



**MAGNIS**  
ENERGY TECHNOLOGIES

# Corporate Presentation

OCTOBER 2021



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A key global player in the lithium-ion battery value chain of **electric vehicles and clean energy storage**



Anode  
Materials

Mining and development of high-quality spherical graphite products for use in lithium-ion battery anodes



Battery  
Technology

Patented high performing, energy dense, extra fast-charging cathode composition



Battery  
Manufacturing

State of the art lithium-ion battery cell manufacturing using cutting-edge technology



# Global Opportunities



## CORPORATE OVERVIEW

**MNS**

ASX Code

**A\$0.32**

Share Price\*

**A\$89M**

Cash\*\*

**A\$297**

Market Cap\*

**929M**

Shares on Issue

**121M**

Unlisted Options  
50c Expiry

**14¢ - 49¢** 52 week Low - High

\* As of 20th September 2021

\*\* Consolidated Group position as of 31<sup>st</sup> August 2021

### New York Battery Plant

- Fully Funded for 1.8GWh of production
- Equipment and assets acquired
- Future plans for 32GWh production

### Nachu Graphite Project

- High quality graphite project
- Shovel ready and BFS completed

### Australian Battery Plant

- Feasibility study approved in 2020
- Future plans for 18GWh production

# Corporate Structure



## Magnis Energy Technologies

Domicile: Australia

**IM3**

Battery Manufacturing

Giga Scale Lithium-Ion Battery Plants

~60%

**iM3NY**

New York, USA

**iM3**  
TOWNSVILLE

~33%

Townsville, Australia



**C4V**  
Charging Ahead!

~10%

Battery Technology

World Leading Technology Partner

Location: New York, USA



**MAGNIS**  
ENERGY TECHNOLOGIES

**Tanzania**

100%

Anode Materials

High Quality Graphite Project

Location: Tanzania

# Board & Management

Offering world-renowned, highly skilled and unparalleled experience



## Frank Poullas

Executive Chairman

25 years in investment markets, technology and engineering sectors. Involved in successful ventures within the lithium-ion battery materials and energy space.



## Prof M. Stanley Whittingham

Non-executive Director

Key figure in the invention of the Lithium-ion battery technology and awarded the 2019 Nobel Prize in Chemistry. Has headed large projects for the US Department of Energy, Exxon and Schlumberger. Distinguished Professor of Chemistry at Binghamton University, part of State University of New York.



## Dr Richard Petty

Independent Non-executive Director

Over 25 years experience as an advisor in major projects in Asia. Former B20 member and served on the B20 Finance and Infrastructure Taskforce, Former Chair of CPA Australia, Former Chair of Australian Chamber of Commerce Hong Kong and Macau. Currently Senior Investment Advisor and Board member to a number of Companies.



## Mona Dajani

Independent Non-executive Director

20+ years of practice experience as a dual qualified lawyer in the US and UK. Leads Pillsbury Winthrop Shaw Pittman's Renewables practice and co-leads Energy and Infrastructure Project Teams. Lead lawyer in complex acquisitions, financing and project development transactions.



## Zarmeen Pavri

Independent Non-executive Director

Over 25 years experience in financial services sector ESG, Impact Investing and Funds Management background. Previous leadership roles at Pengana Capital, JP Morgan and BT Board or Advisory Board Member at Uethical Investment Management, Apostle Ethical Balanced Fund.



## Peter Tsegas

Non-executive Director

15+ years experience in Tanzania engaging both private and public sectors on projects; Tanzanian resident. Previous consulting roles to the Tanzanian government and to a number of mining companies including Rio Tinto.



## Mugunthan Siva

Independent Non-executive Director

Over 25 years experience in financial services both locally and overseas. Managing Director and co-founder of India Avenue Investment Management. Previously held senior roles in ANZ Private Wealth, ING Investment Management Australia and India, Macquarie Bank, Westpac and ING.



