



Li-S cells based on 3DGraphene™

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Dresden, DE



Lyten Overview

2015
Year Founded

\$550M
Capital Raised

320
Employees

520
Patent Matters



Lithium-Sulfur
Batteries



Composites



Concrete
Admixtures



Sensors

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STELLANTIS

FedEx

Honeywell

NOKIA

Prime
Movers
Lab

Walbridge

EUROPEAN
INVESTMENT
FUND

LUXEMBOURG
FUTURE
FUND



Lithium-Sulfur
Batteries



Composites



Concrete
Admixtures



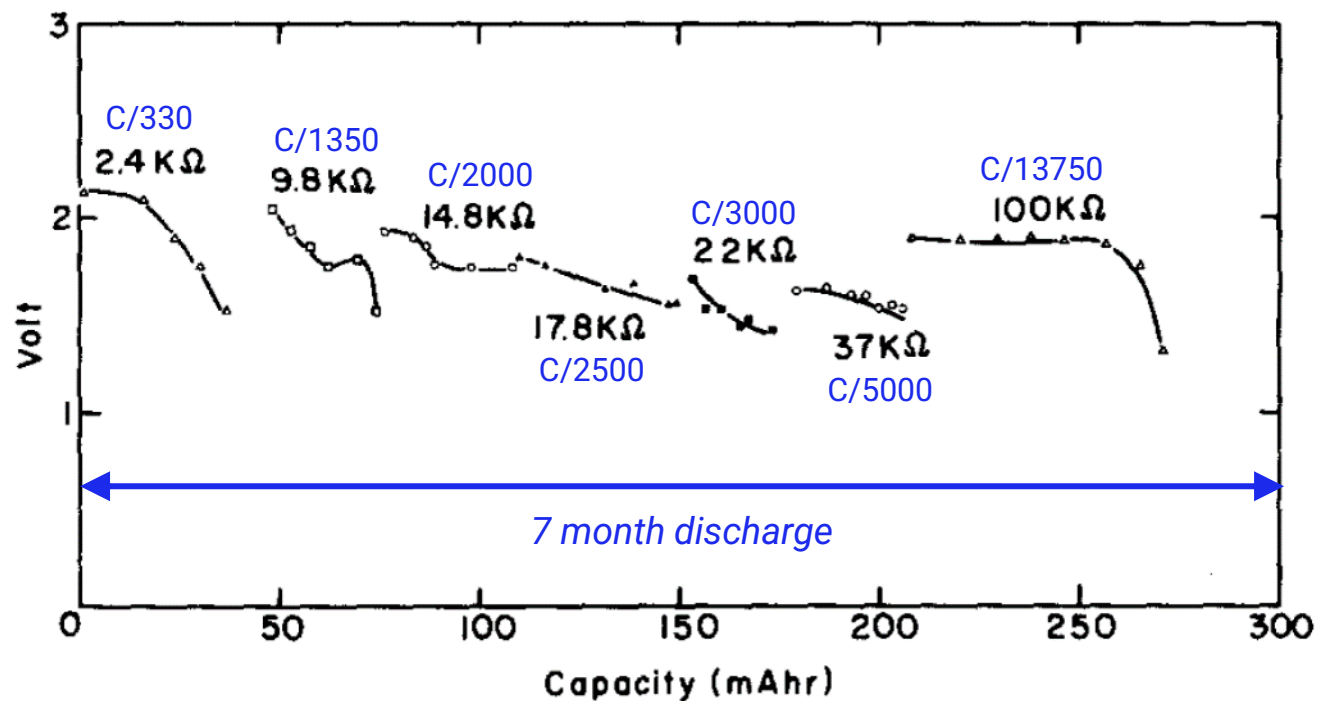
Sensors

A very early Li-S cell (Peled, 1983)

ELECTROCHEMISTRY OF A NONAQUEOUS LITHIUM/SULFUR CELL

H. YAMIN and E. PELED

Department of Chemistry, Tel-Aviv University, Tel Aviv 69978 (Israel)



- 730 Wh/kg (calculated)
- Low-rate primary cell
- Porous carbon current collector

