A photograph of a large industrial building with a grid-like facade. In the foreground, there is a complex metal structure, possibly a conveyor system or scaffolding, silhouetted against the building. The lighting is dramatic, with strong shadows and highlights.

November 2023

# An introduction to Northvolt



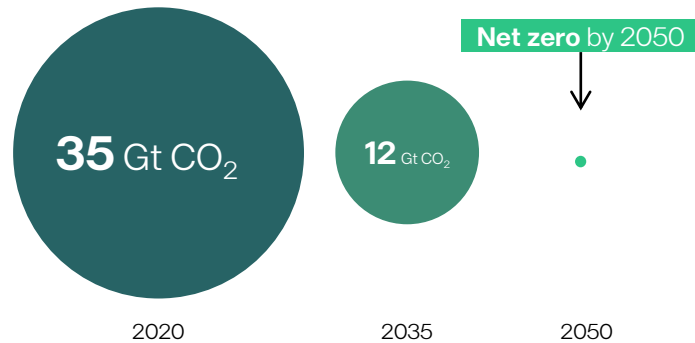
## Introducing Northvolt

Founded in 2016, Northvolt aims to become a leading supplier of sustainable, high-quality battery cells and systems.

No other battery company holds as high a commitment to developing green, sustainably sourced and manufactured batteries.



## The need for a sustainable battery industry



A **strategic necessity** to reduce batteries' carbon footprint to support the energy transition.

The energy sector is responsible for around three-quarters of global GHG emissions today and holds the key to averting the worst effects of climate change, perhaps the **greatest challenge humankind has faced**.



# Enabling the future of energy

Northvolt was founded with the mission to build the **world's greenest battery** and enable the transition to a decarbonized society and industry.



European leadership with European roots



World's greenest battery



Unique vertical integration done at scale



Industry leading technology and industrialization platform

“A battery will do for the electricity supply chain what refrigeration did to our food supply chain”

**Prof. Donald Sadowav**

Electrochemist, MIT Materials Science

**7**

Years since foundation

**\$8.0 bn**

Raised to date in equity, debt and grants

**\$55 bn**

Contracted order book

**5500+**


Employees from 120+ nationalities




# The need for a sustainable battery industry


Northvolt's commitment to sustainability through all activities

 **Recycling**


 **Sourcing**

 **Manufacturing**



 **Slashing the carbon footprint** **90%**  
Target reduction in emissions compared to industry benchmark

 **Limiting fresh resource use** **50%**  
Recycled material target in new battery cells by 2030

 **Going beyond carbon** **100%**  
Target traceability of metals and key raw materials



# Our goals 2030

## Climate

To achieve the lowest possible carbon footprint of our battery cells.

→ **10 kg CO<sub>2</sub>e/kWh**  
at cell level on a life cycle basis

✓ **33 kg CO<sub>2</sub>e/kWh**  
at cell level on a life cycle basis



## Energy

To use fossil-free energy for all of our operations.

→ **100%**  
fossil-free energy on an annual basis

✓ **95%**  
fossil-free energy on an annual basis



## Recycling

To reduce our dependence on virgin material through use of recycled material in cell production.

→ **50%**  
recycled material in cells

✓ **6%**  
recycled material in cells





Seeking to establish a supply chain of **sustainable batteries** to enable the transition to **decarbonized** future