# Lithium-Ion Battery Market Opportunity

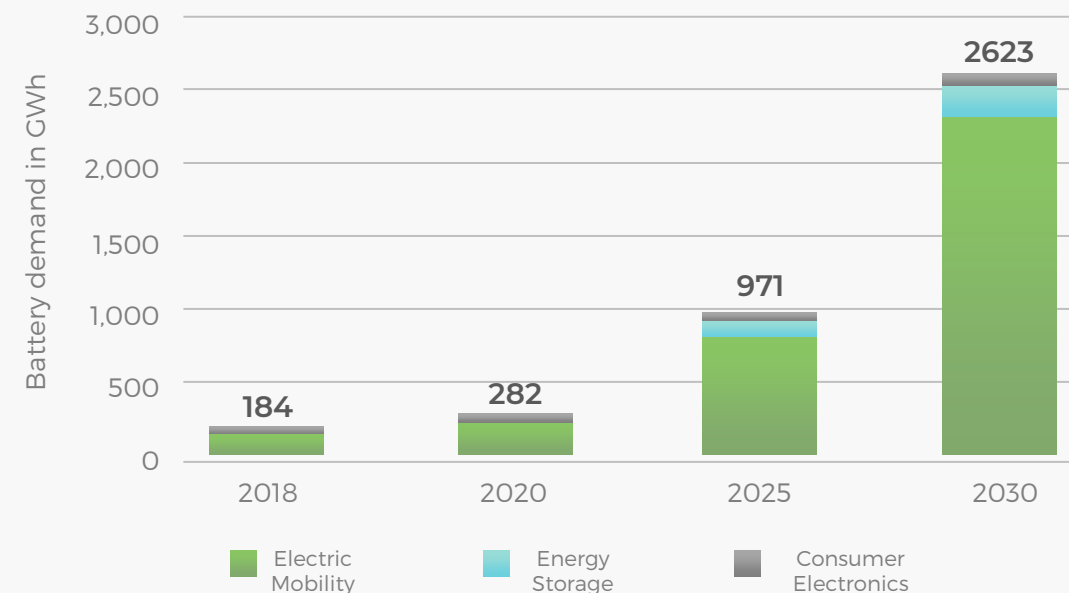


## Key growth drivers:

- Regulatory tailwinds and government incentives
- Falling costs of electric mobility and storage
- Greater use of renewable energy with minimal carbon footprint
- Global battery market size was valued at **US\$36 billion** in 2020 and is forecast to grow to **US\$133-151 billion** by 2030

Magnis will be a key player in both **electric mobility** and **energy storage**.

Li-ion battery demand is forecast to grow 10-fold by 2030



Source: Bloomberg New Energy Finance

# Graphite Market Opportunity



Graphite plays a critical role in the **anode** for EV batteries



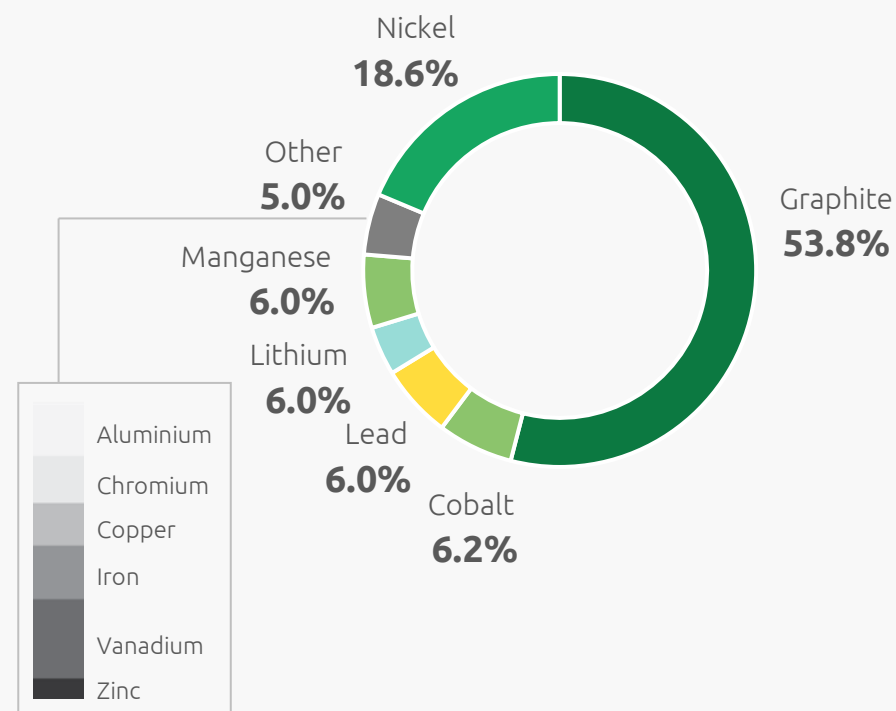
Graphite has been designated as a **strategic mineral** in the US, EU and Japan



Roskill predicts graphite **demand will grow** 23-27% p.a. through to 2028



East Africa is a **key source of supply** to diversify from **China** and for higher quality, larger flake graphite



Source: "Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition" World Bank

\*2DS = 2-degree scenario (Global warming target of 2 degrees by 2050) as per the International Energy Agency (IEA).