3DGRAPHENE

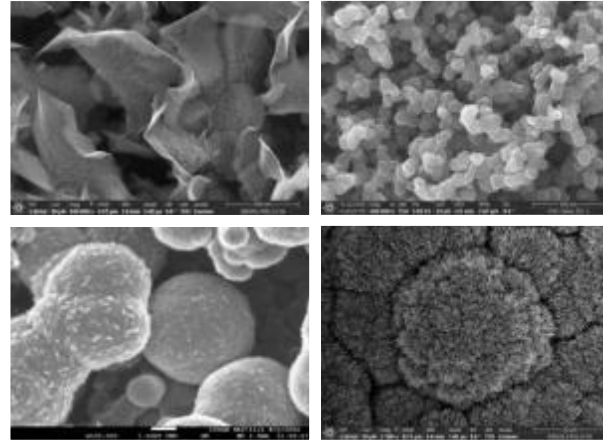
A carbon-negative refinery



+



Plasma
Processing



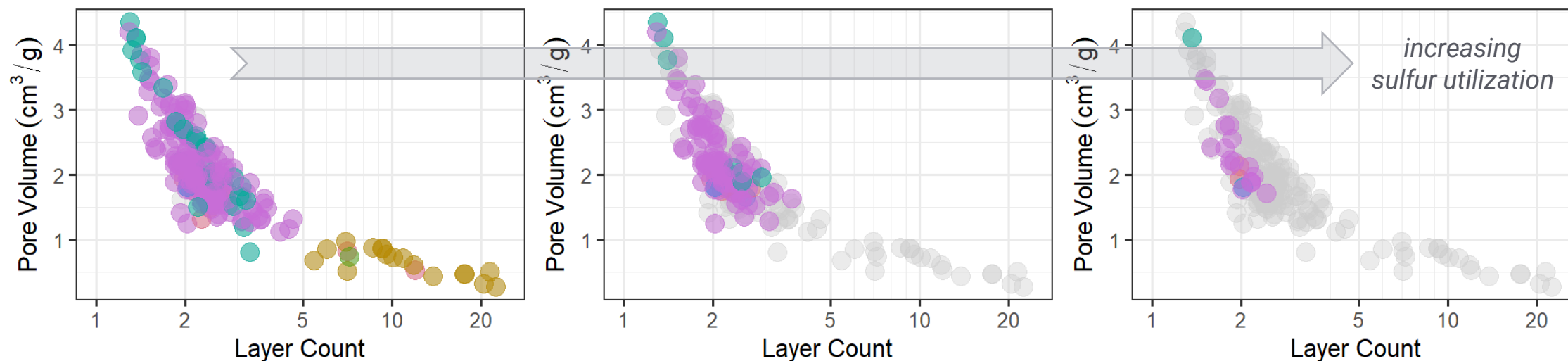
GHG Emissions Target

-2.5

kg CDE / kg



A platform that enables rapid exploration of the carbon phase space



- ✓ Layer Count
- ✓ Pore Volume
- ✓ Defectivity
- ✓ Conductivity

⌚ Heteroatom doping

⌚ Agglomerate size

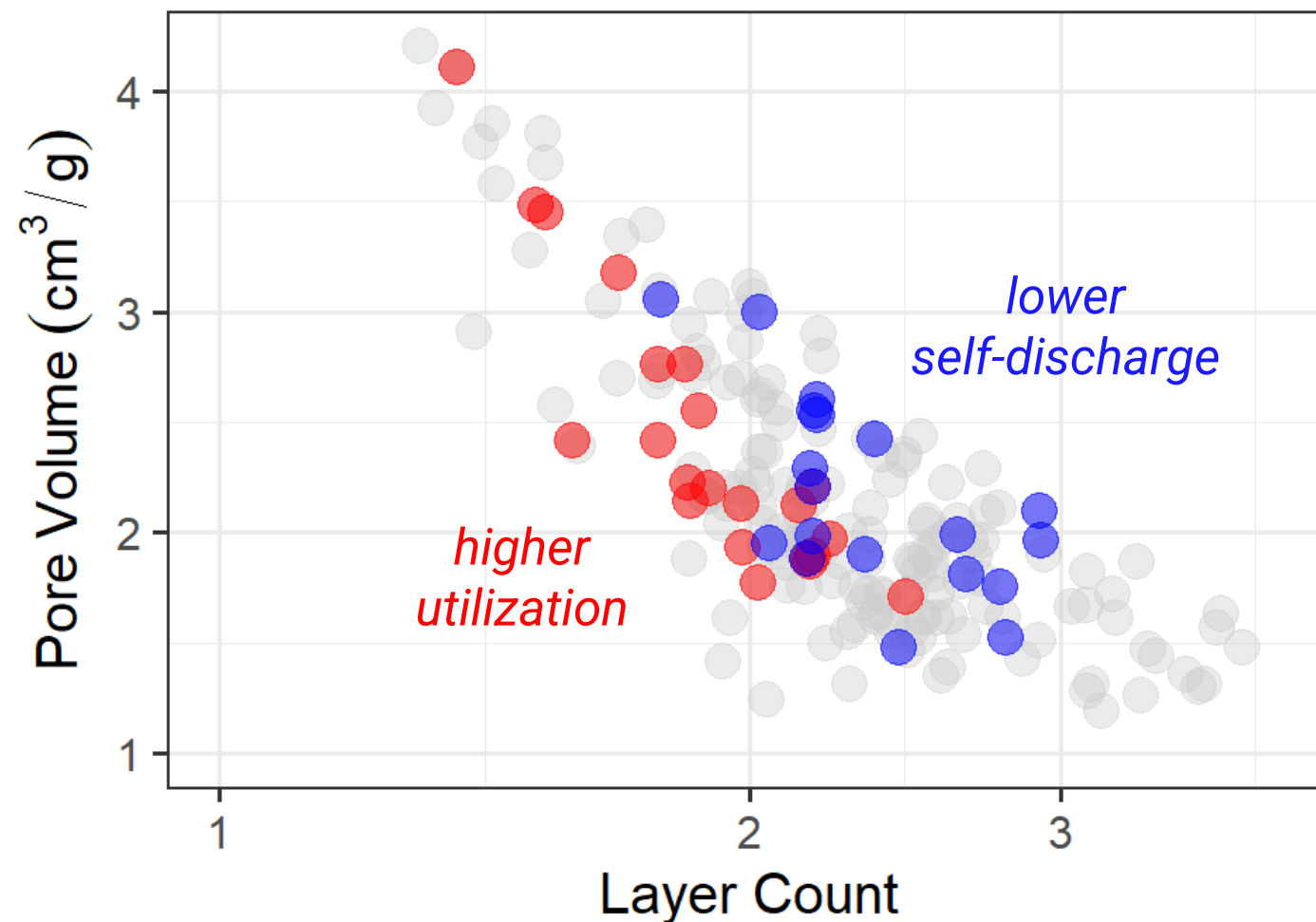
⌚ Beyond...

