

Scale-Up accelerator

Amplisi

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VISIT US AT
STAND 733

⚡ THE CHALLENGES

BATTERY PERFORMANCE IS ANODE LIMITED

The world is electrifying faster than ever, more than 20% of all new cars were electric in 2024, and the electric vehicle fleet needs to grow faster to meet 2050 net zero targets.

Innovation in cathode chemistry has reduced battery cost and increased performance, in comparison, **incumbent graphite performance remains largely unchanged.**

- Limited energy anodes
- Poor charge time
- **Battery performance is anode limited**

TRADITIONAL SILICON HAS SUFFERED FROM LOW LIFETIME AND HIGH COST

Anode innovation has driven the adoption of **silicon as a next-generation anode** material. Traditional silicon has suffered from **low lifetime** and **high costs** despite high energy and high power.

Low lifetime is caused by silicon expansion and pulverization in the anode

- Non-porous silicon has a relatively **large volume expansion**
- Pulverisation **reduces electrical conductivity** and creates **more SEI**
- **Limited to <10 wt%** in electrode

High costs due to energy intensive manufacturing methods

- CVD & HF, regulatory restrictions on silane feedstocks
- Long scale-up timeline
- **High \$/kWh**

⚡ THE SOLUTION

POROUS SILICON FOR BATTERY ANODES

Amplisi has solved the 2 major challenges limiting adoption of silicon anodes with **scalable & cost-effective manufacturing of porous silicon**. Our product is a bulk powder, offering drop-in solution for cell manufacturers to replace graphite without capex investment

AMPLISI'S POROUS SILICON HAS HIGH LIFETIME

Meso-porous architecture accommodates and **reduces volume expansion**, this negates pulverisation to give high cycling stability and longer lifetimes

- **High energy anode material**
- **Long life batteries**

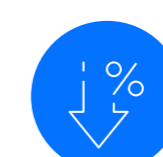
AMPLISI'S POROUS SILICON IS COST EFFECTIVE

Low costs due to efficient manufacturing methods. Amplisi's proprietary low-temperature magnesiothermic reduction process is a scalable route to multi GWhs of silicon anode material

- Abundant feedstocks, no reliance on silane, no regulatory or geographical restrictions
- Fast scale-up timeline
- **Low \$/kWh** anode



