular Base Unit
PRODUCT			
APPLICATION	Multiple Applications	Direct fuel, hydrogen carrier, Fertiliser	Carbon neutral fuel for aviation & auto, feedstock for industrial manufacturing
INPUTS	Gasses + Liquids	Air + Water + Electricity	CO_2 + Water + Electricity
OUTPUTS	• Multiple synthesis pathways • Multiple destruction pathways	• Nitrates • Ammonia	• Methanol • Syngas > Jet fuel Fischer-Tropsch products
REVENUE MODEL	Unit Sales	$/kg	$/kg
TECHNOLOGY READINESS LEVEL	9 (In Market)	7 (In Pilot)	4 (In Lab)

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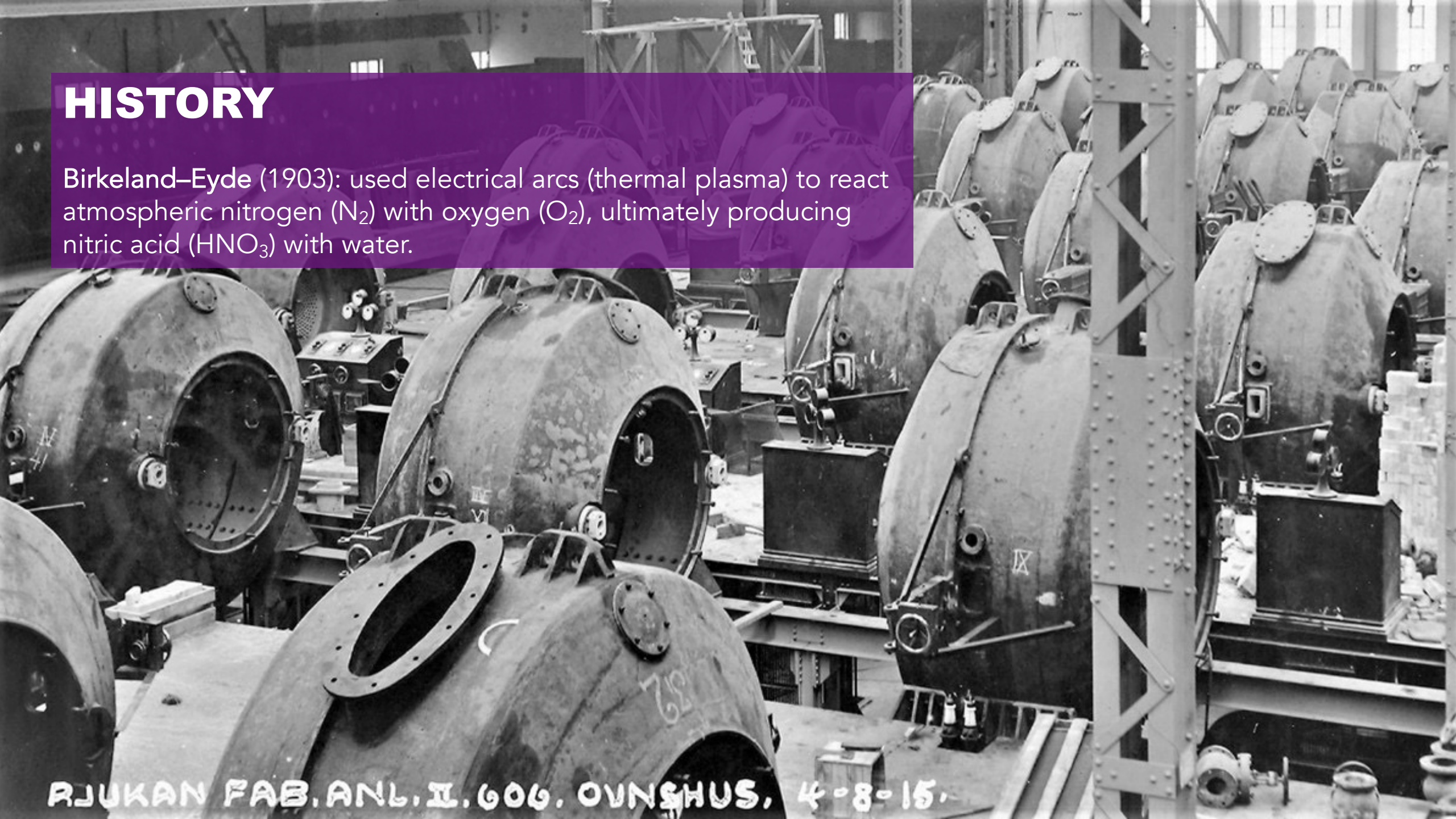
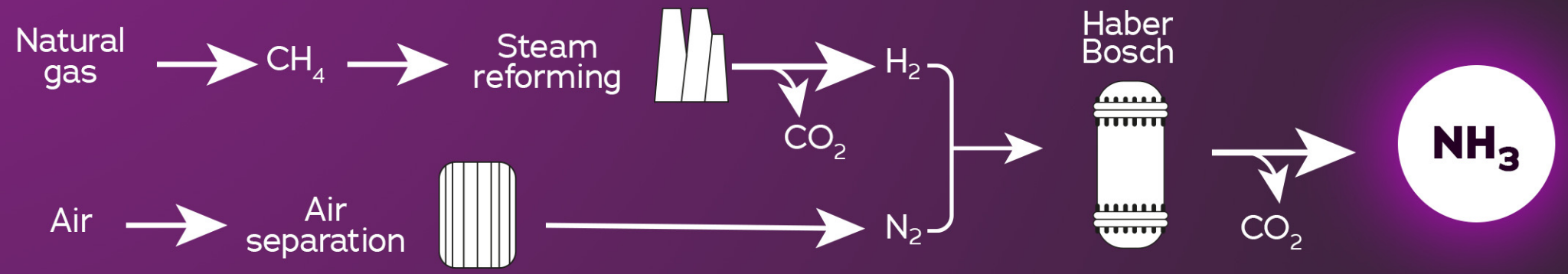
AMMONIA