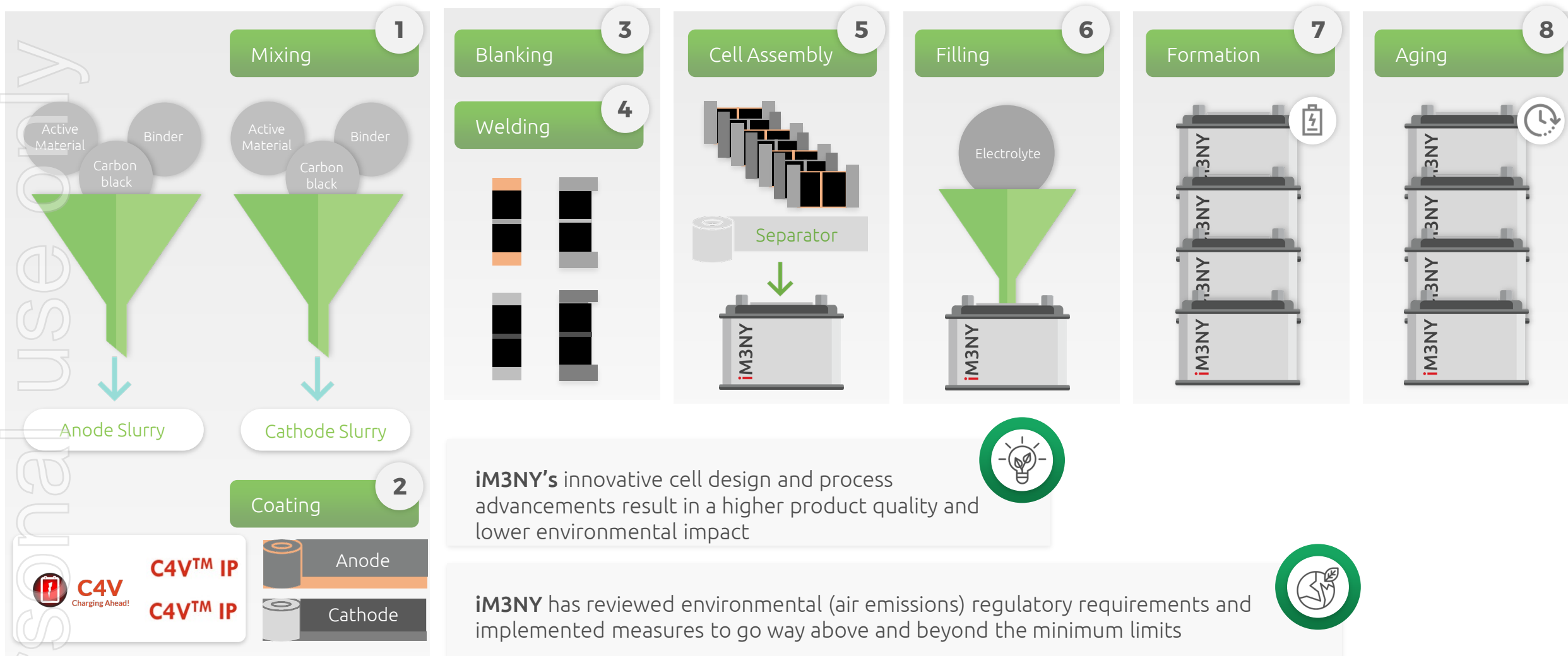




# Battery Manufacturing Process

Cell Manufacturing Process

iM3NY





# Battery Manufacturing

New York Battery Plant

iM3NY



~60% Ownership

Fully funded for 1.8 GWh production

iM3NY to produce one of the **greenest batteries in the world** as per report by NYSERDA

32 GWh

To be manufactured by 2030

iM3NY holds the exclusive rights to various patented technologies from C4V for the US Market



At 1.8Gwh production, can produce over

4.4 million cells annually



# Battery Manufacturing

Townsville Battery Plant

iM3TSV



~**33%** Ownership

Queensland Government funded feasibility **study completed and approved** (August 2020)

**18** GWh

To be manufactured, once **Townsville Project Plant** is established

Major global partners and all forms of government **supporting the project**



At full production, potential revenues of over

US\$ **3.5** billion annually





# Battery Technology

Cathode - BMLMP

C4V



Magnis' technology partner C4V has developed a **patented** and **commercialised** bio-mineralising process (BMLMP) **will add 15-20% nominal cell voltage to the popular LFP chemistry** with significantly higher energy density and a higher cycle life

