



STENA RECYCLING BATTERY BUSINESS DK

April 2022



LOUISE DRUE ANDERSEN

Business Developer

Business Area Batteries

Outbound sales

Project leader and initiator

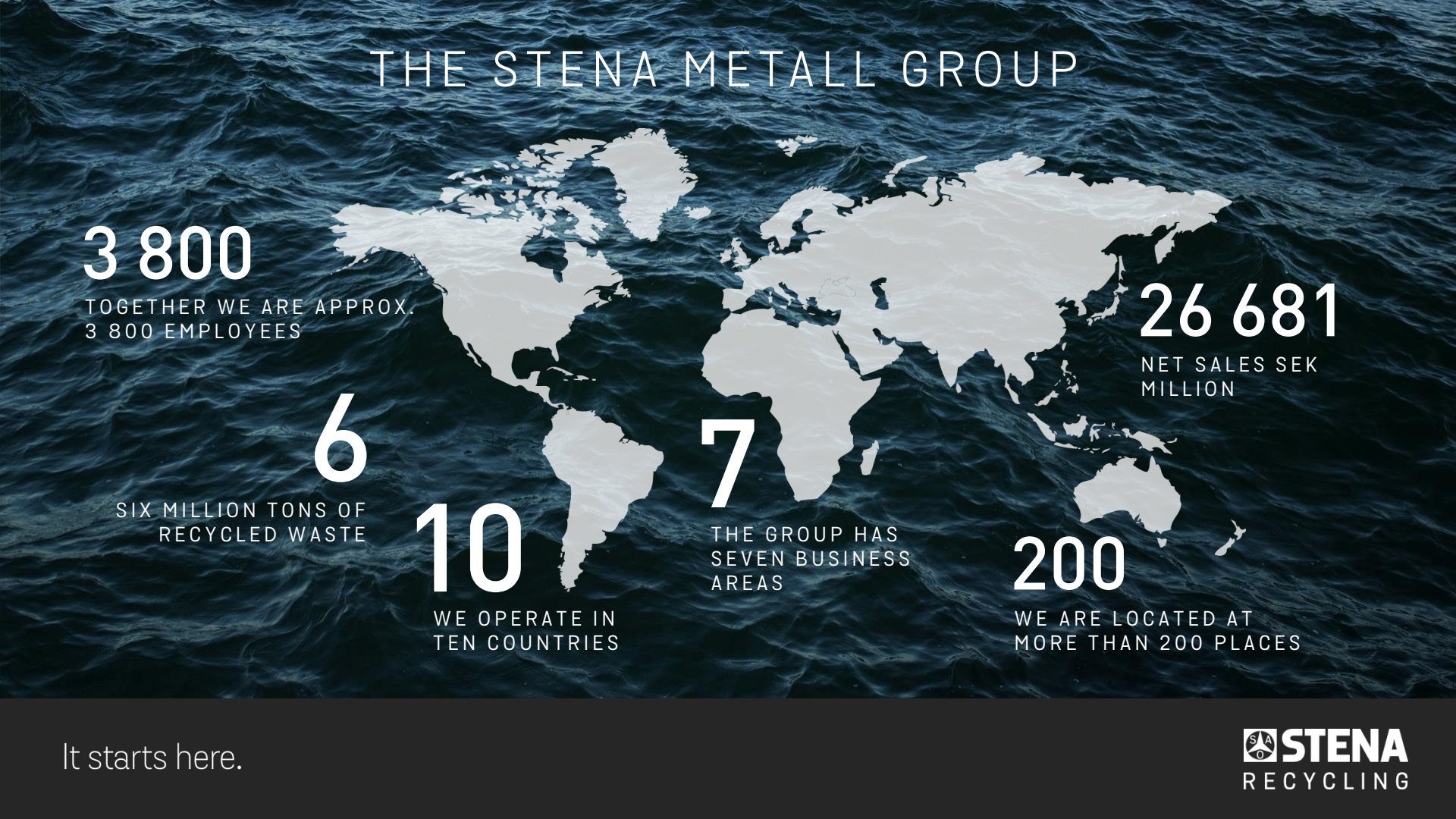
MSc Chemical Engineer

Fascinated by the technology 'batteries'

- and how to use their materials again and again

It starts here.

THE STENA METALL GROUP



3 800

TOGETHER WE ARE APPROX.
3 800 EMPLOYEES

26 681

NET SALES SEK
MILLION

6

SIX MILLION TONS OF
RECYCLED WASTE

7

THE GROUP HAS
SEVEN BUSINESS
AREAS

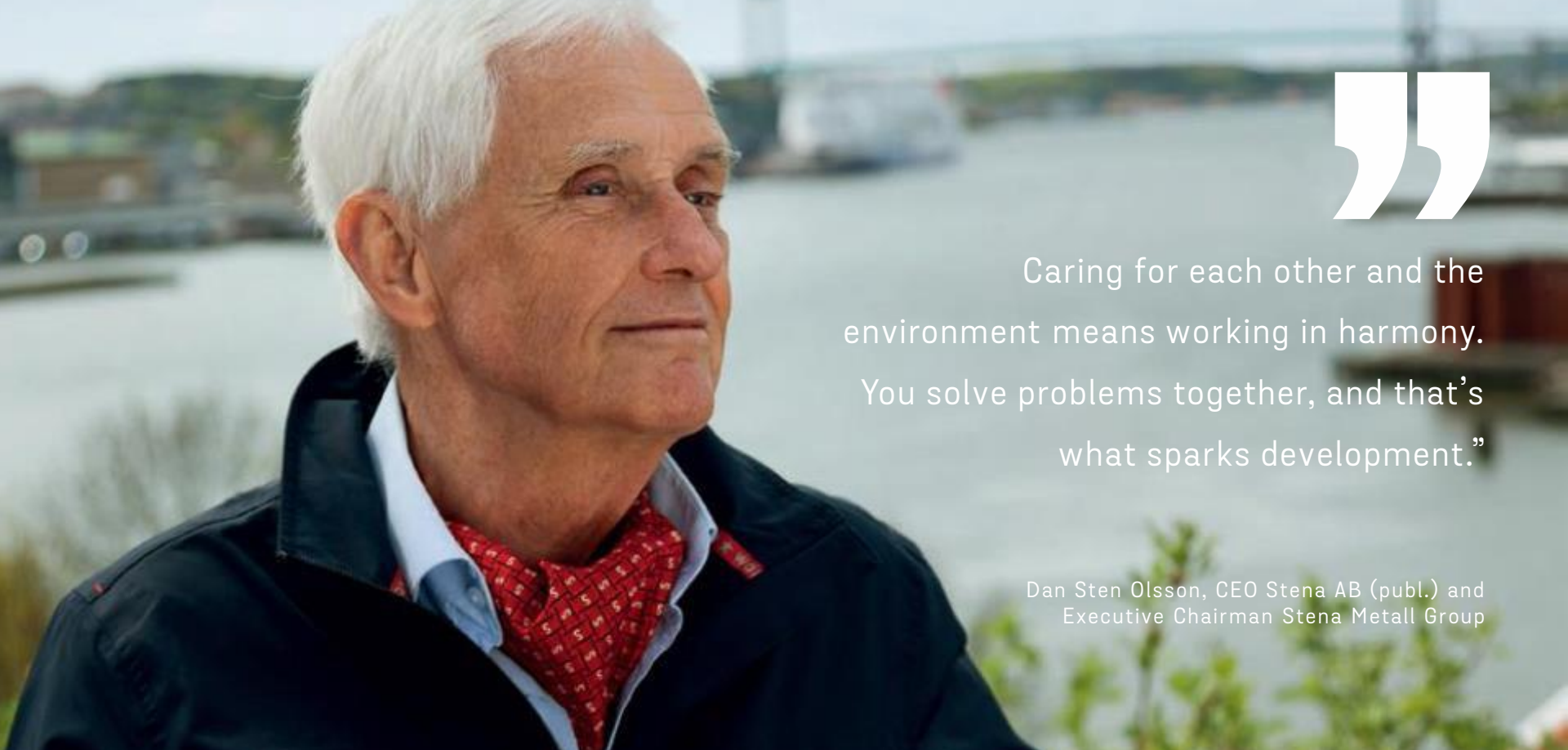
10

WE OPERATE IN
TEN COUNTRIES

200

WE ARE LOCATED AT
MORE THAN 200 PLACES

It starts here.