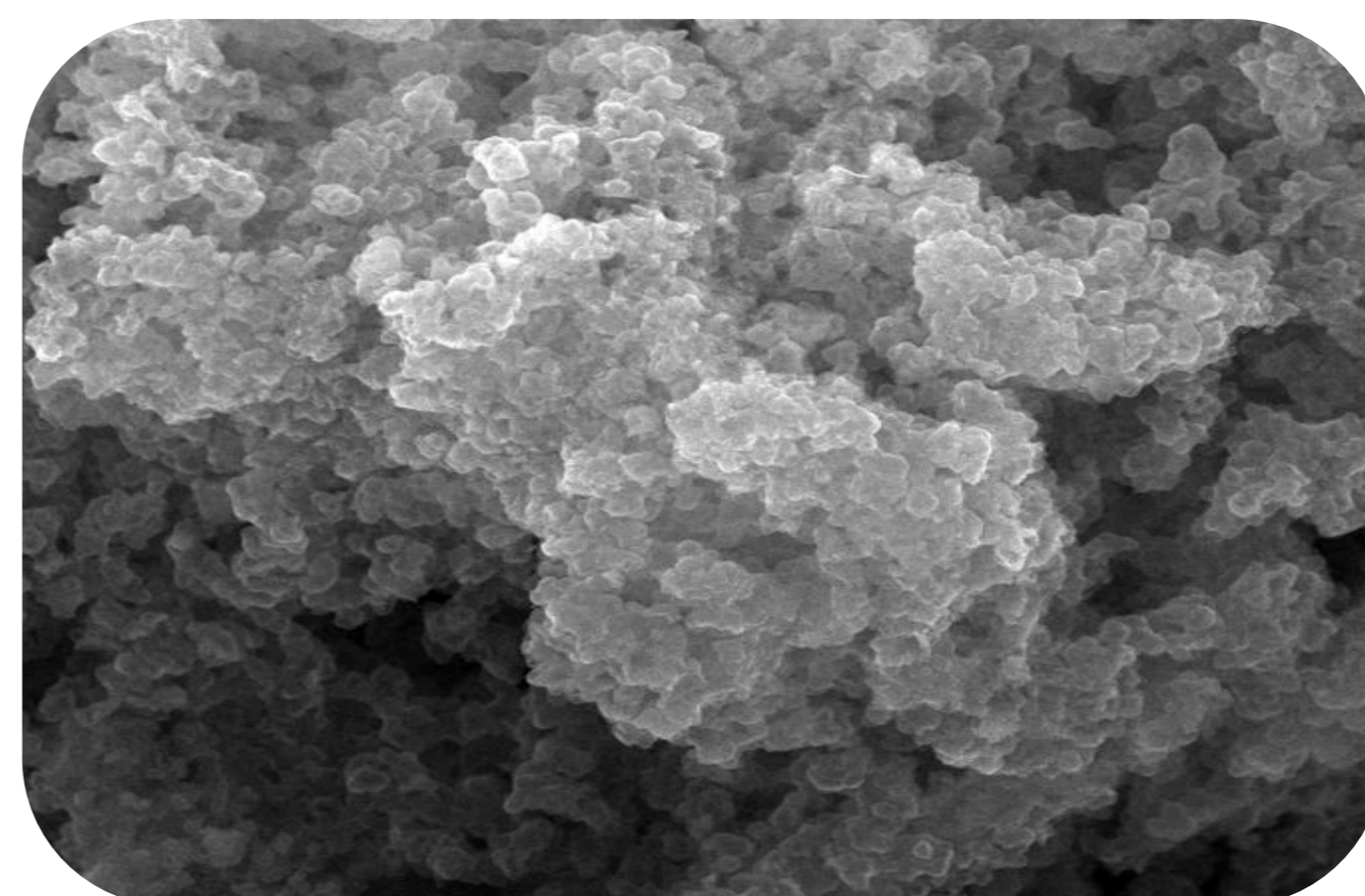
Porous Si for long battery life



\$/kWh cost target



Scalable Si OEM validation



The Product Challenge

• Shorter battery lifetime

• Porous silicon controls expansion

• Longer life EV batteries

Challenge

Amplisi Solution

Enabling

The Process Challenge

• Expensive & environmentally hazardous

• Patented safe, **low-energy, scalable production process**

• Cost efficient, scalable, sustainable & supply chain secure batteries

⚡ PRODUCT INFORMATION

AMPLISI'S POROUS SILICON

- Inherent meso-porous architecture
- Free-flowing powder
- Offers Si dominant anodes, and blends with graphite
- Electrode processing: Aqueous solvent and CMC/SBR compatible
- Wide range of slurry % solids content

TECHNOLOGY INTEGRATION

- Pouch, cylindrical and prismatic cell formats
- Wide range of lithium cathode chemistries
- Current Li-ion and future Li-S & SS cell chemistries
- Wet and dry electrode processing

⚡ IMPACT & APPLICATIONS



50% increase in EV range



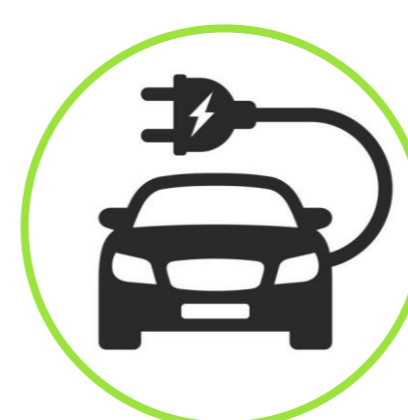
2-3x decrease in charge time



>30% reduction in material \$/kWh



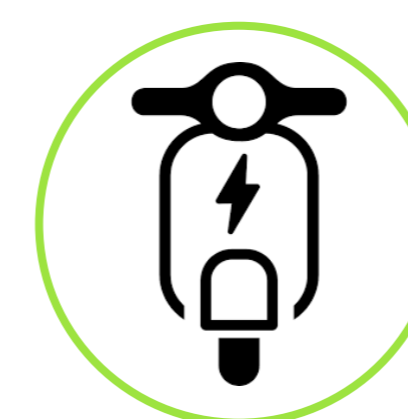
Accelerating electrification



2600 GWh



430 GWh



110 GWh



90 GWh

3% of the 2030 global **mobility** market, is equivalent to 100 GWh