Technology in place today

Technology under development

Simultaneous screening across multiple metrics

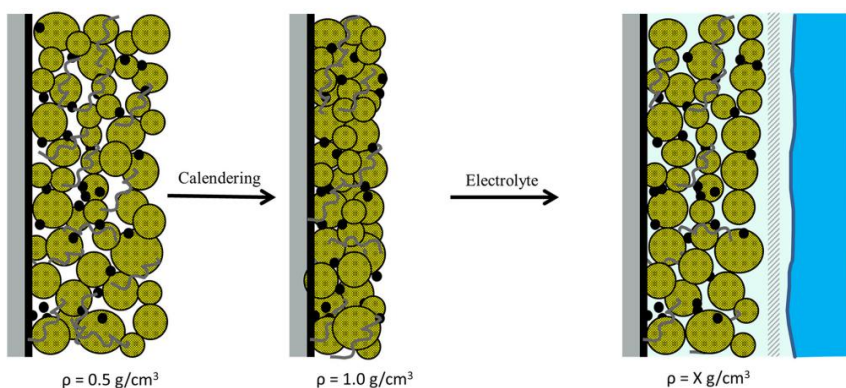
- Sulfur utilization
- Self-discharge
- Shuttle current
- Power
- Mechanical properties



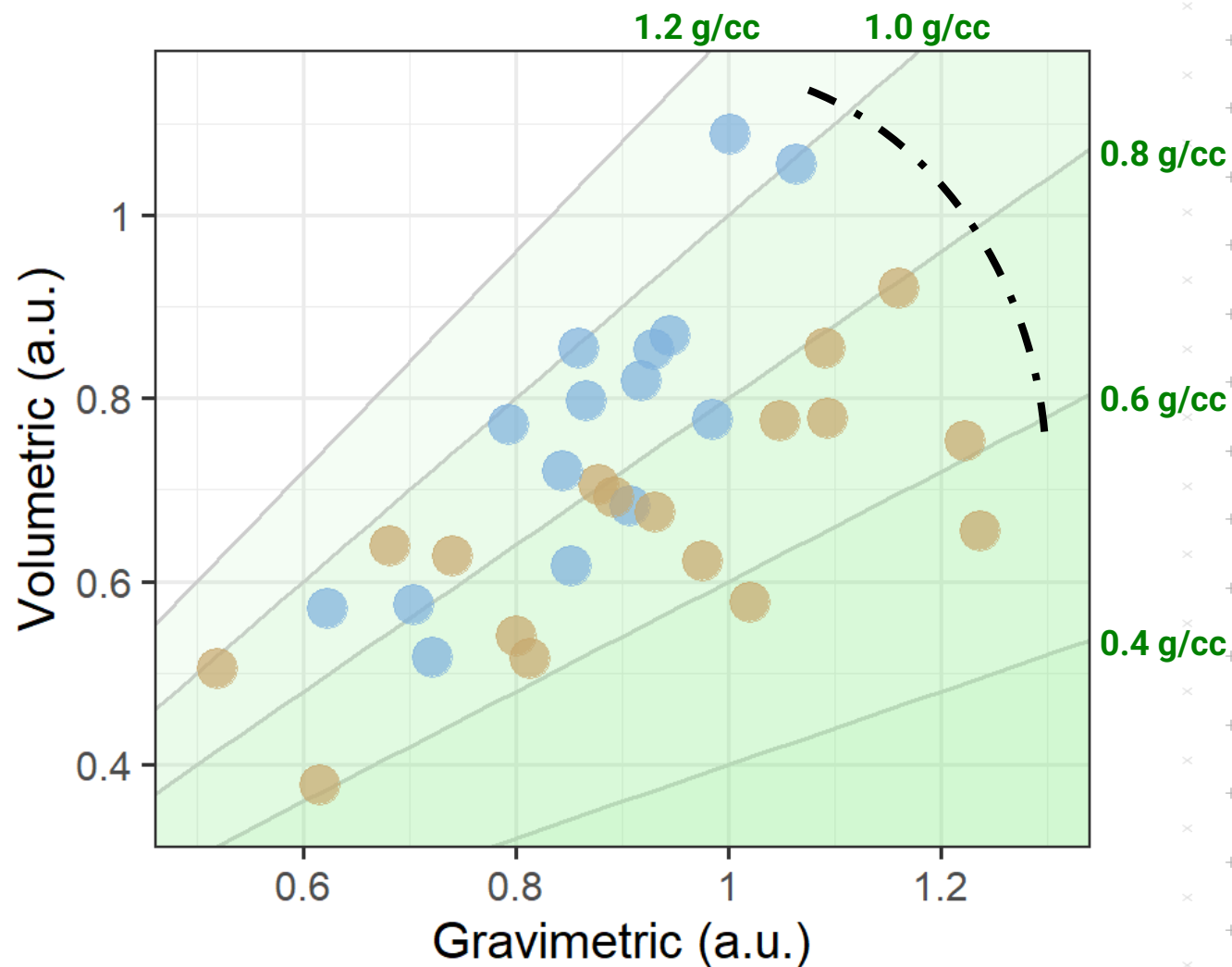
Carbon tuning for dense cathodes: extending the Pareto frontier

The Importance of Swelling Effects on Cathode Density and Electrochemical Performance of Lithium–Sulfur Battery Cathodes Produced via Dry Processing