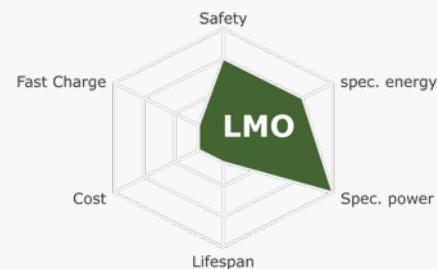
Barriers to battery adoption:

- Speed of charging
- Safety
- Energy density
- Cost
- Lifespan

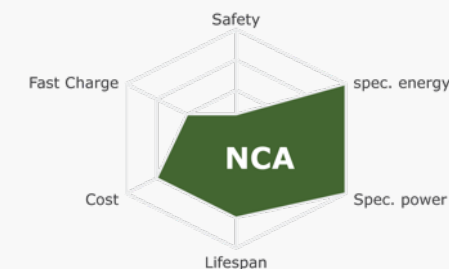
IM3 has first mover advantage through C4V's **commercialised** battery technology which improves on current barriers

Currently available commercial battery chemistries are shown below

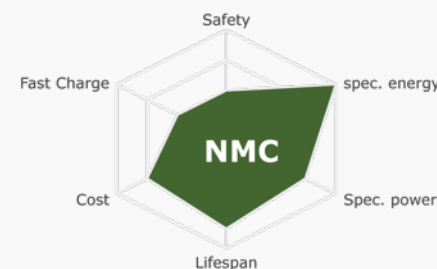
Small Manufacturer



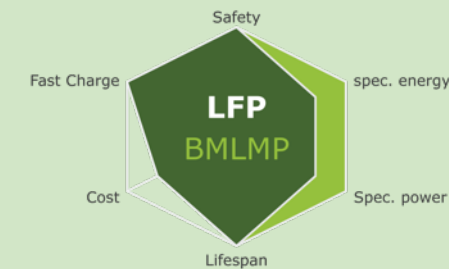
TESLA



CATL



iM3NY



Source: C4V & iM3NY



# Battery Technology

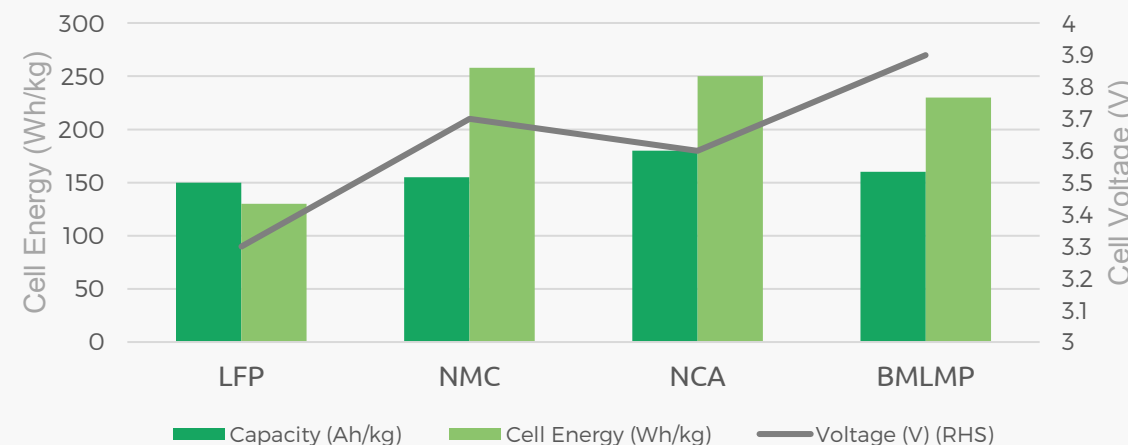
Intellectual Property

C4V



- **Environmentally friendly, low cost and greater safety due to no nickel and cobalt**
- Non-China supply chain
- Wide range of applications due to no compromise between life, energy density and power
- **Over 75% retention following >2500 cycles with Fast Charge** program 30 min charge & 30 min discharge
- **Extra Fast Charging (EFC)** program expected to deliver **over 85% charge in 6 minutes**
- **C4V also provides value chain solutions for Lithium-ion battery manufacturing** through cell design, qualification of equipment suppliers and raw material supply chain, blueprint of plants and engaging with EPC contractors
- **Patent protection** for C4V Cathode composition in over 30 countries

Cathode Material	Voltage (V)	Capacity (Ah/kg)	Cell Energy (Wh/kg)
LFP	3.3	150	130
NMC	3.7	155	258
NCA	3.6	180	250
BMLMP	3.9	160	230