”

Caring for each other and the
environment means working in harmony.
You solve problems together, and that's
what sparks development.”

Dan Sten Olsson, CEO Stena AB (publ.) and
Executive Chairman Stena Metall Group

It starts here.

 **STENA**
RECYCLING

STENA RECYCLING BATTERY GROUP

3 out of **7**

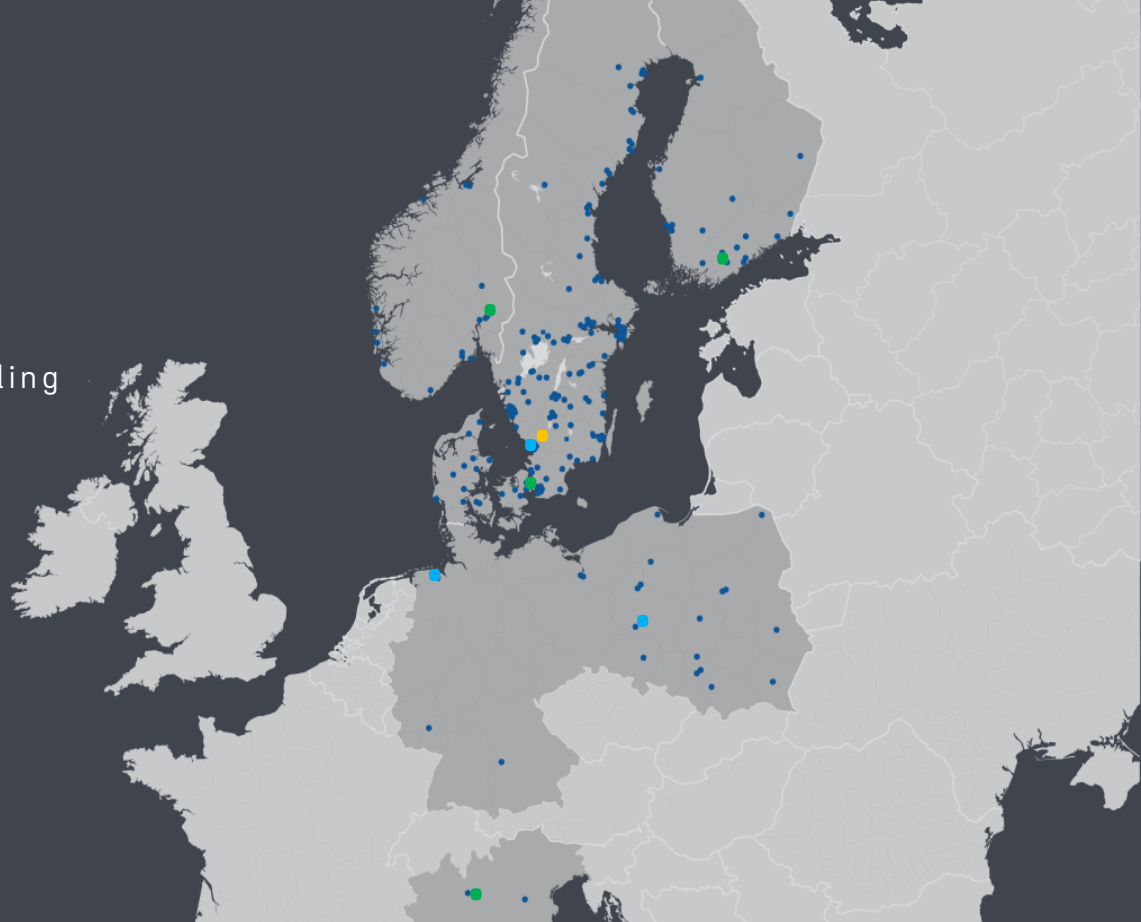
Battery centers to prepare for recycling