## Automotive

Solutions for cars, light commercial vehicles, trucks & buses

## Energy Storage

All energy storage systems within the grid value chain

Utility, grid, solar & wind power

## Industrial

Mainly system level industrial customers

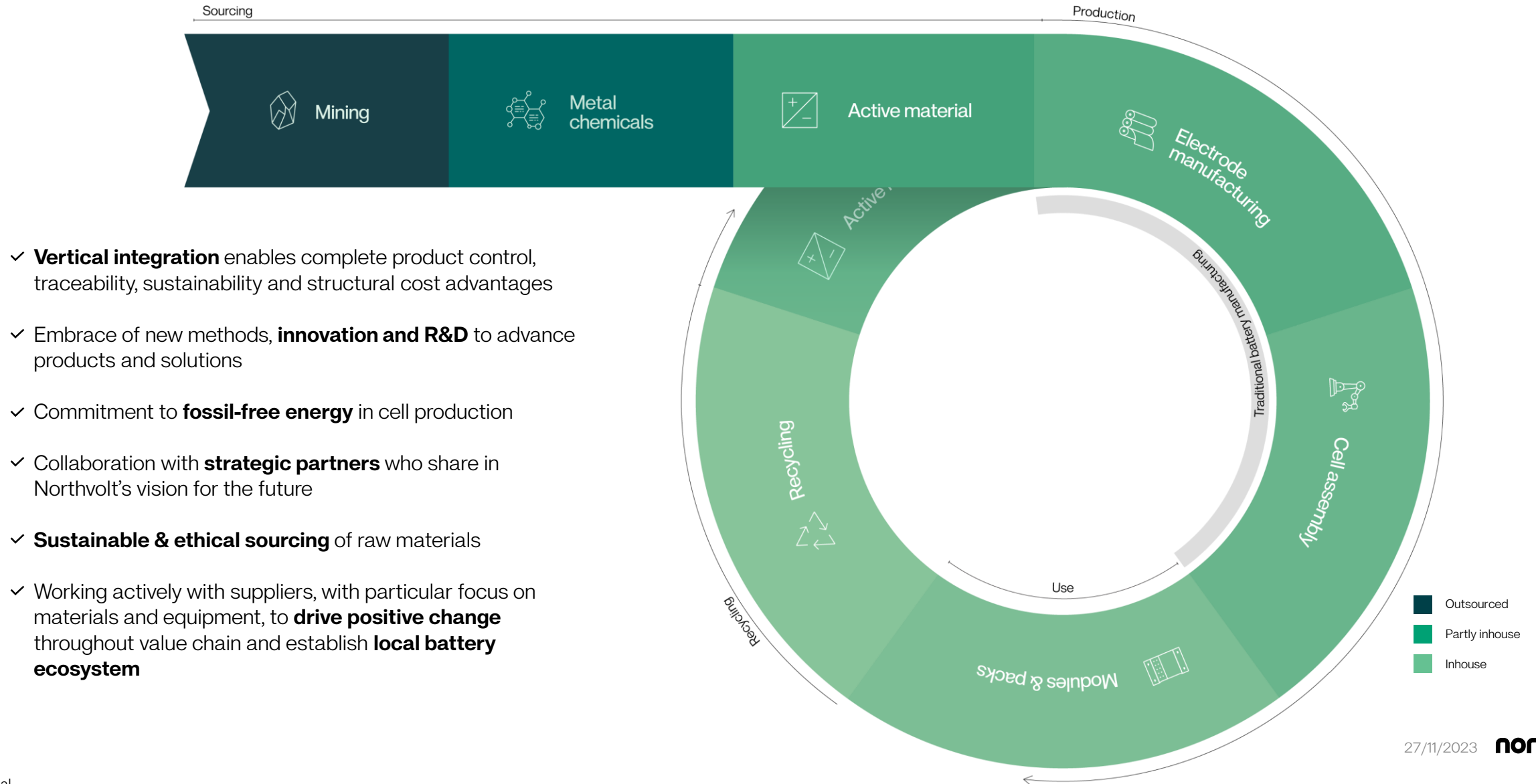
Mining, marine, construction, agriculture, material handling, rail, aviation

## Aviation

Development of Lithium metal cell technology at Cuberg



# Vertical integration across the battery supply chain





# An expanding presence

With R&D and production facilities in the Western hemisphere



● Production Facilities    ● Research & Development    ● Head office    \* In development



# Northvolt Labs

📍 VÄSTERÅS, SWEDEN

Cell industrialization campus with full upstream and downstream production capacities.

Additional on-site facilities provide complete cell safety and validation capabilities.

Pilot recycling plant provides a platform for process innovation and optimization.

**100%**

RENEWABLE ENERGY

**>350** MWh

ANNUAL CELL PRODUCTION  
CAPACITY

**>20k** m<sup>2</sup>

PRODUCTION AREA FOOTPRINT

**2019**

START OF PRODUCTION

**1100**

EMPLOYEES









# Northvolt Ett

📍 SKELLEFTEÅ, SWEDEN

Cell production online at Europe's first  
homegrown battery gigafactory.

Ramping up to **60** GWh/year cell production,  
with on-site recycling.