# Anode Materials

## Nachu Graphite Project



Average 240ktpa graphite concentrate produced over an initial reserve-backed **15-year mine life**



**40% in jumbo and super jumbo size flakes** for premium markets



Granted **10-year SEZ Licence by Tanzanian Government**. SEZ license permits 100% ownership by Magnis Resources Limited



**High quality graphite not requiring hydrofluoric acid cleaning** and only needs spheronisation (saving ~US\$1,000/tonne)



**Lowest cost producer** of spherical graphite above 99.95% TGC purity



### 240ktpa Flake Graphite Concentrate with an average of 98.3% Total Graphitic Carbon (TGC)\*

22ktpa - Super Jumbo Flake	77ktpa - Jumbo Flake	141ktpa - Battery Feedstock
<b>Size:</b> +500 microns, +35 mesh	<b>Size:</b> 300-500 microns, +50/-35 mesh	<b>Size:</b> Sub 300 microns, -50 mesh
<b>Purity:</b> 97.5% TGC	<b>Purity:</b> 97.0% TGC	<b>Purity:</b> 99.5% TGC
<b>Key markets:</b> Aerospace, composites & niche markets	<b>Key markets:</b> Expandable graphite, composites & electronics	<b>Key markets:</b> Spherical graphite for use in Li-ion battery anodes
<b>Current pricing:</b> US\$4,000-6,000/t CFR**	<b>Current pricing:</b> US\$2,500-3,000/t CFR**	<b>Value-in-use pricing:</b> +US\$2,100/t FOB**

\* Concentrate production rate over first 12 years of initial mine plan | \*\* Current pricing based on industry sources and end user discussions



# ESG / Environmental Footprint

Contributing to a sustainable future



## Key player in the **Global Energy Transition and Decarbonisation** Mega-Trend

- A report by Abt Associates, commissioned by the New York State Energy Research and Development Authority highlights batteries produced by iM3NY to potentially be the greenest in the world
- High quality graphite concentrate means no use of environmentally harmful Hydrofluoric acid in the graphite cleaning process



## **Positive Social Impact** on communities and workforce

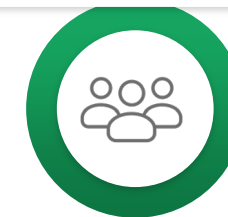
- Zero Loss-time injury frequency rate (LTIFR)
- Education, training and relocation for Project Affected Persons in Tanzania
- Future job creation in Tanzania, Townsville and New York



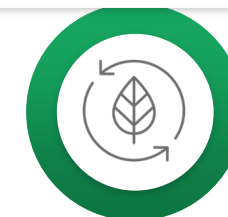
## **Strong Governance Structure** through newly created board with diverse skill sets

- Independent Directors at 57%
- Board Gender Balance at 29%
- Diverse Culture & Background of Board

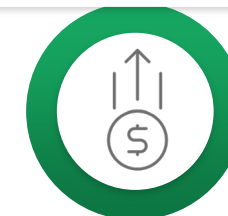
Socially Equitable



Environmentally Sound



Economically Feasible



**SUSTAINABILITY**

# Magnis Impact Goals

## Alignment to the UN Sustainable Development Goals



**5.5** Ensure women's full and effective participation and equal opportunities for leadership at all levels

**5.C** Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women at all levels



**9.5** Partnership for R&D with C4V to develop more sustainable battery chemistries

**9.B** Support technology development, research and innovation in developing countries. C4V supplying technical knowhow and supply line contracts for lithium-ion plants to countries like India



**7.2** Accelerate the green energy transition to enabling and supporting the build of highly cost-efficient battery cell manufacturing at our gigawatt factories

**7.3** Reduce energy consumption and increase energy recovery across the battery value chain



**12.2 & 12.4** Using more sustainable materials/ battery chemistries, incl. our breakthrough BMLMP technology

**12.6** Encourage business partners to integrate sustainability information and strive for increased traceability for battery materials



**8.1** Creating green jobs and economic growth

**8.8** Securing labor rights and secure work environment through partnerships with suppliers with high ethical standards



**13.2** Reduce energy consumption and increase energy recovery across the battery value chain

**13.2** Aim to achieve by 2030, cell manufacturing based on renewable energy and minimizing carbon footprint in the battery value chain