Collection network

Extensive network in
Europe

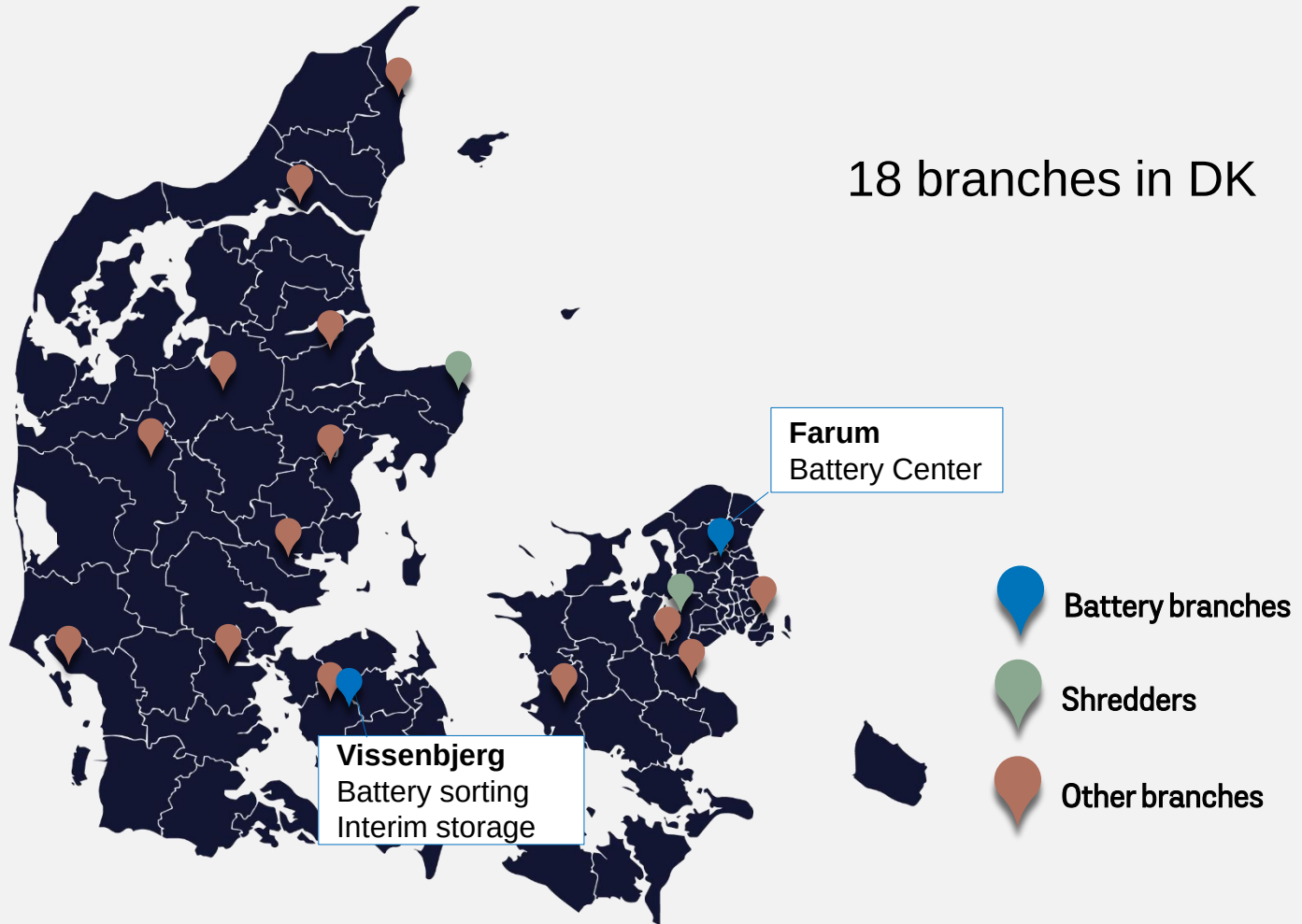
Recycling capacity

Scalable and modul-based
recycling capacity of 10.000 ton

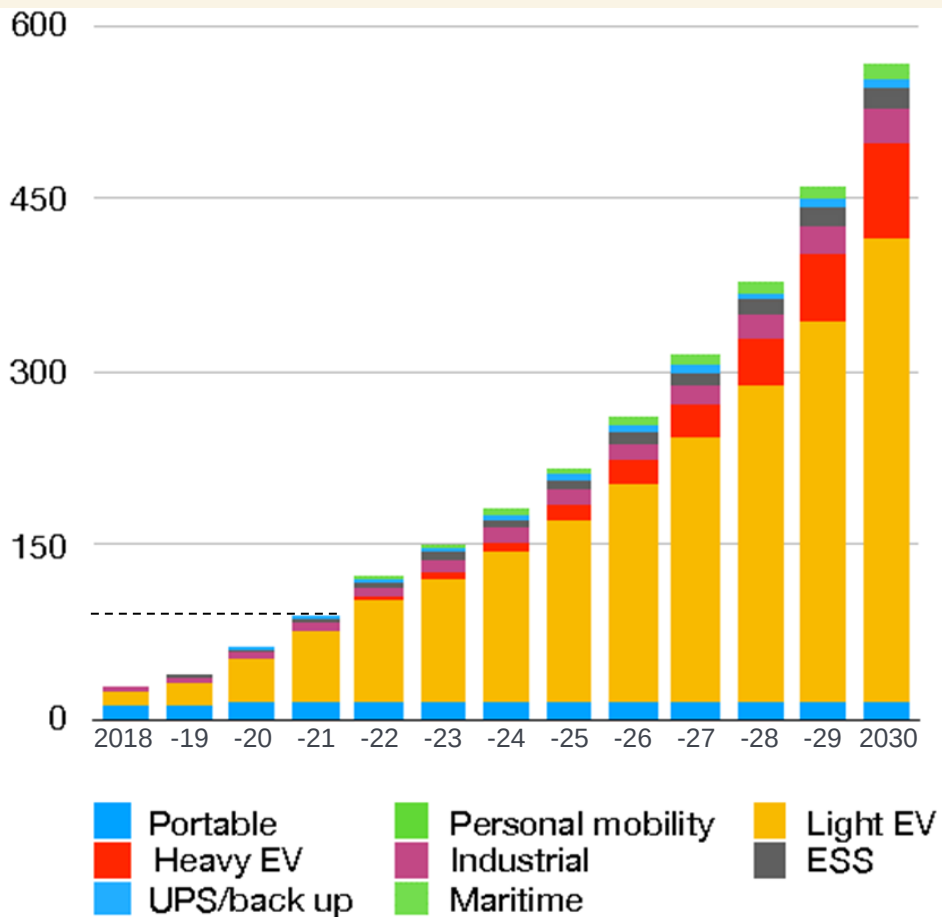


It starts here.

18 branches in DK



BATTERIES PLACED ON THE MARKET IN EUROPE ANNUALLY, GWH



THE EVOLUTION

Electrification has boosted the production of Lithium-Ion batteries

The energy density development is rapid and doubles approx. every ten years

An aerial, high-angle photograph of a city street intersection. The scene is bathed in warm, golden light, suggesting late afternoon or early morning. Several multi-story buildings with varied architectural styles, including red-tiled roofs and green domes, surround the intersection. A few cars are visible on the street, and a tree with autumn-colored leaves stands near the center. The overall atmosphere is one of a bustling urban environment.

CHALLENGES BECOME
NEW OPPORTUNITIES

It starts here.

 **STENA**
RECYCLING

SR-DK Portable Batteries



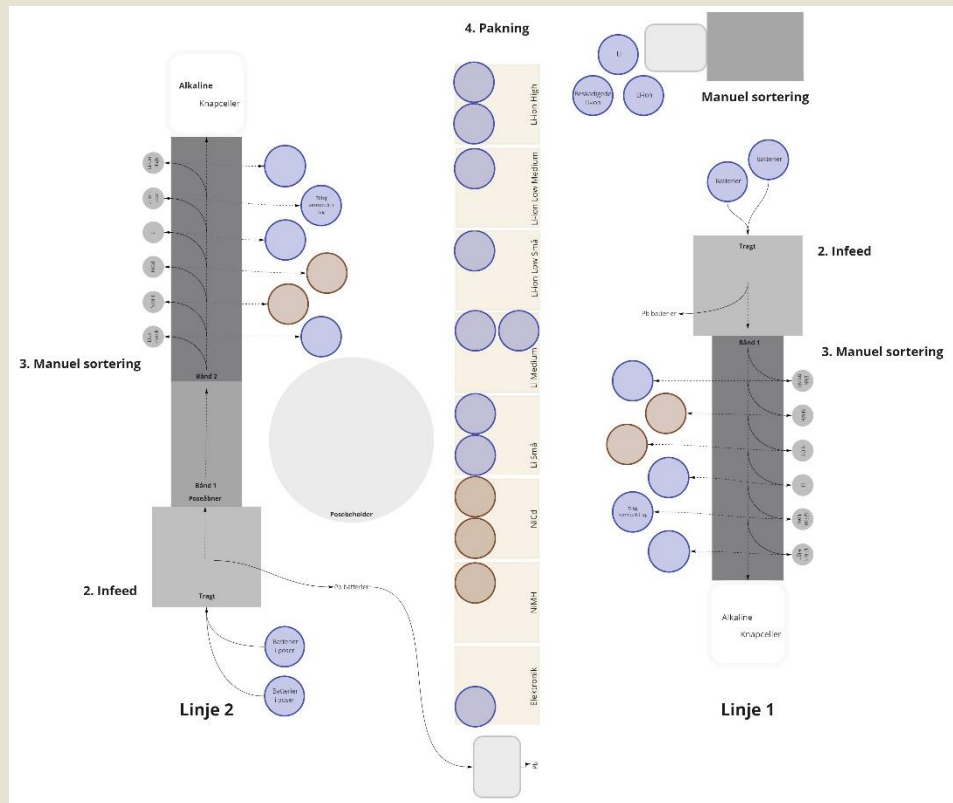
It starts here.

Vissenbjerg



It starts here.