**100%**  
RENEWABLE ENERGY

**60** GWh  
EQUIVALENT TO ONE  
MILLION ELECTRIC VEHICLES

**1,500,000** m<sup>2</sup>





# Northvolt

Dwa

📍 GDAŃSK, POLAND

Industrialization and assembly plant for battery modules and energy storage solutions.

Functions in close collaboration with Northvolt Systems team in Stockholm.

**2023**

COMMERCIAL  
OPERATIONS BEGIN

**13 GWh**

BATTERY SYSTEMS ANNUAL  
PRODUCTION CAPACITY

**25,000 m<sup>2</sup>**

PHASE 1: 3 GWh FOOTPRINT









# Northvolt

Drei

📍 HEIDE, GERMANY

Cell manufacturing gigafactory, ramping up to 60 GWh/year cell production.

Expected to produce its first batteries in late 2025.

**100%**  
RENEWABLE ENERGY

**60 GWh**  
EQUIVALENT TO ONE  
MILLION ELECTRIC VEHICLES





# Northvolt Fem

📍 BORLÄNGE, SWEDEN

Upstream cathode active material manufacturing plant, ramping up to 100 GWh/year. Expected to enter operations in late 2024, utilizing 100% clean energy.

Refurbishing and converting the Kvarnsveden Mill and surrounding industrial area.

# 2024

COMMERCIAL  
OPERATIONS BEGIN

# 100 GWh

CATHODE ACTIVE MATERIAL  
PRODUCTION





# Northvolt Six

📍 QUEBEC, CANADA

Northvolt Six will be Canada's first fully integrated battery manufacturing plant.

Construction of the project is expected to begin in the fall of 2023 and the first batteries are expected out of the production lines in 2026.

**3000**

DIRECT JOBS CREATED

**60** GWh

PLANNED ANNUAL  
CAPACITY





# Northvolt Revolt Ett

📍 SKELLEFTEÅ, SWEDEN

Recycling facility for recovery of battery-grade metals from production scrap and end-of-life batteries.

Co-located alongside Northvolt Ett for direct supply of recovered metals into upstream production.