HISTORY

Birkeland–Eyde (1903): used electrical arcs (thermal plasma) to react atmospheric nitrogen (N_2) with oxygen (O_2), ultimately producing nitric acid (HNO_3) with water.

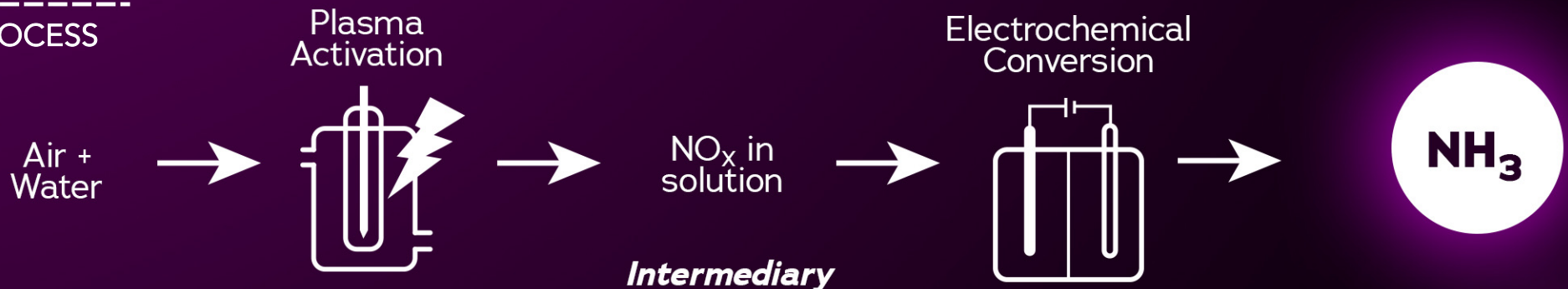


HABER-BOSCH GREY AMMONIA



PLASMALEAP GREEN AMMONIA

PLASMA BUBBLE PROCESS