# Milestones

Expected journey over the next 12 months



Battery  
Manufacturing

**Q2 2021**

Commissioning complete  
and first production

**Q4 2021**

Begin commercial  
production

**Q1 2022**

Potential listing or  
private capital for  
10GWh Scale in Phase-2

**Q2 2022**

Government funding  
for exponential  
production

Battery  
Technology

**Q2 2021**

Indicative Positive Extra Fast  
Charging Results from C4V's  
NYSERDA Project

**Q4 2022**

NY EFC Bus Program

Anode  
Materials

**Q4 2021**

Potential Offtakes

**Q1 2022**

Finalise Nachu funding



# Magnis' Growth Strategy

Expected journey over the next 10 years



# Investment Rationale

## Why Magnis Energy Technologies



### Large Regulatory Tailwind



The US Department of Energy Advanced Technology Vehicles Manufacturing Loan Program plans to distribute US\$17 billion to support new research and domestic manufacturing of Lithium-Ion Batteries in the US

### Highly Scalable, Decarbonisation Mega-Trend



A unique ASX listed play into large scale global Lithium-Ion Battery cell manufacturing critical for adoption of Electric Mobility and Energy Storage

### Highly Experienced and Credible Board of Directors



Unrivalled capabilities and expertise in Lithium-Ion Batteries, Automotive Innovation & Mining sectors

### World Class Intellectual Property



Partnering with technology partner C4V paired with our next generation anode and cathode battery materials, which have patent protection in over 35 countries

### High Quality Graphite



A critical component in the anode of a Lithium-Ion Battery cells. East Africa will be a key supplier of higher-quality and larger flake graphite to the world compared to China who accounts for 70% of global supply

### Commercialised Technology with Binding Offtakes



The New York plant already has ~A\$1bn of binding offtakes in place starting next year. This means the technology has already been qualified and is commercial ready

# Appendix



# Four Phases of iM3NY Plant Construction



**Figure 1.** Full sized Lithium Cell produced at iM3NY

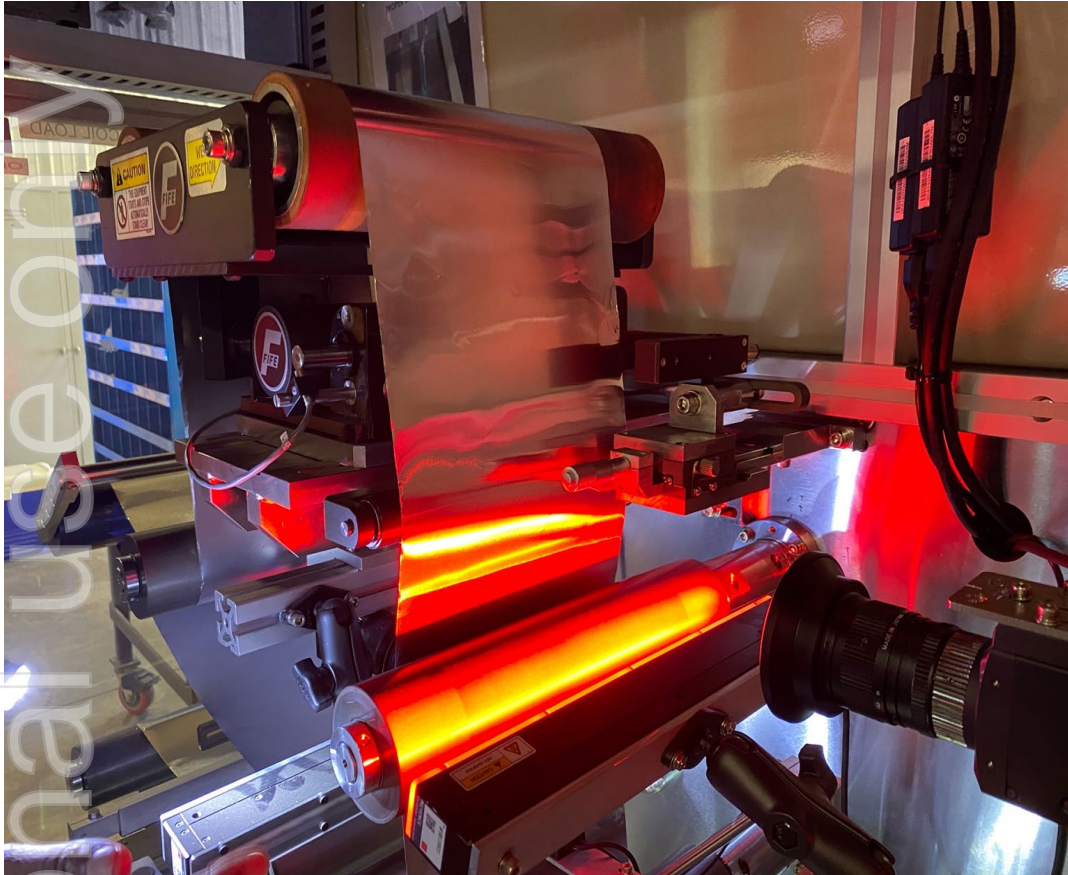
iM3NY and Danish Engineering Giant Ramboll have undertaken a phased approach to the construction of the lithium-ion battery plant facility.