# 2024

COMMERCIAL  
OPERATIONS BEGIN

# 125K TONNES

ANNUAL RECYCLING  
CAPACITY







# Revolt

## Process steps





# Northvolt Cuberg

📍 SAN FRANCISCO BAY AREA, UNITED STATES

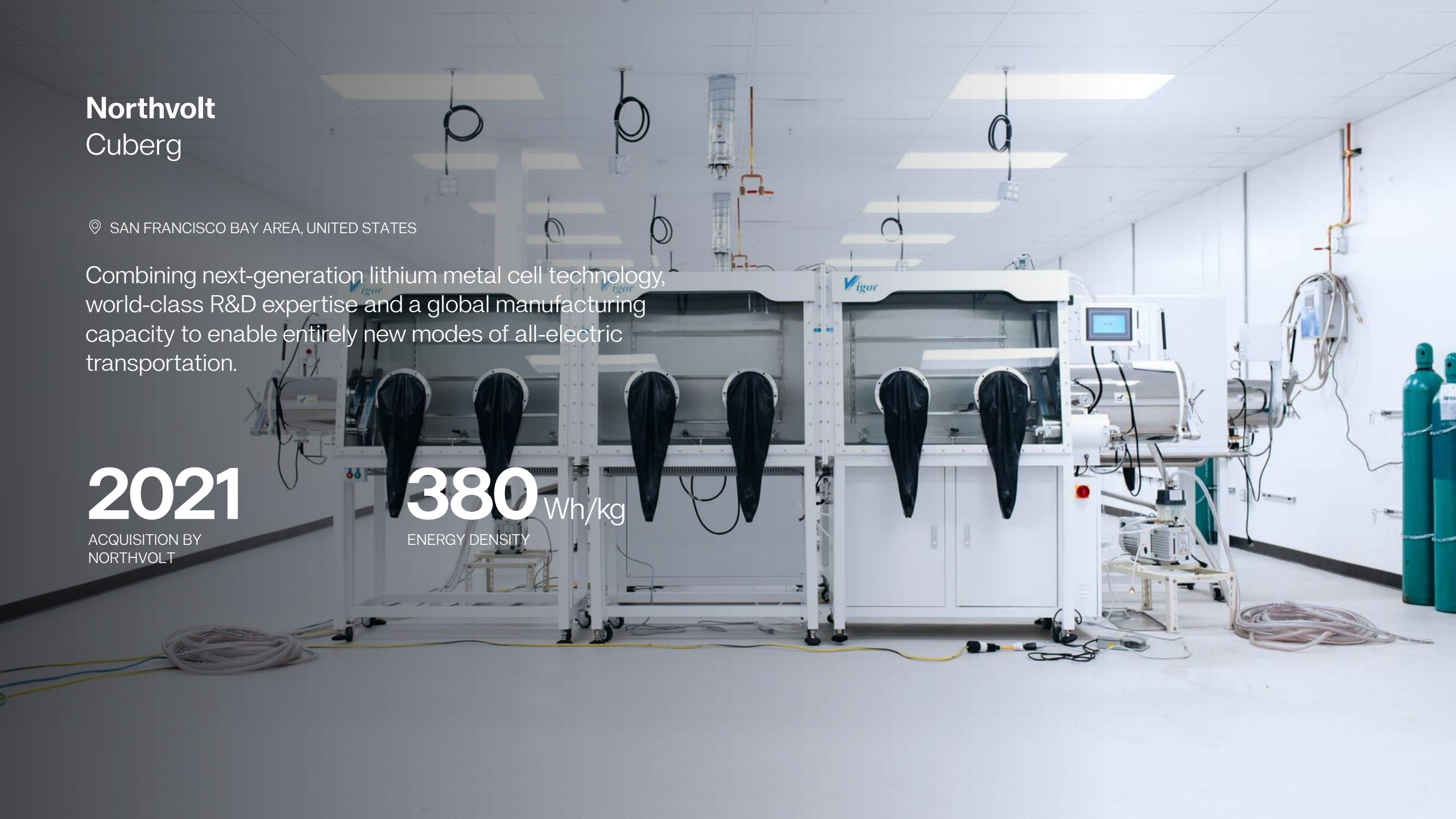
Combining next-generation lithium metal cell technology, world-class R&D expertise and a global manufacturing capacity to enable entirely new modes of all-electric transportation.

# 2021

ACQUISITION BY  
NORTHVOLT

# 380 Wh/kg

ENERGY DENSITY





# Hydrovolt

Northvolt–Hydro Joint Venture

📍 FREDRIKSTAD, NORWAY

Europe's largest electric vehicle battery recycling plant, with capacity to process 12,000 tonnes of battery packs on annual basis – sufficient to recycle the entirety of the Norwegian end-of-life battery market.

Aluminium recovered through Hydrovolt will be delivered to Hydro for recirculation into commercial grade aluminium products.

Black mass to be delivered to Northvolt Revolt.

**2022**

COMMERCIAL  
OPERATIONS

**12K** TONNES

BATTERY PACKS  
ANNUAL CAPACITY

The image shows the exterior of a large industrial building with a dark grey facade. The word "hydrovolt" is written in large, red, lowercase letters on the side of the building. Above the name, there is a red logo consisting of three vertical bars of varying heights. Several black spotlights are mounted on the building's facade, pointing downwards. The sky is a clear, bright blue.

hydrovolt





**NOVO**

Northvolt–Volvo Cars Joint venture

📍 GOTHENBURG, SWEDEN

Advancing the development and sustainable production of batteries for the next generation of pure electric Volvo & Polestar cars.

Developing a 50 GWh gigafactory for 2025 and battery R&D center.

**100%**

RENEWABLE ENERGY

**50 GWh**

EQUIVALENT TO 500,000  
ELECTRIC VEHICLES



## Aurora Lithium

Northvolt–Galp Joint venture

📍 SETÚBAL, PORTUGAL

Collaborating to develop one of Europe's largest lithium conversions plants.

Initial annual production capacity between 28,000 and 35,000 tonnes of battery-grade lithium hydroxide.

**2026**

COMMERCIAL  
OPERATIONS

**35K** TONNES

ANNUAL CAPACITY

northvolt



#regeneratethefuture



# Stay in touch!

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[www.northvolt.com](http://www.northvolt.com)