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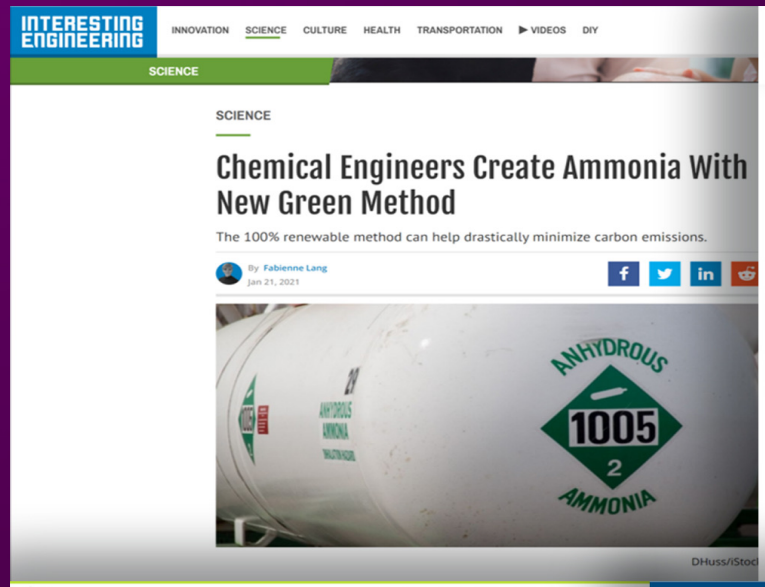
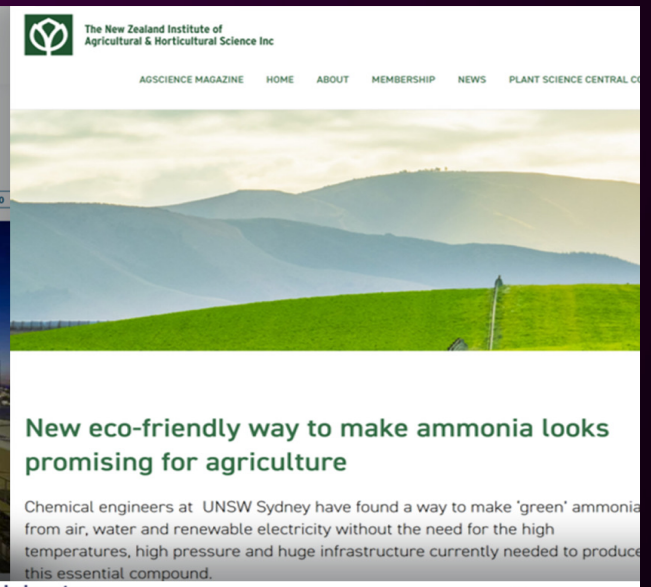
IN THE NEWS





UNSW SYDNEY

THE UNIVERSITY OF SYDNEY

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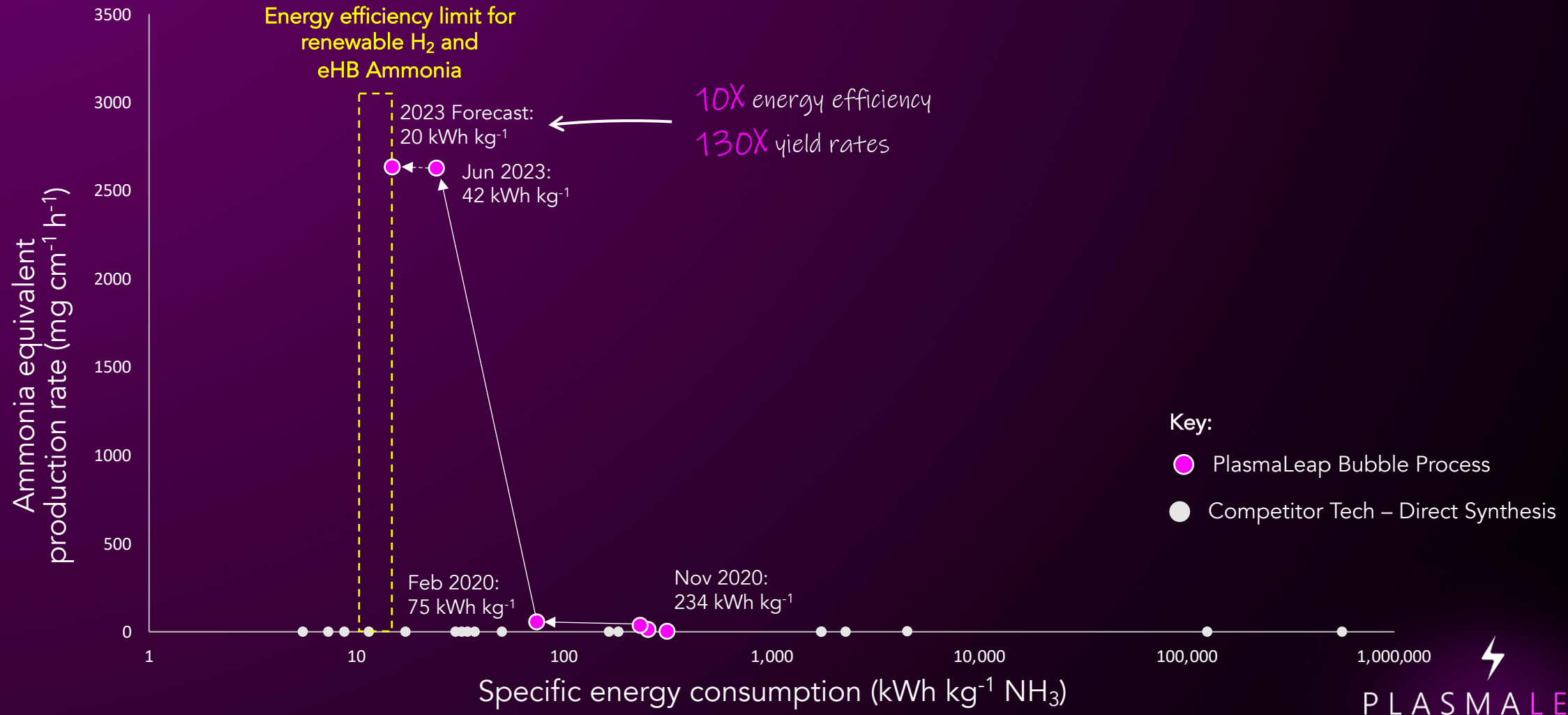
MARKET LEADING PERFORMANCE