Portable battery sorting i Vissenbjerg

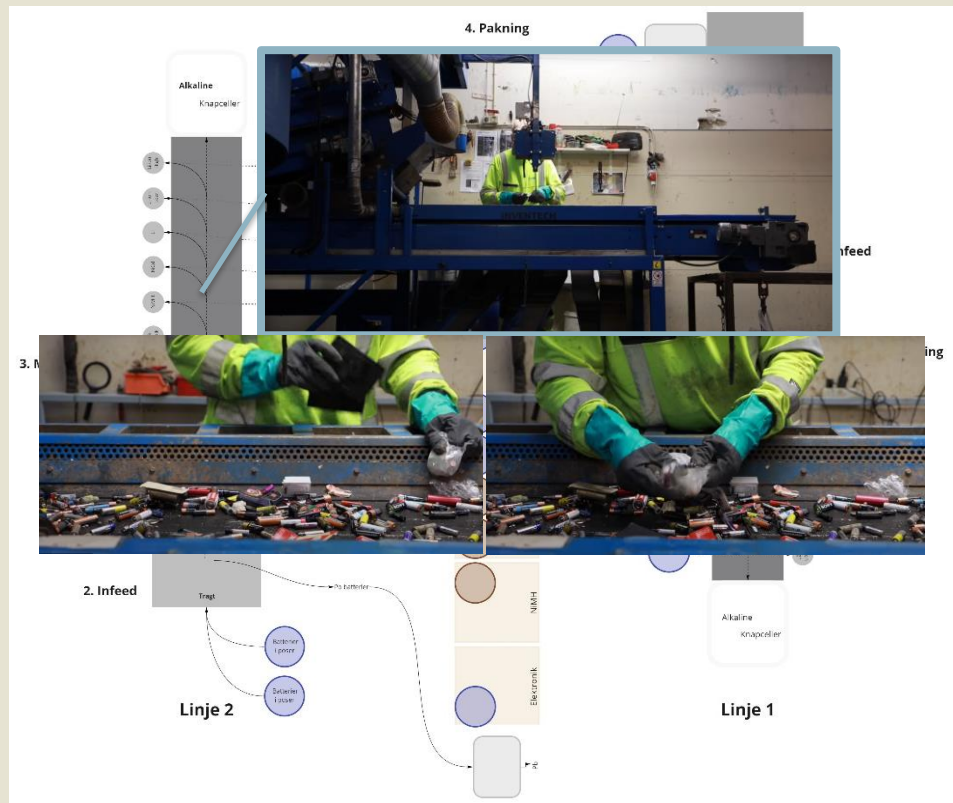


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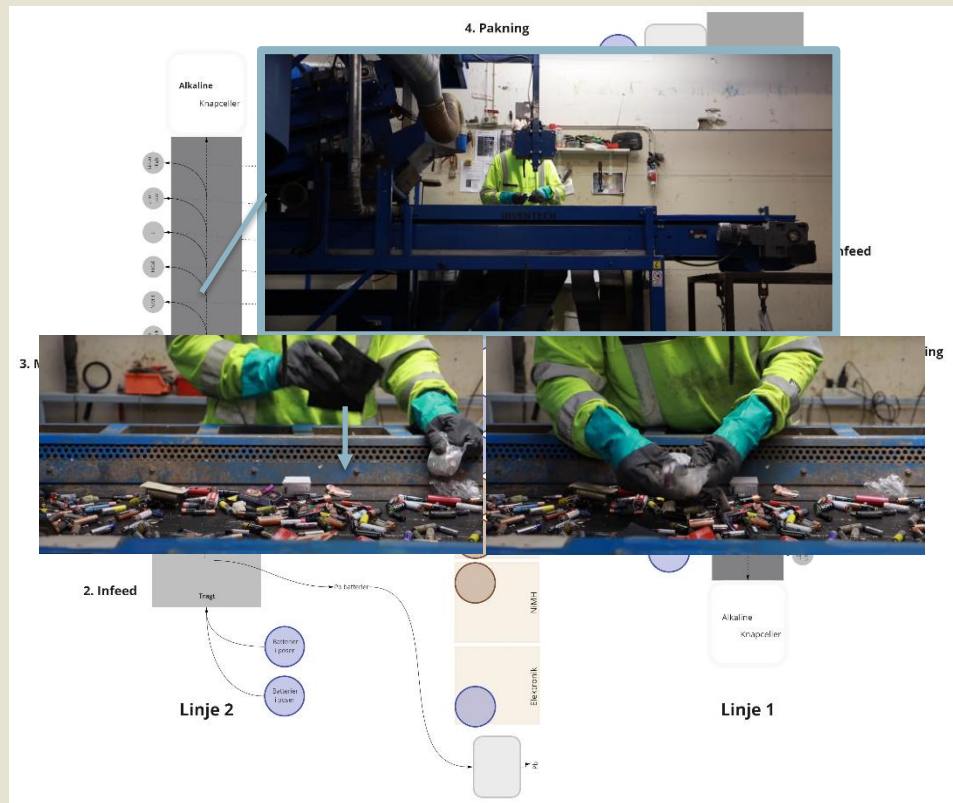
STENA
RECYCLING

Portable battery sorting i Vissenbjerg



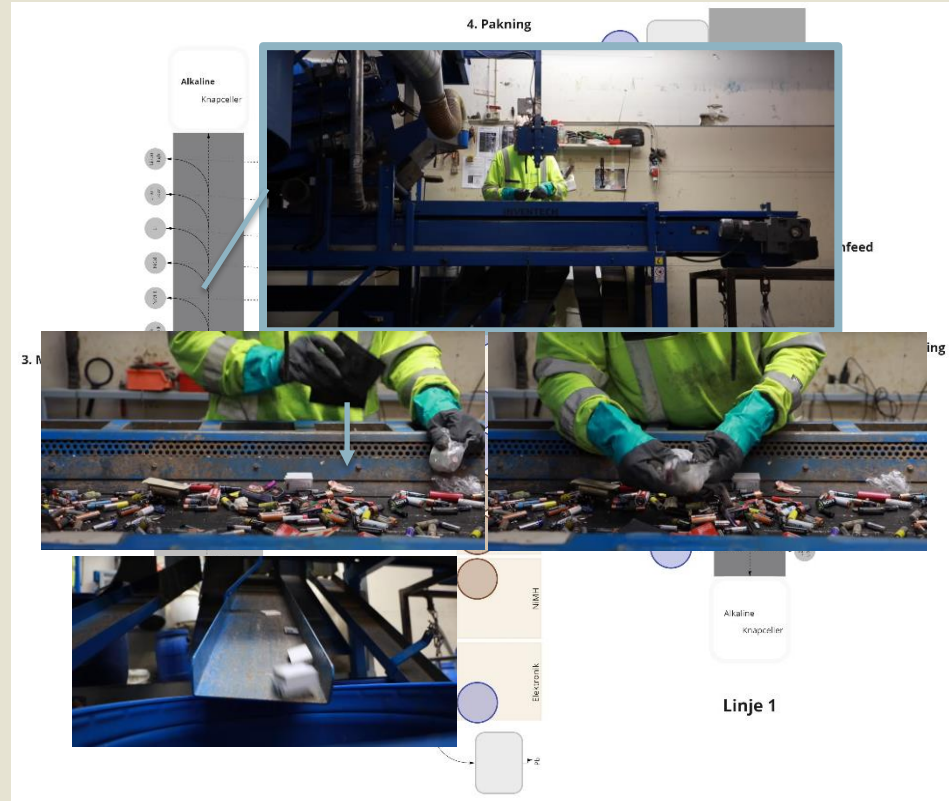
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Portable battery sorting i Vissenbjerg



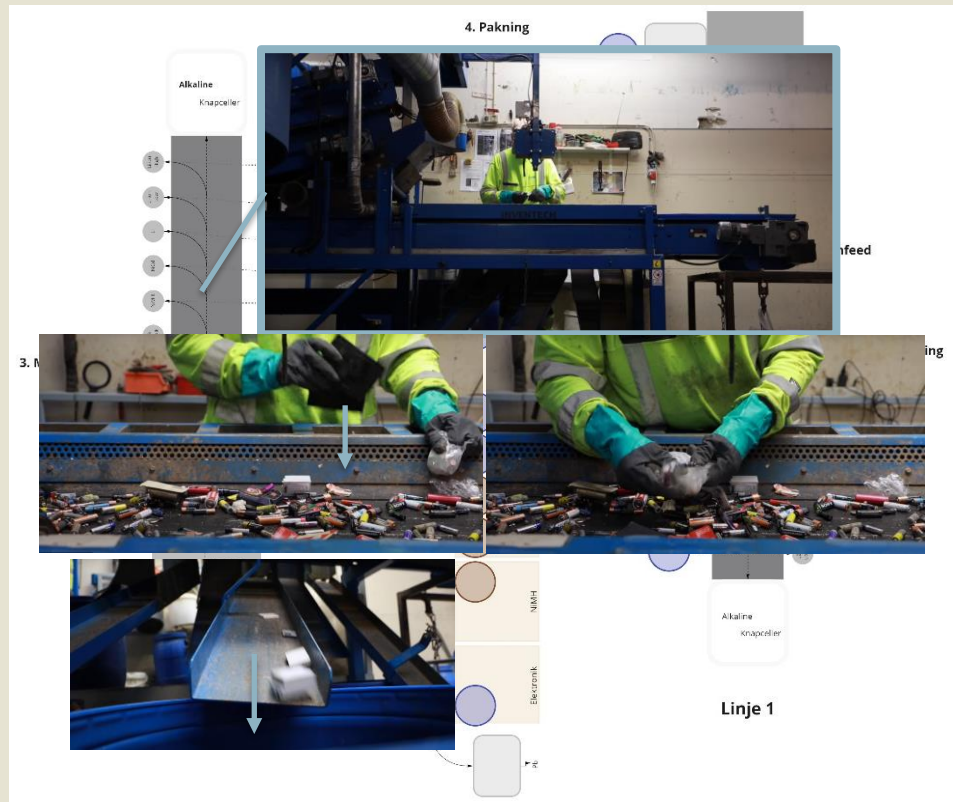
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Portable battery sorting i Vissenbjerg