**Phase 1** - The pilot line, will consist of existing facility infrastructure, demolition and abatement, process room design and construction, process equipment installations of the mixing/coating and formation equipment as well as the associated facility utility design and installations.

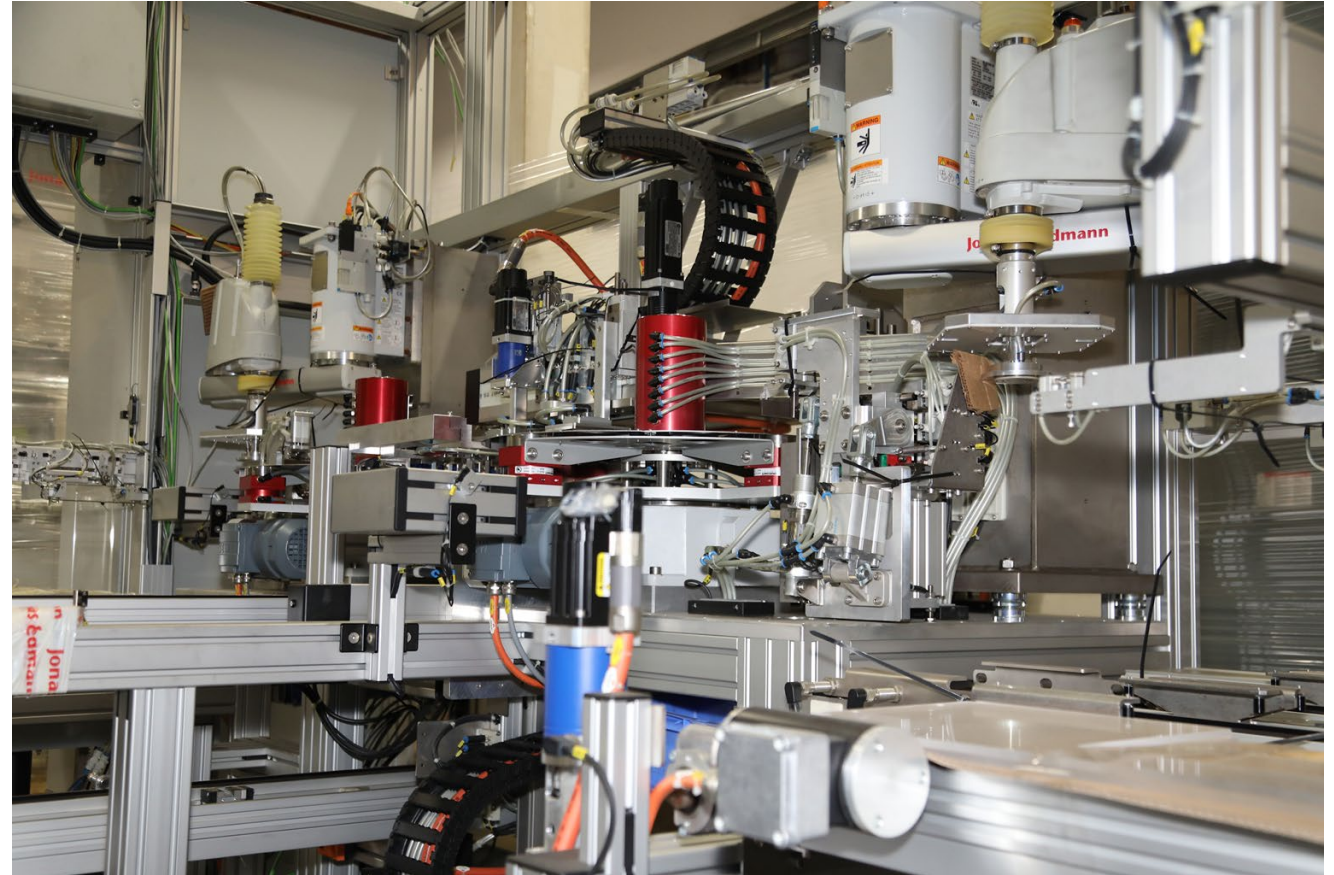
**Phases 2 and 3** - Consist of building interior cell assembly/filling dry room construction and filling/cell assembly dry room process equipment and associated facility utility design and installations.