We are on track to combining world leading energy efficiency & production rates



Graph: Zero-emission Direct Ammonia Synthesis Performance, Source: PlasmaLeap

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PLASMALEAP GREEN AMMONIA

We're leading the race in the development of viable solutions for green ammonia

	MARKET TECHNOLOGY				PLASMALEAP
	Haber-Bosch	**Green Haber-Bosch**	**eNRR**	**Li intermediary**	
Temperature and Pressure	150 – 250atm 400 – 500 °C	150 – 250atm 400 – 500 °C	Ambient	180°C	Ambient
Feed requirements	Pure Nitrogen Pure Hydrogen	Nitrogen water	Pure Nitrogen	Pure Nitrogen Pure Hydrogen	Air Water
Moisture sensitivity	Low	Low	High	Low	Low
Stability	High	High	High	Low (<1h)	High
Compatibility with Renewables	Low	Moderate	High	High	High
CAPEX	High	High	Low	Moderate	Low
OPEX	Low	Moderate	Moderate	Moderate	Low

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NITRATE & AMMONIA MODULAR BASE UNIT

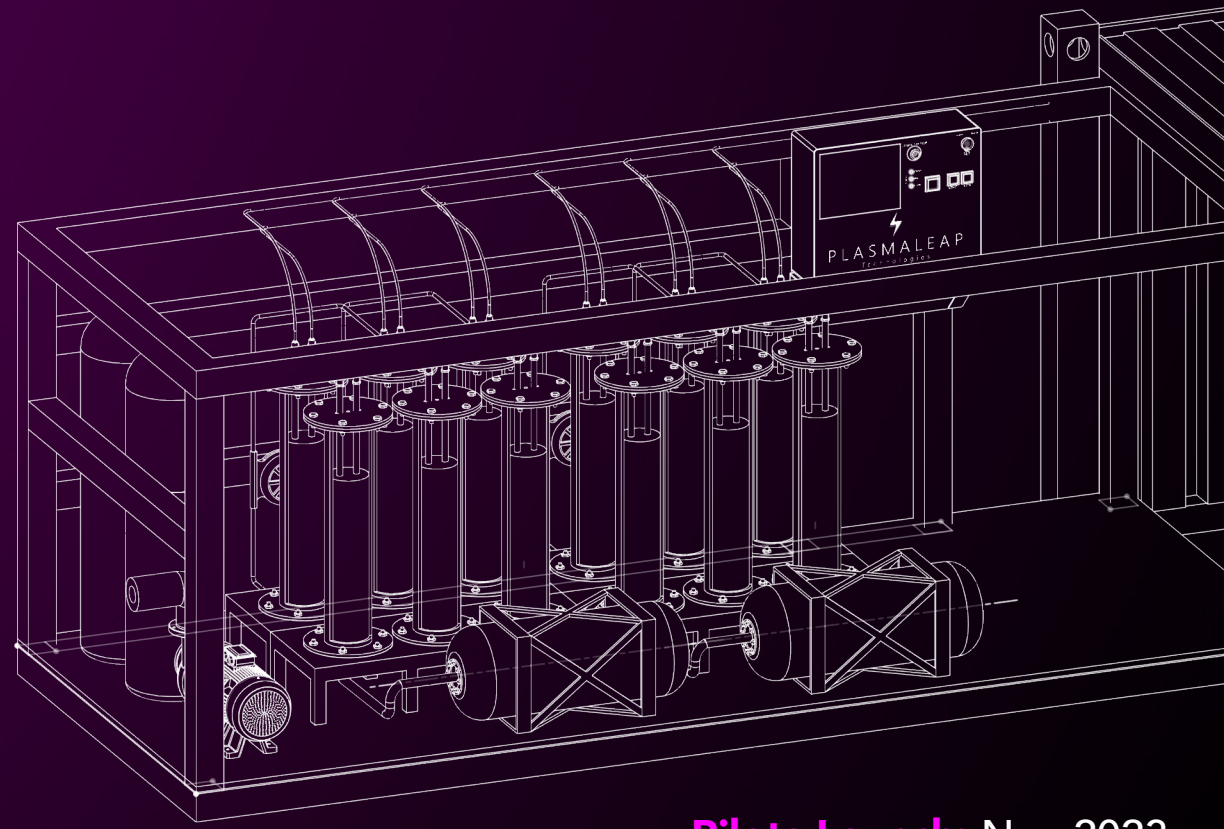
Green.
Synthesises Ammonia and Nitrates from atmospheric air, water, and renewable electricity.