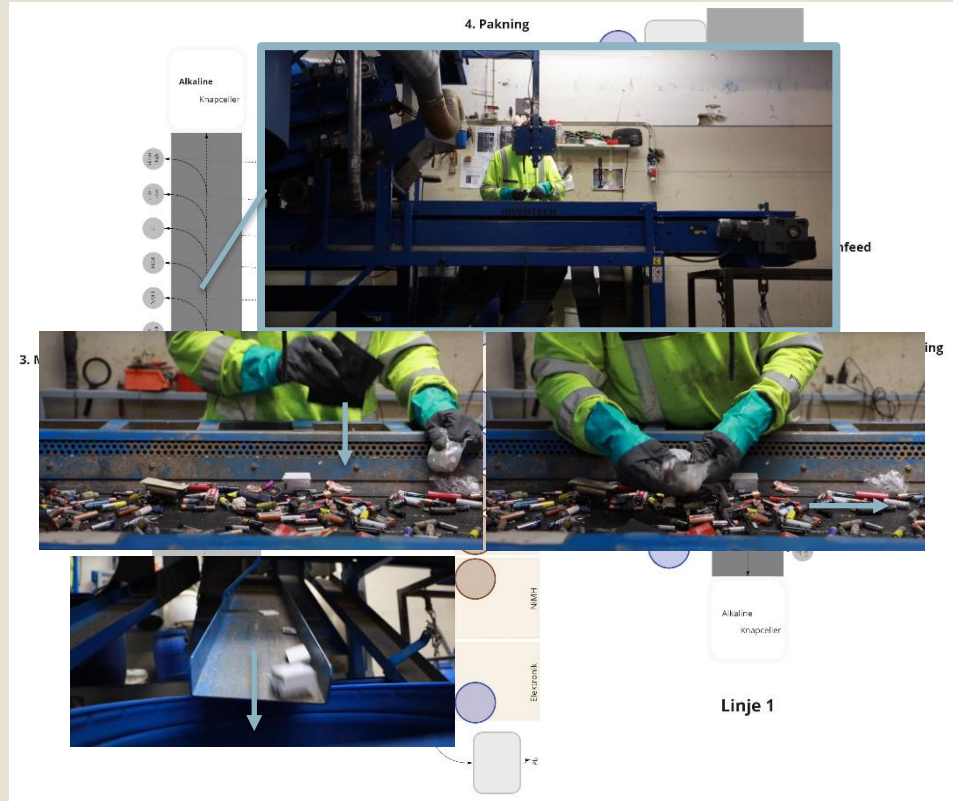
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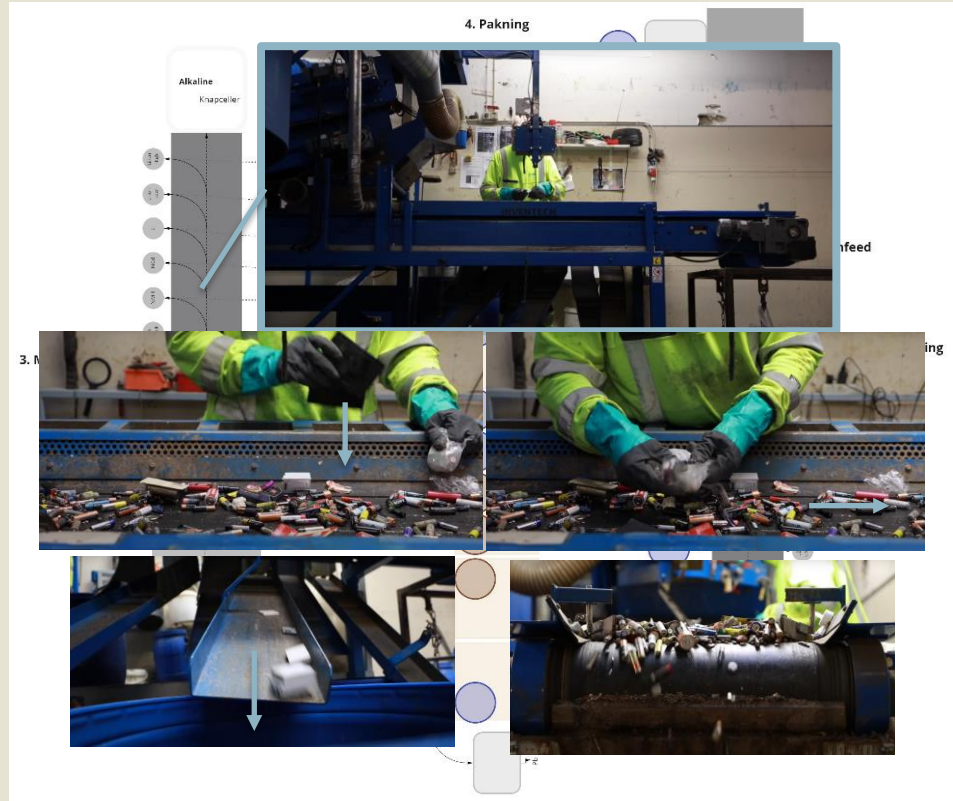
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Portable battery sorting i Vissenbjerg



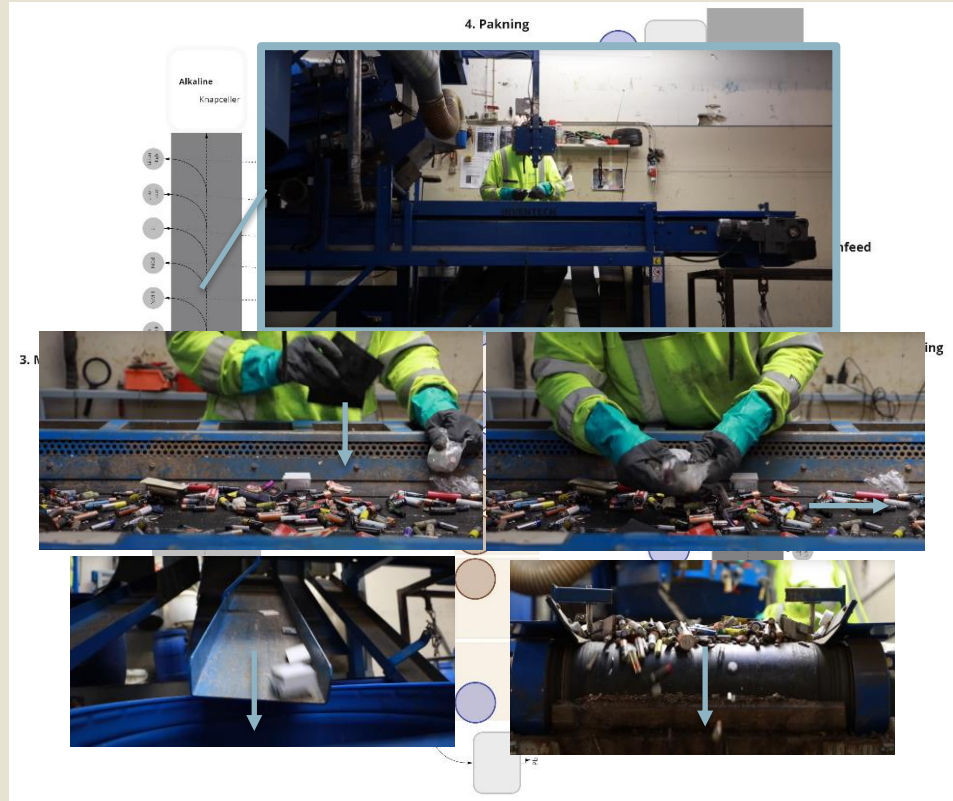
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Portable battery sorting i Vissenbjerg