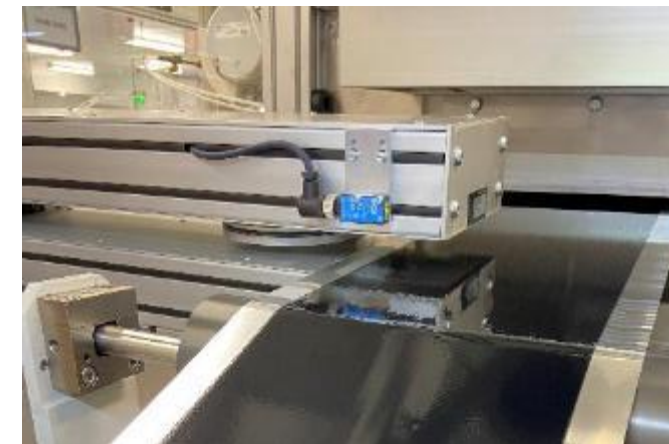
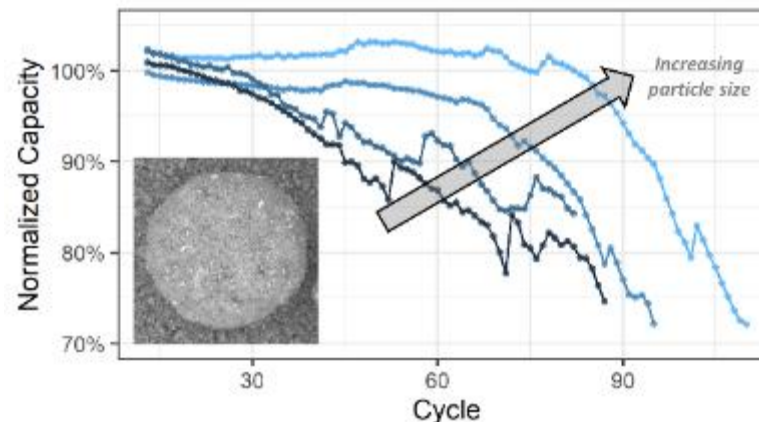
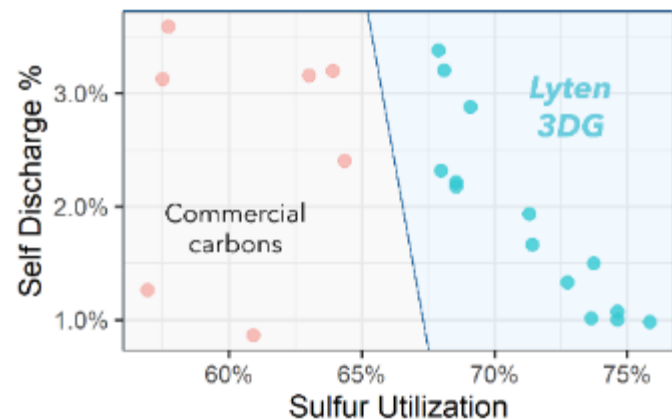
Florian Schmidt, Sebastian Ehrling, Kay Schönherr, Susanne Dörfler,*
Thomas Abendroth, Holger Althues, and Stefan Kaskel



Dense cathodes enable both energy density *and* cycle life!



Engineering across multiple length scales



3D Graphene™ Synthesis

- Lyten 3D Graphene™ process allows for facile tuning of surface area, pore volume, and pore size distribution
- Cathode material optimized for high sulfur utilization and low self discharge

Spray-drying

- Secondary cathode particles formed through spray-drying
- Particles are highly spherical
- Sulfur utilization and capacity fade are highly dependent on secondary particle structure

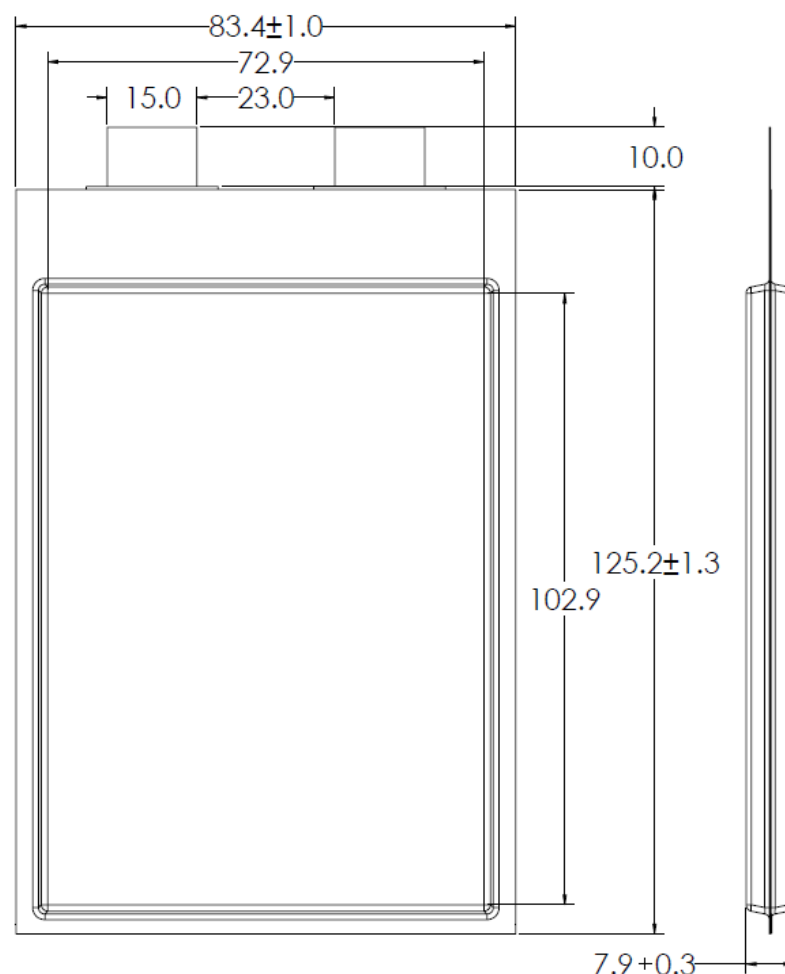
Cathode Coating

- Aqueous binder system
- Low binder content
- Highly uniform coatings with good adhesion and flexibility