Decentralised. Safe.
Capable of deployment on farm, removing transport and supply chain. Reduces the risk of large-scale combustion or explosion.

Competitive. Cost-Effective.
Market leading NH3 production and energy consumption rates. 2023 Target 20kWh/kg. No transport and supply-chain costs.

Compatible.
Compatible with variable renewable electricity.
Deployable with established electrolyser technology.
Modular for scale.

Smart & Connected.
Units are monitored, sampled, and controlled remotely by PlasmaLeap's cloud infrastructure for efficiency and safety.



Pilots Launch: Nov 2023

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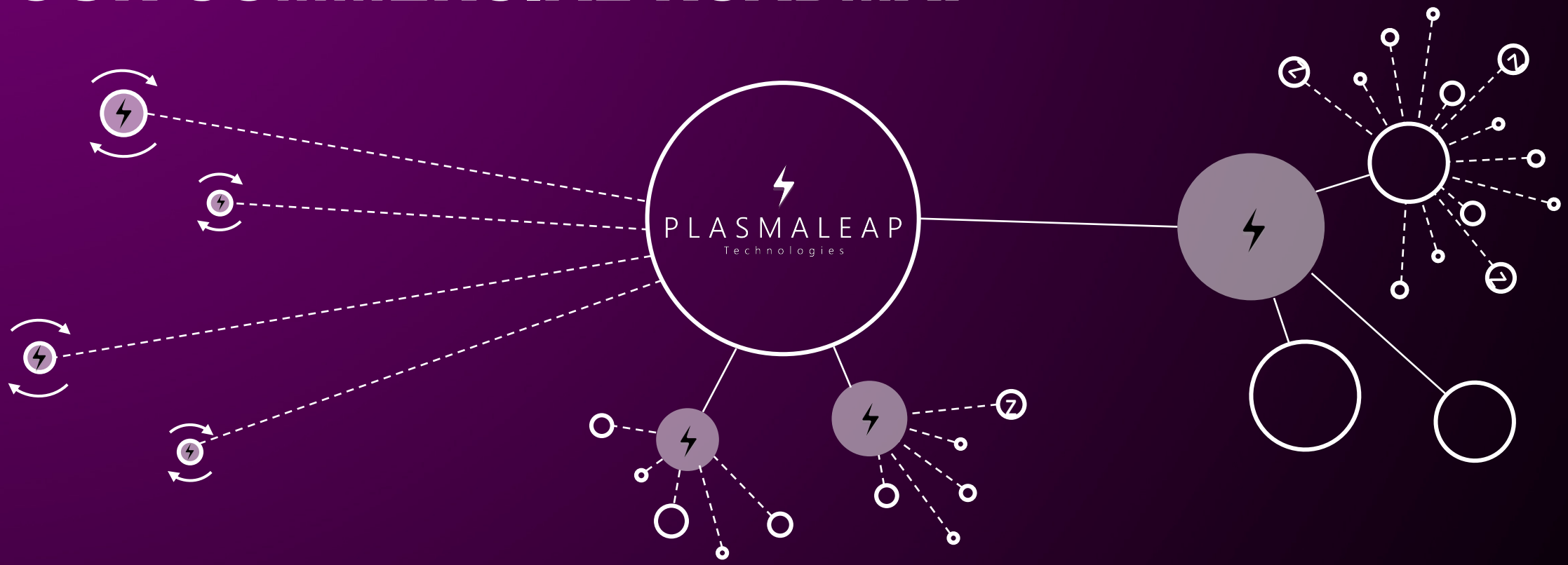
OUR COMMERCIAL ROADMAP



2024
Decentralized Production
On-Farm Nitrate Units
100-200t p.a.

2025
Semi-centralized Production
Regional Ammonia Hubs
1-5 Kt p.a.

2027
Centralized Production
Large-scale Ammonia Plants
500kt - 1Mt+ p.a.

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THANK YOU

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