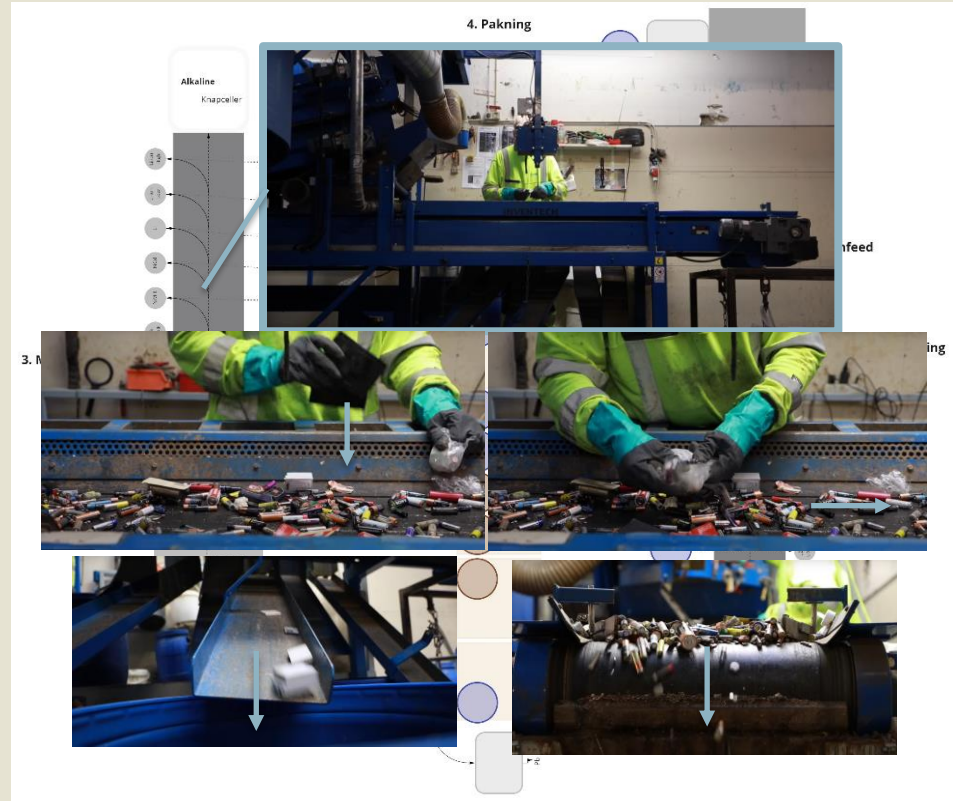
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Portable battery sorting i Vissenbjerg



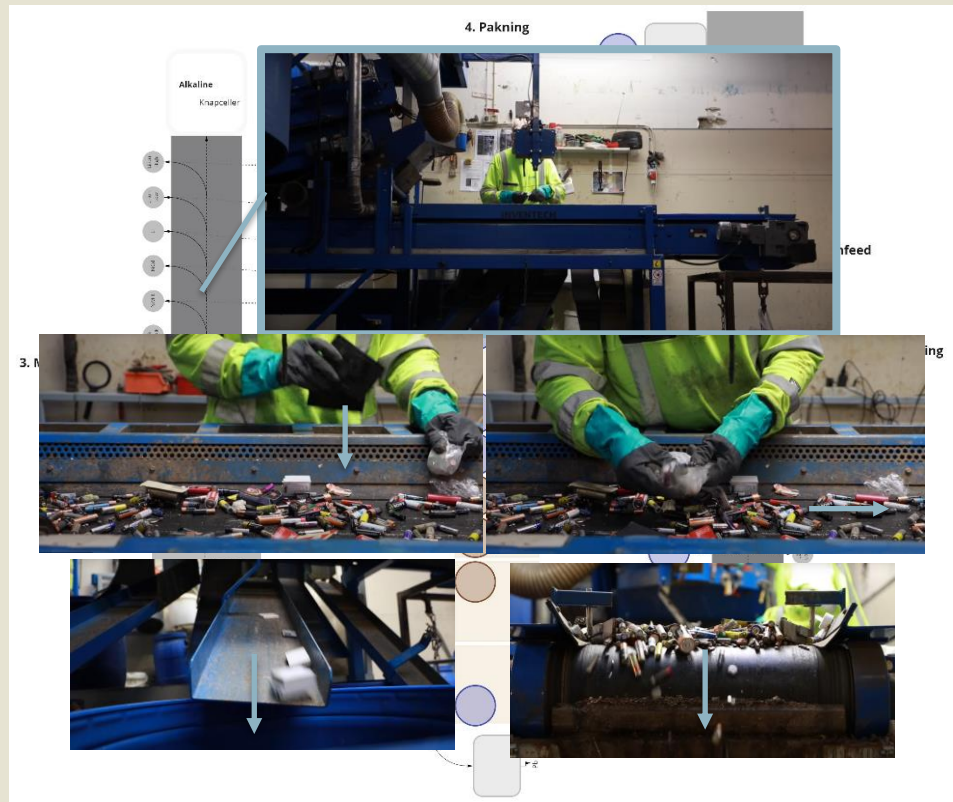
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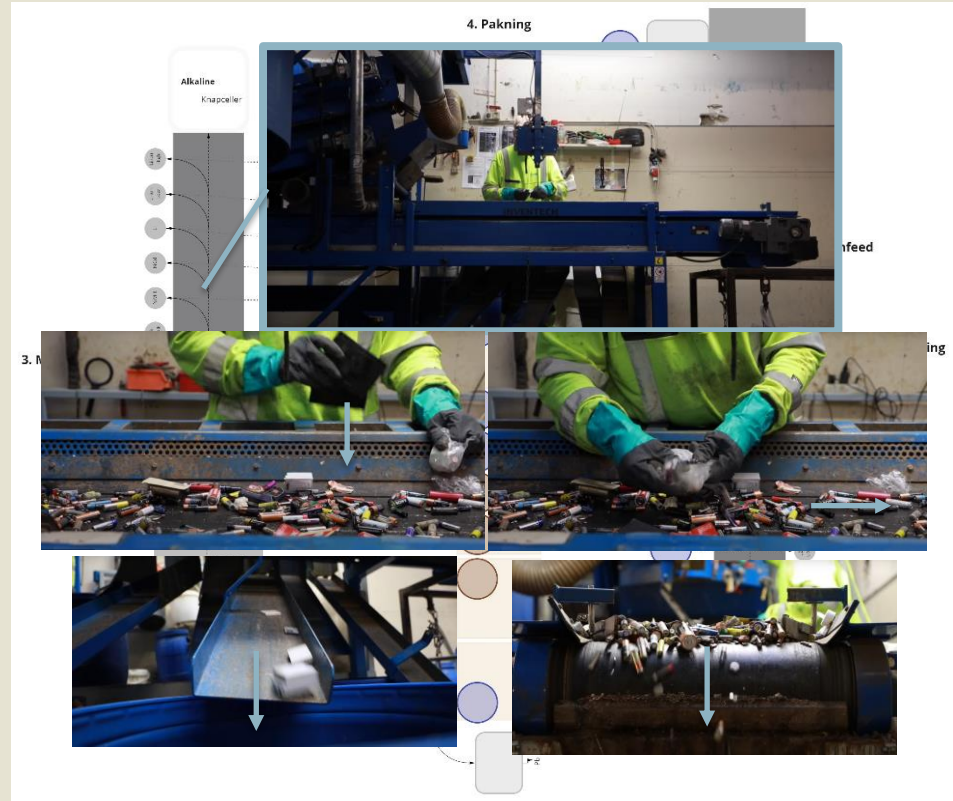
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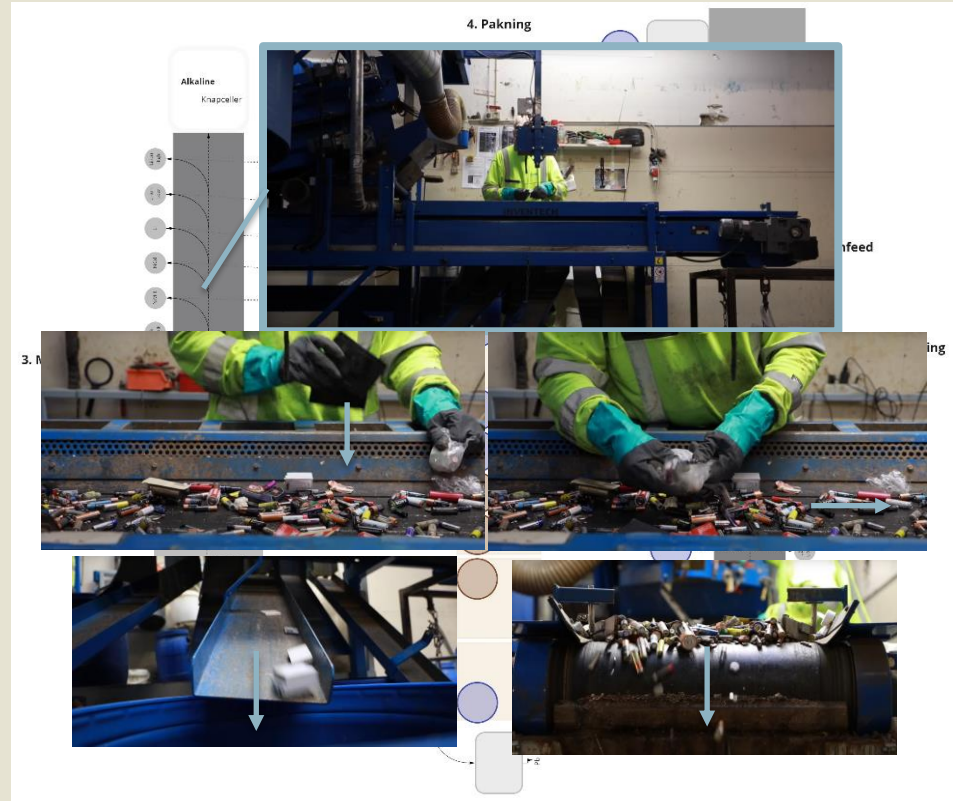
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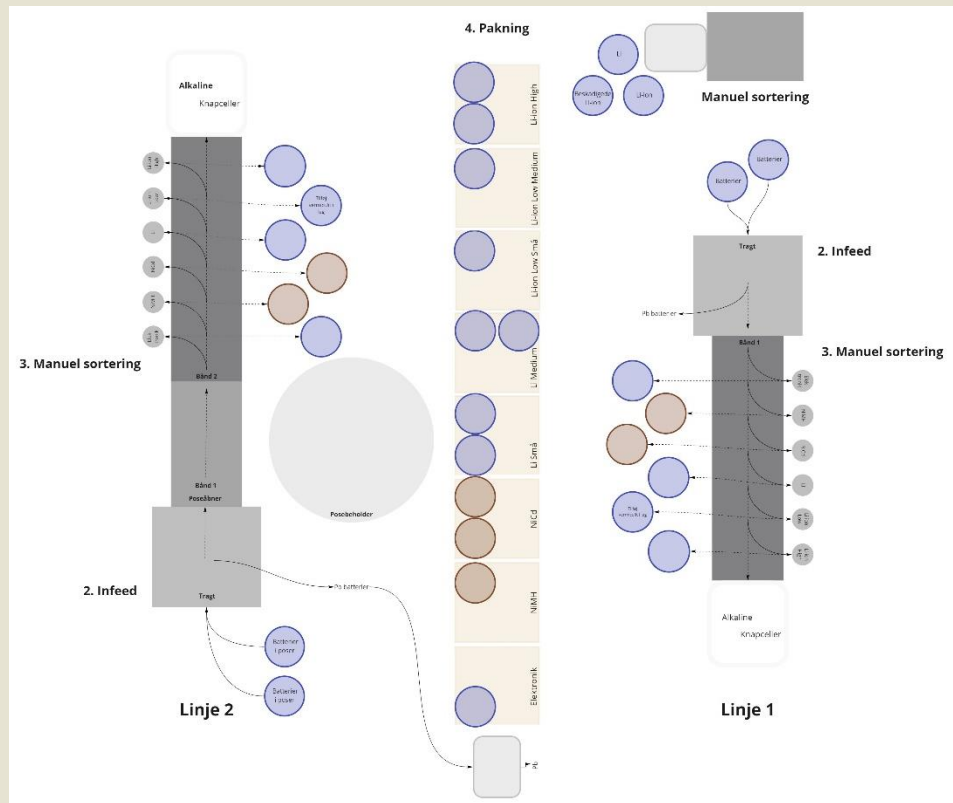
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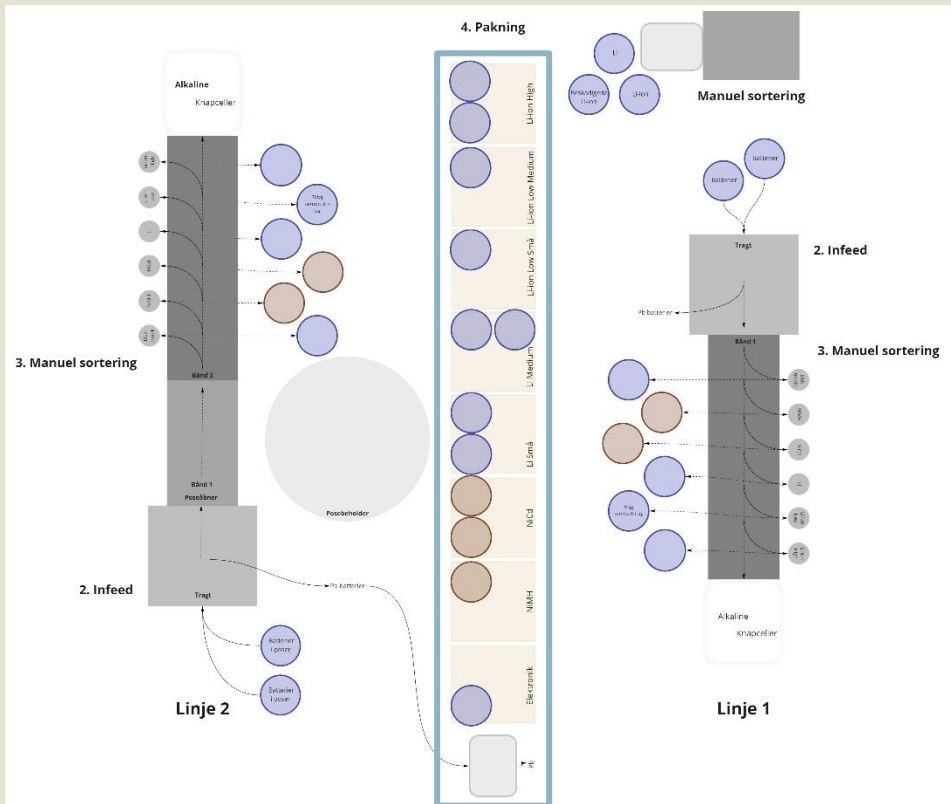
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Portable battery sorting i Vissenbjerg