UAV1

START OF PRODUCTION: Q1 2026

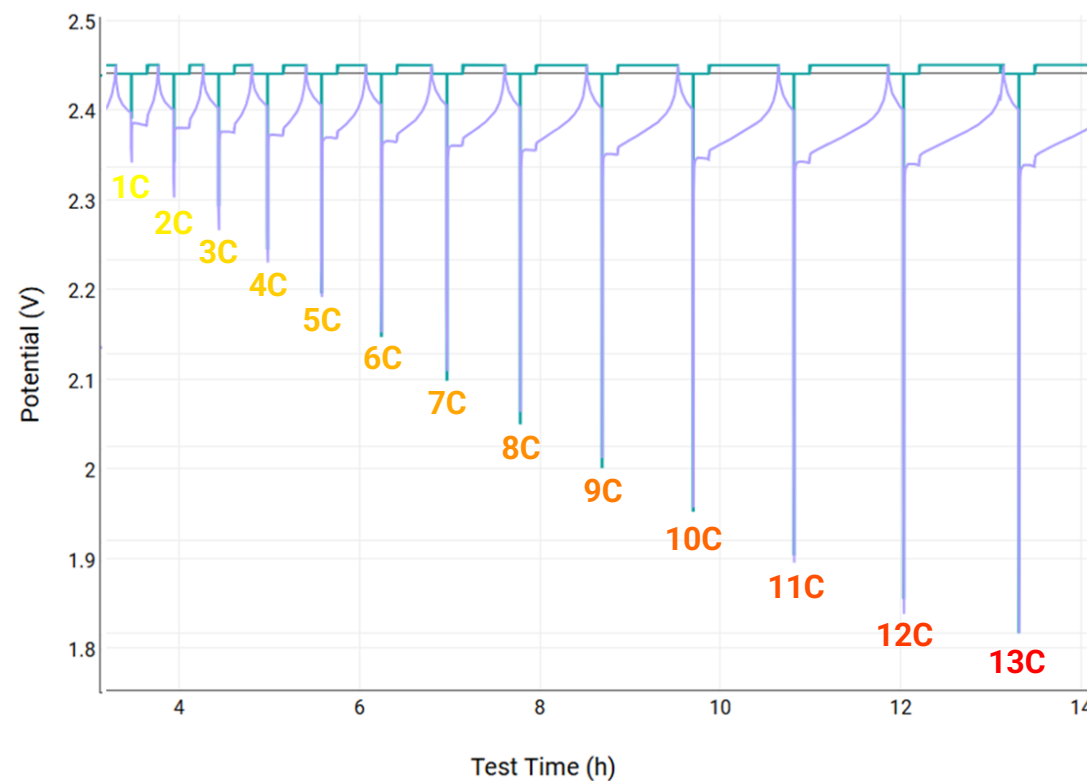
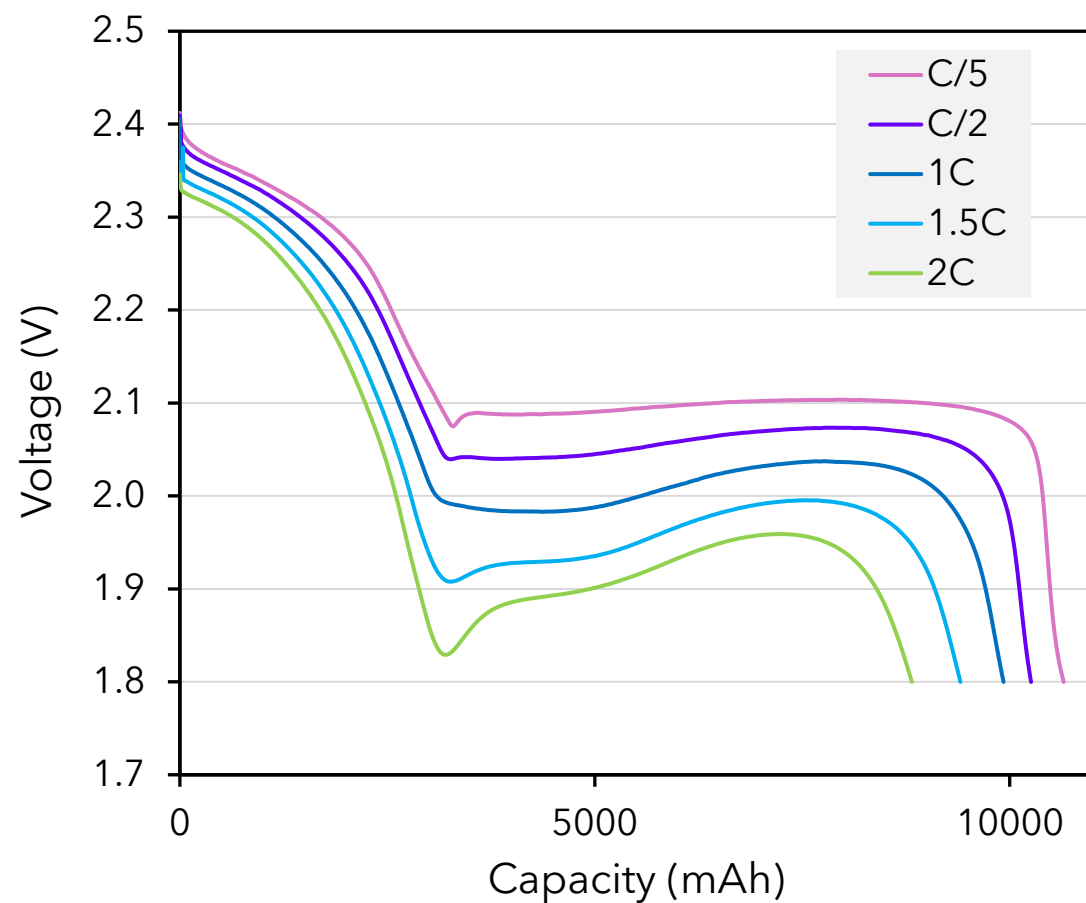
Specifications	
Capacity	10.62 Ah (typ.)
Energy	22.72 Wh (typ.)
Specific Energy (C/5)	344 Wh/kg (typ.)
Energy Density	275 Wh/L (typ.)
Nominal Discharge Voltage	2.14 V
Charge Cut-Off Voltage	2.45 V
Discharge Cut-Off Voltage	1.80 V
Mass	66.05 g (typ.)
Cycle Life (100% DOD)	50 (min.)
Max Continuous Discharge	14.06 A
Max Continuous Charge	3.56 A
Max Discharge Pulse, 30s	120 A
Max Discharge Pulse, 120s	56.2 A
DCIR @ 100% SOC, 1C, 10s	5.07 mΩ (typ.)
Operating Temperature	Charge: -10°C to 45°C Dchg: 10 °C to 40°C (cont.) Dchg: -40°C to 40°C (pulse) Storage: -10°C to 35°C
Cell Breathing	TBD