**Phase 4** - The final engineering and construction phase of iM3NY's battery cell plant facility will consist of design and construction of the facility office space, quality control lab, maintenance, packaging, installation of formation and process equipment, and associated facility utility design and installation

# IM3NY Plant Equipment

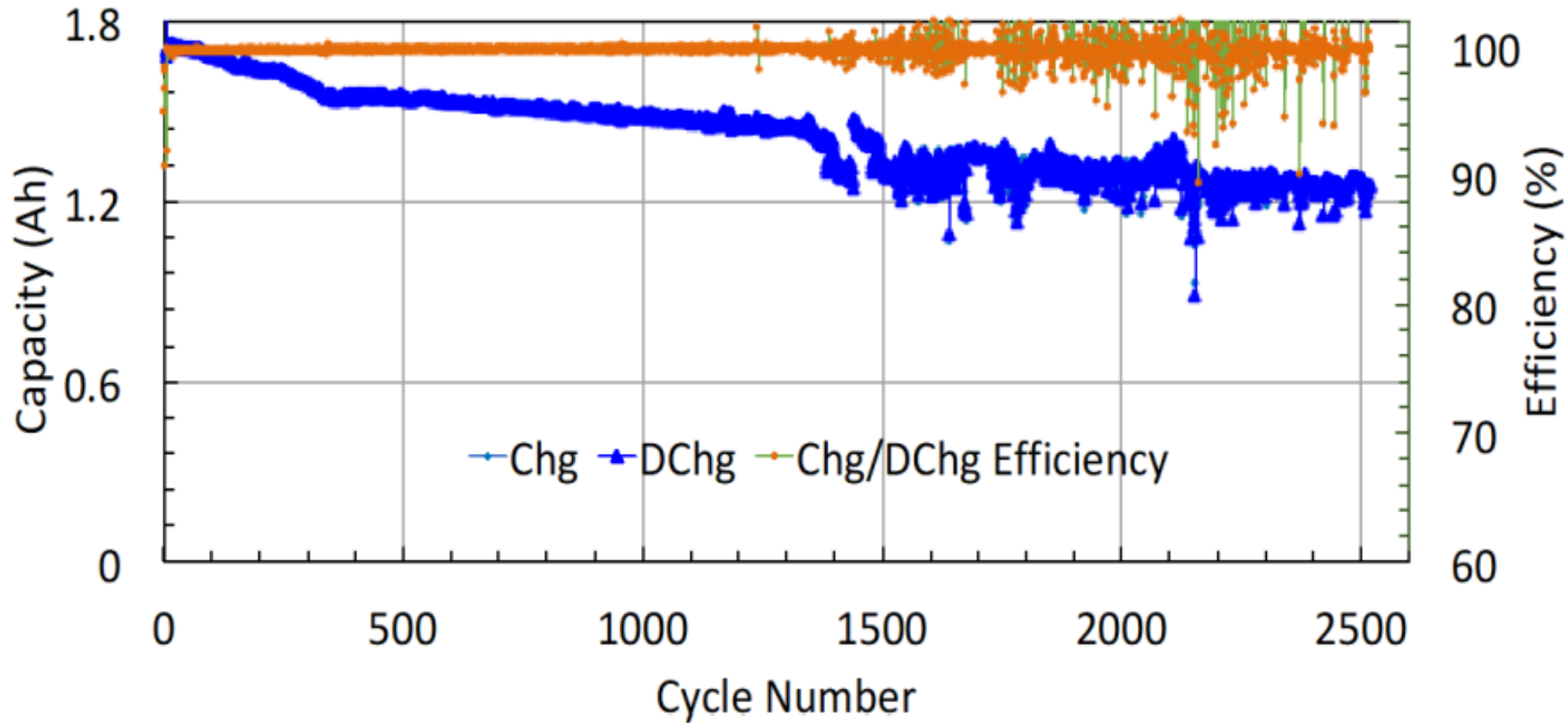


**Figure 2.** Stamper machines in iM3NY



**Figure 3.** Robotic system used in the cell mechanical assembly process

# Fast Charging Results



**Figure 4.** Optimised fast charging BMLMP cell cycling data at 2C-2C rates with 30 minute charge and discharge of the cell



# Magnis Tanzania's Community Work




**Figure 5.** Renovated Classrooms At Matambarale Primary School





# Thank you

## CONTACT US

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