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Portable battery sorting i Vissenbjerg



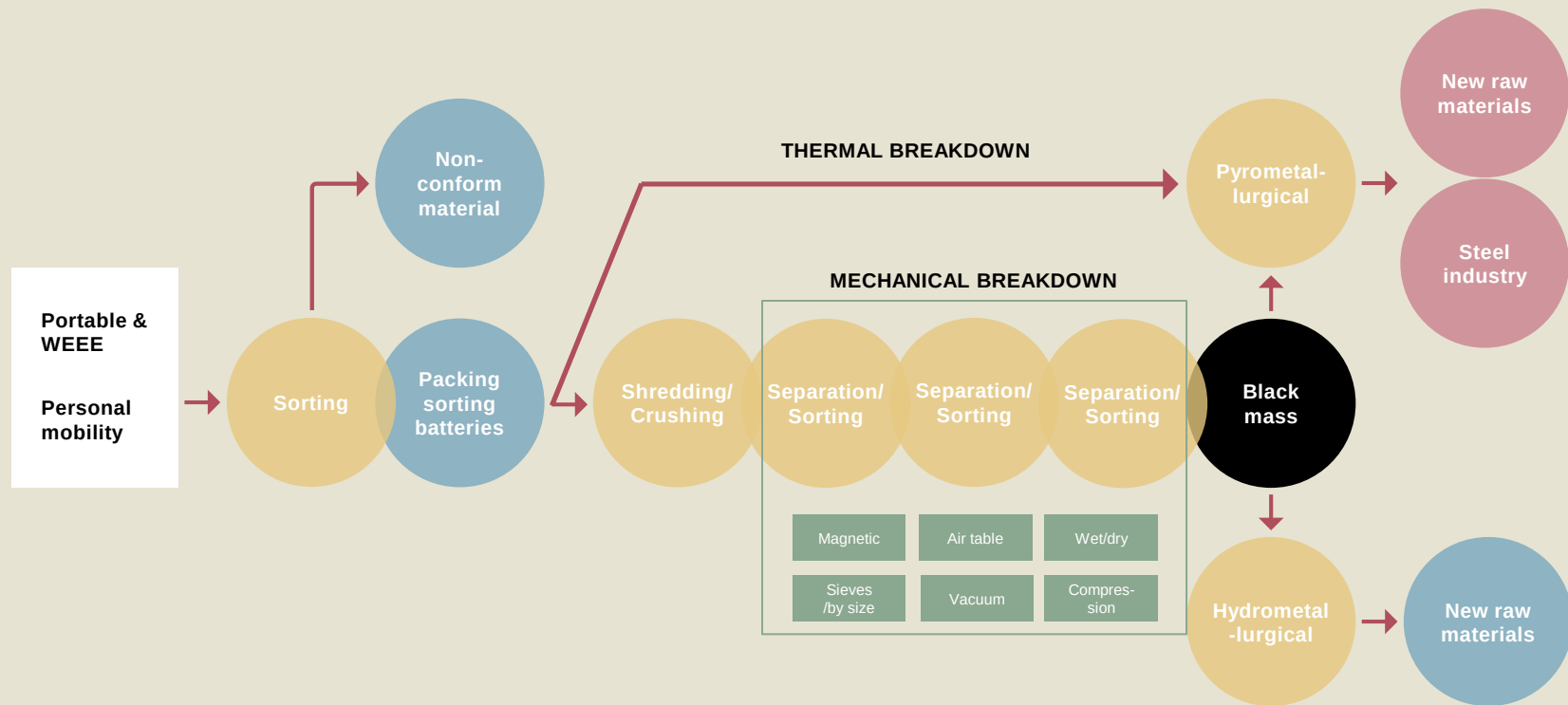
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Sorting Hamstad