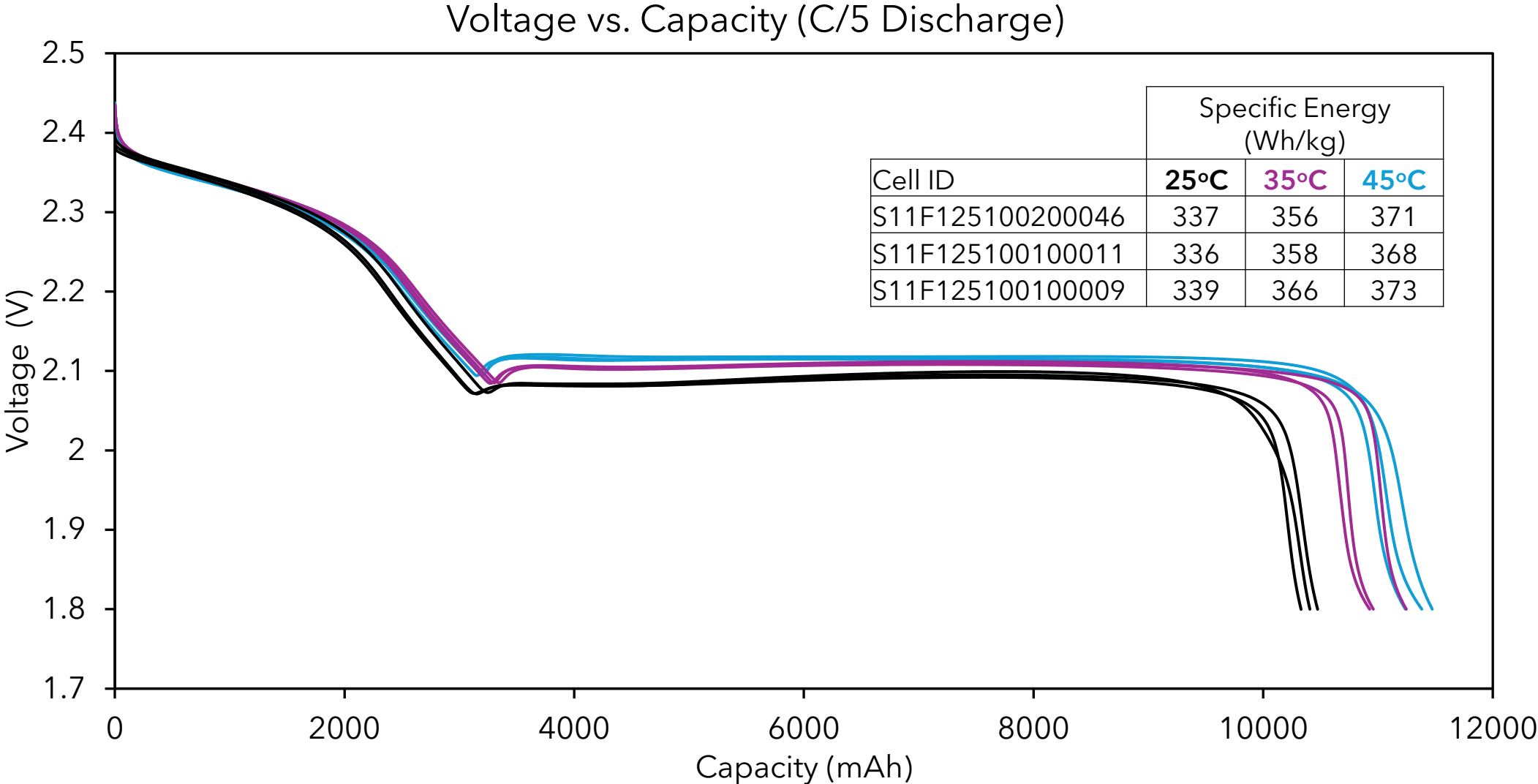
- 344 Wh/kg (C/5)
- 1.5C continuous discharge, 12C pulse
- <0.4% capacity loss per month (irreversible)
- Sampling to partners now, official production start Q12026
- UN38.3 certification expected based on internal testing

UAV1

Power Performance



High-temperature Performance



Northvolt Asset Acquisition

IN OPERATION
UNDER DEVELOPMENT

Near-term focus: restart production at Ett and begin leveraging Northvolt Labs to accelerate Li-S R&D



Northvolt Ett

(Asset sale)

Large-scale cell manufacturing

 16 GWh installed across 9 lines
~30 GWh prepared in Ett
Expansion

 First battery cells delivered in
2022

 Delivering three automotive grade
cell products to leading OEMs
today

 2,700 skilled workforce



Northvolt Labs

(Asset sale)

R&D and Industrialisation
platform

 Cell production + validation

 In operation since 2019

 Delivery of multiple cell
development programmes to
leading OEMs

 800 skilled workforce



Northvolt Drei

(Share sale)

Large-scale cell
manufacturing

 15 GWh under development initially
(potential of 60 GWh)

 \$0.8bn TCTF (grant) funding under
discussion

 Site levelling complete and necessary
permits received

 Local team of 100+ FTEs



Northvolt Dwa

(Asset sale)

BESS Manufacturing +
BESS Product Portfolio

 3 GWh installed, equipment for 3 GWh
on site (potential of 12+ GWh)

 1st BESS units delivered 2023.
Currently on 3rd generation product.

 Large customer pipeline already in
place.

 Local team of 100+ FTEs



Northvolt IP

IP portfolio in Cell manufacturing
domain

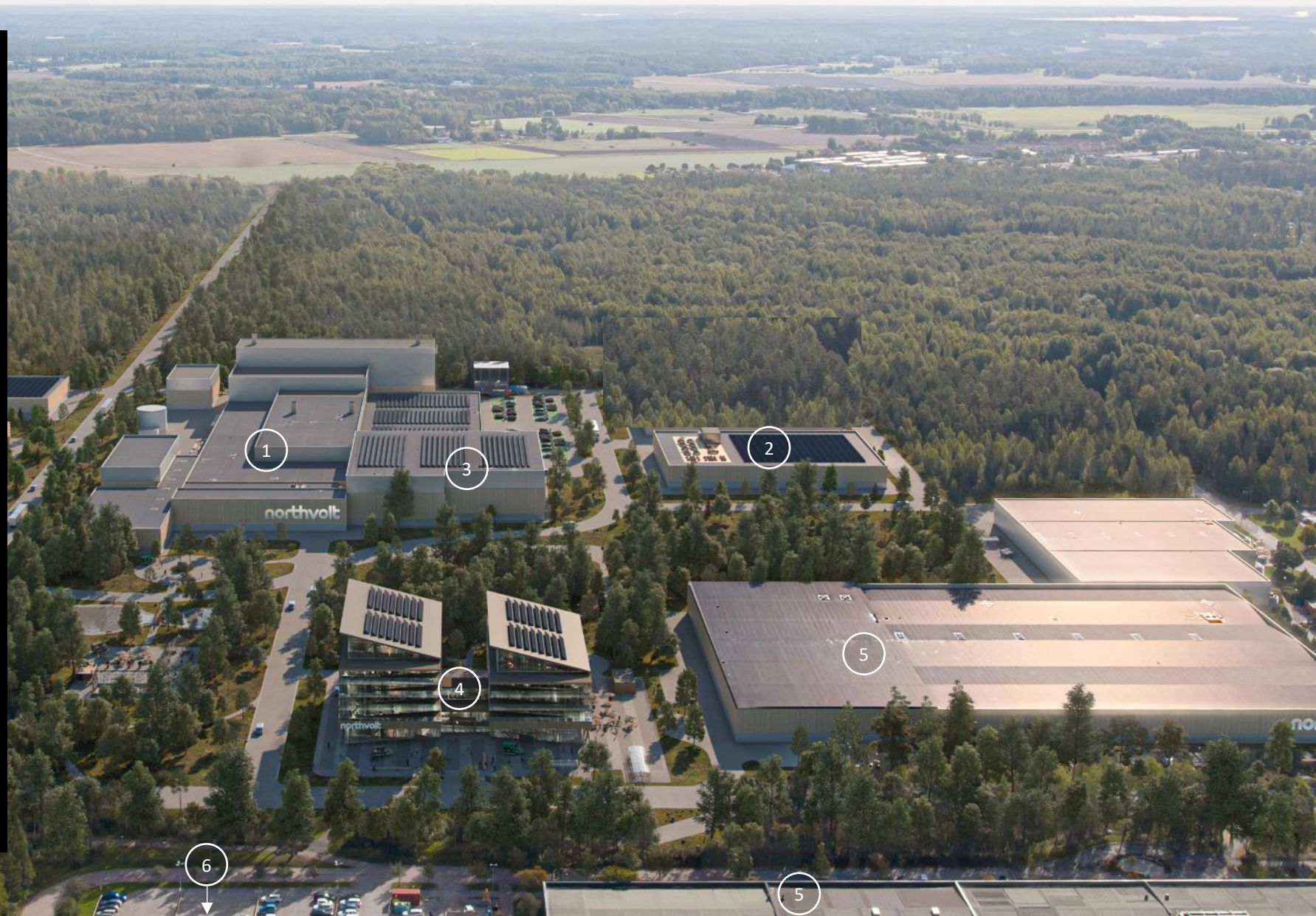
 300+ patents in the portfolio to
date

 Cell design, advanced materials
and process equipment

 Product IP covering prismatic but
also cylindrical form factors

Labs: Battery technology campus

- 1 B-sample production
- 2 Safety & environmental test lab
- 3 R&D 2.0 A-sample production
- 4 Labhouse, office
- 5 Performance & Life test lab
- 6 R&D 1.0 Coin cell and concept development



R&D 1.0 — Coin cell & small pouch cell for early concept development



1 500m²
R&D facility 1.0

- Material and electrode development lab
- Advanced material development lab
- 2 small pouch cell lines
- Coin cell production and testing

R&D 2.0 — A-sample and prototype production



15 000m²
R&D facility 2.0

- R&D electrode production, tandem coating
- Prismatic Top Terminal prototype line
- Prismatic Top Terminal A-Sample line
- Prismatic Side Terminal A-Sample line
- Cylindrical Large Format A-Sample line
- Material and electrode development lab
- Advanced material development lab
- QC lab

Labs - Industrialization platform for process development and B-Sample production



20 000m²
production facility

- Complete down-stream process from slurry to EOL
- Mass production equipment for process development
- Sensing & vision combined with artificial intelligence
- Verification of product and process for mass production readiness
- Delivered B-Samples to gen1 and gen2 automotive customers

Labs

Test labs

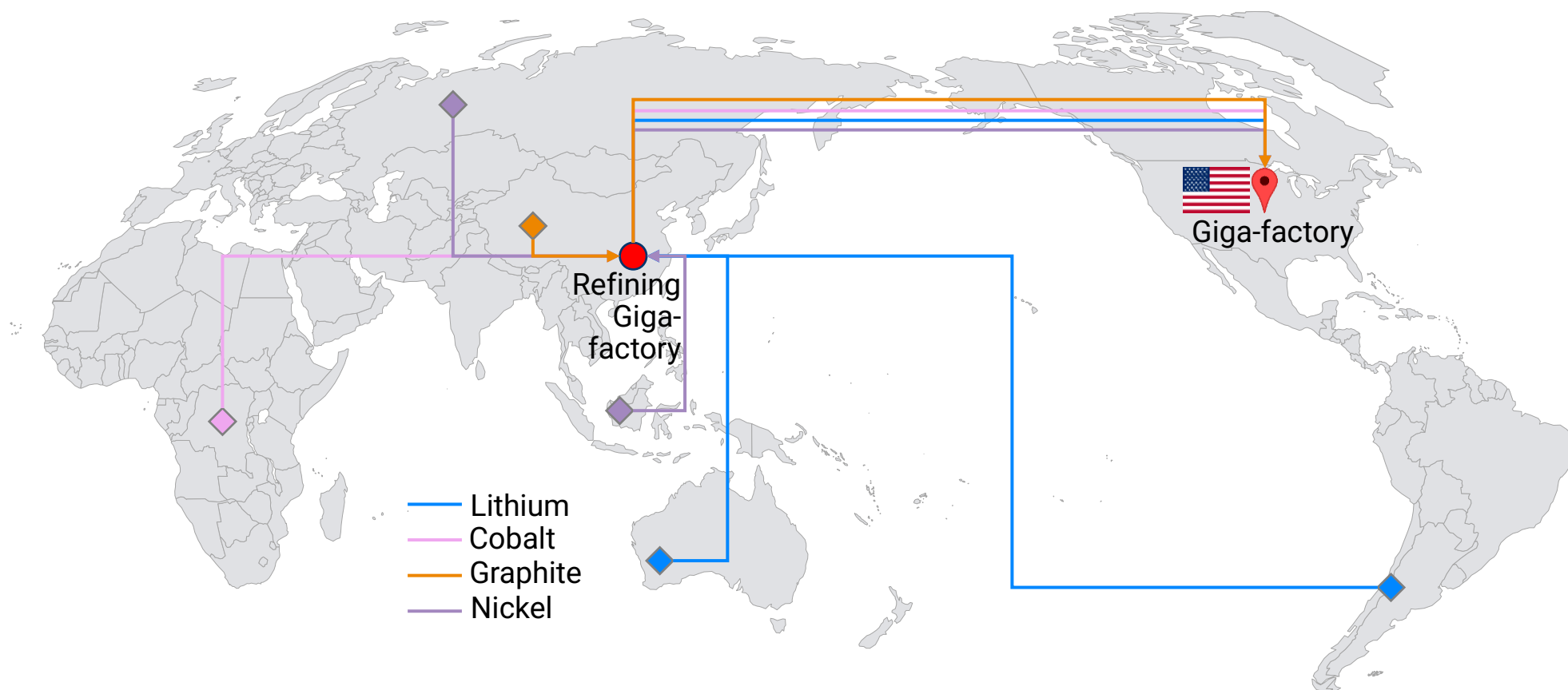
Validation and testing of cells within the areas of performance, environmental, life, safety and mechanical. From project start to SOP, including A- to C-Sample.



NMC/LFP Supply Chain: Security and Sourcing Risks

SECURITY AND SOURCING RISKS FOR ACTIVE MATERIALS, TECHNOLOGY, AND PROCESSING FROM CHINA

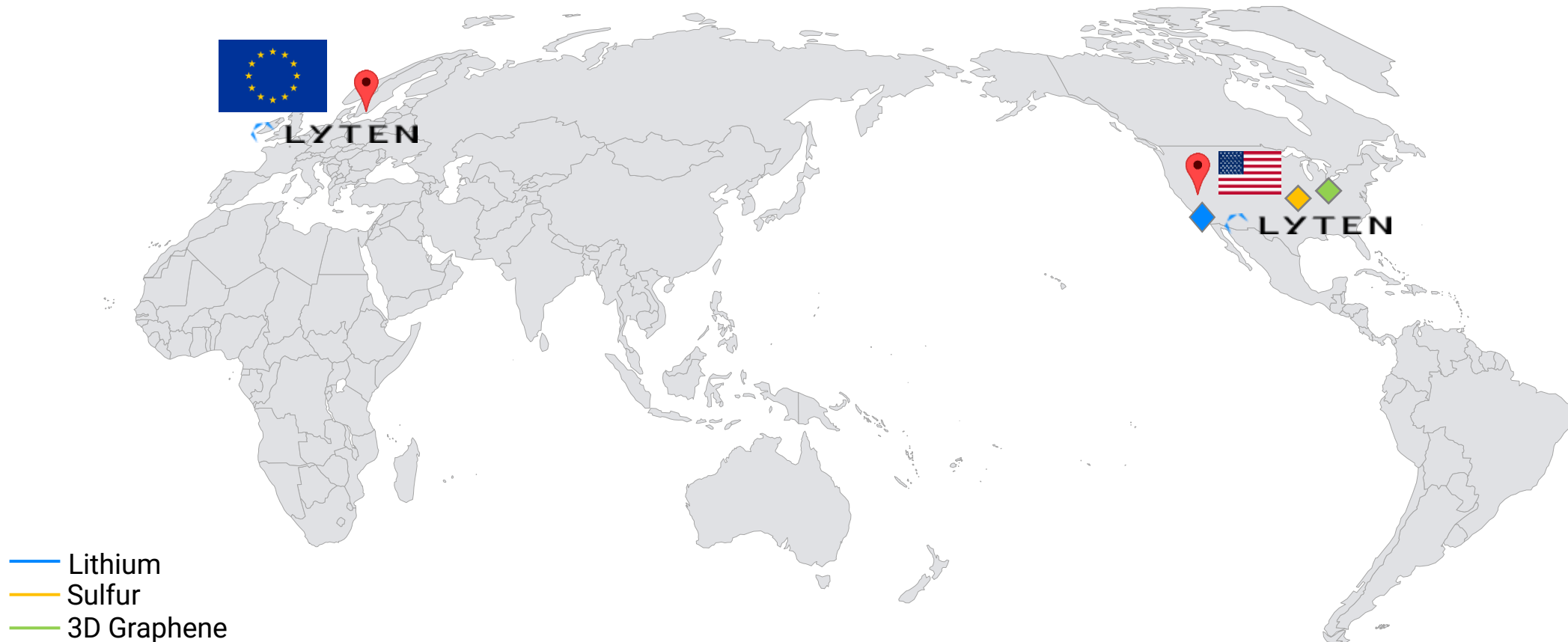
Total miles traveled: ~39,000 mi



Li-S Supply Chain: Energy Security and Simplification

LYTEN'S LITHIUM SULFUR CHEMISTRY REDUCES THE 39,000-MILE ACTIVE MATERIAL SUPPLY CHAIN BY UP TO 96.5%

Total miles traveled: ~1,000 mi





LYTEN

The Supermaterial Applications Company

www.lyten.com