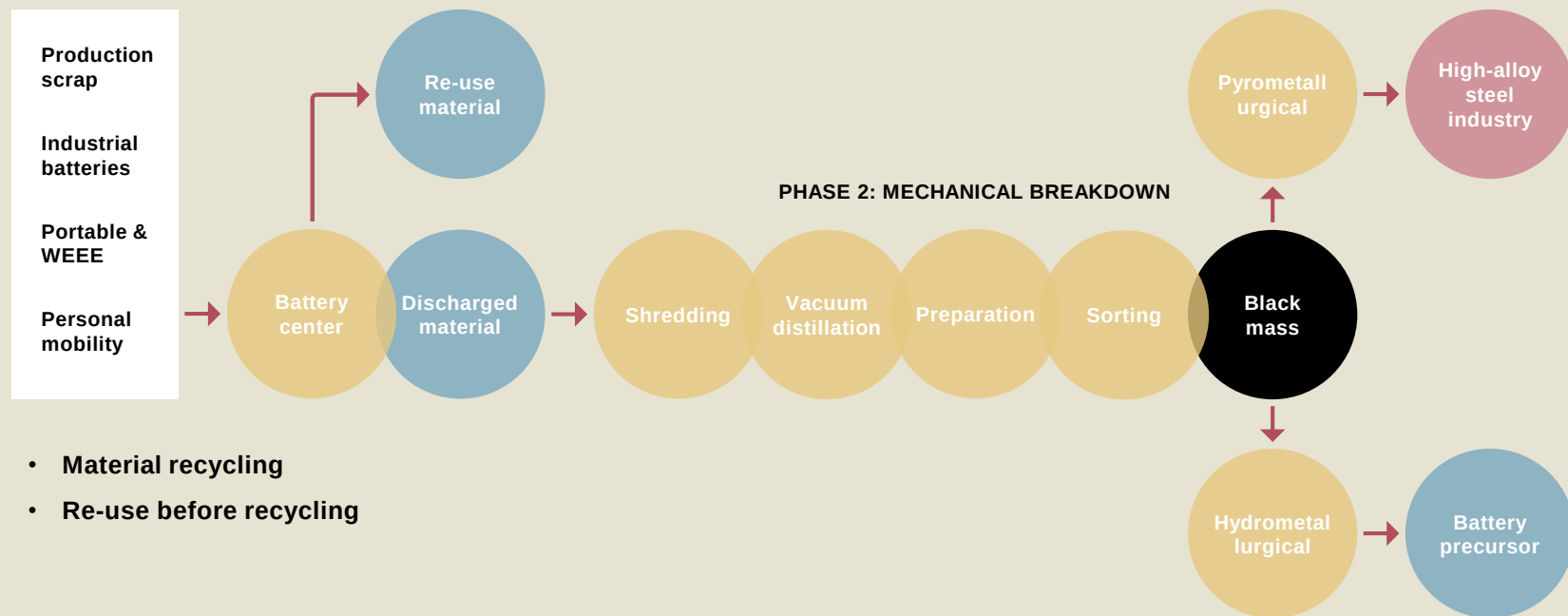
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BATTERY RECYCLING PROCESS



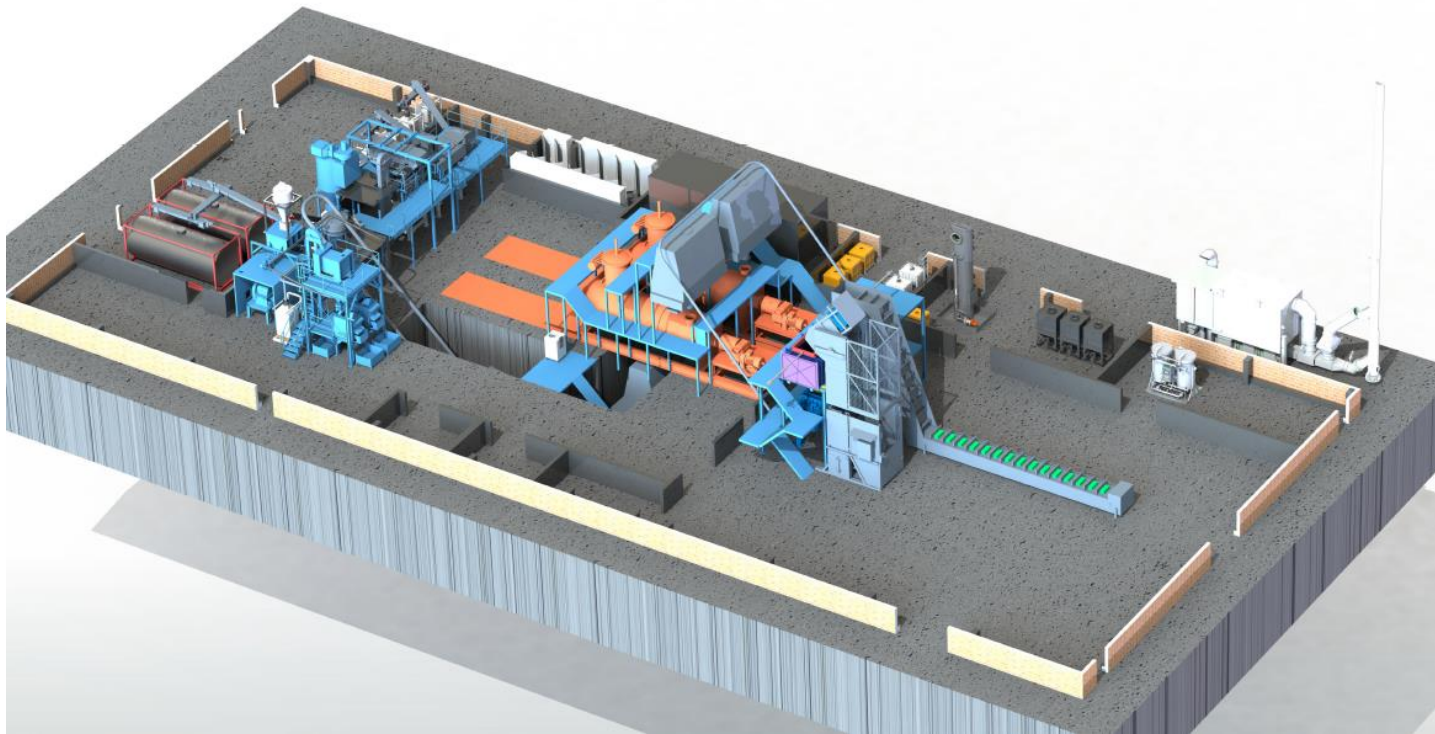
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STENA LI-ION RECYCLING PROCESS



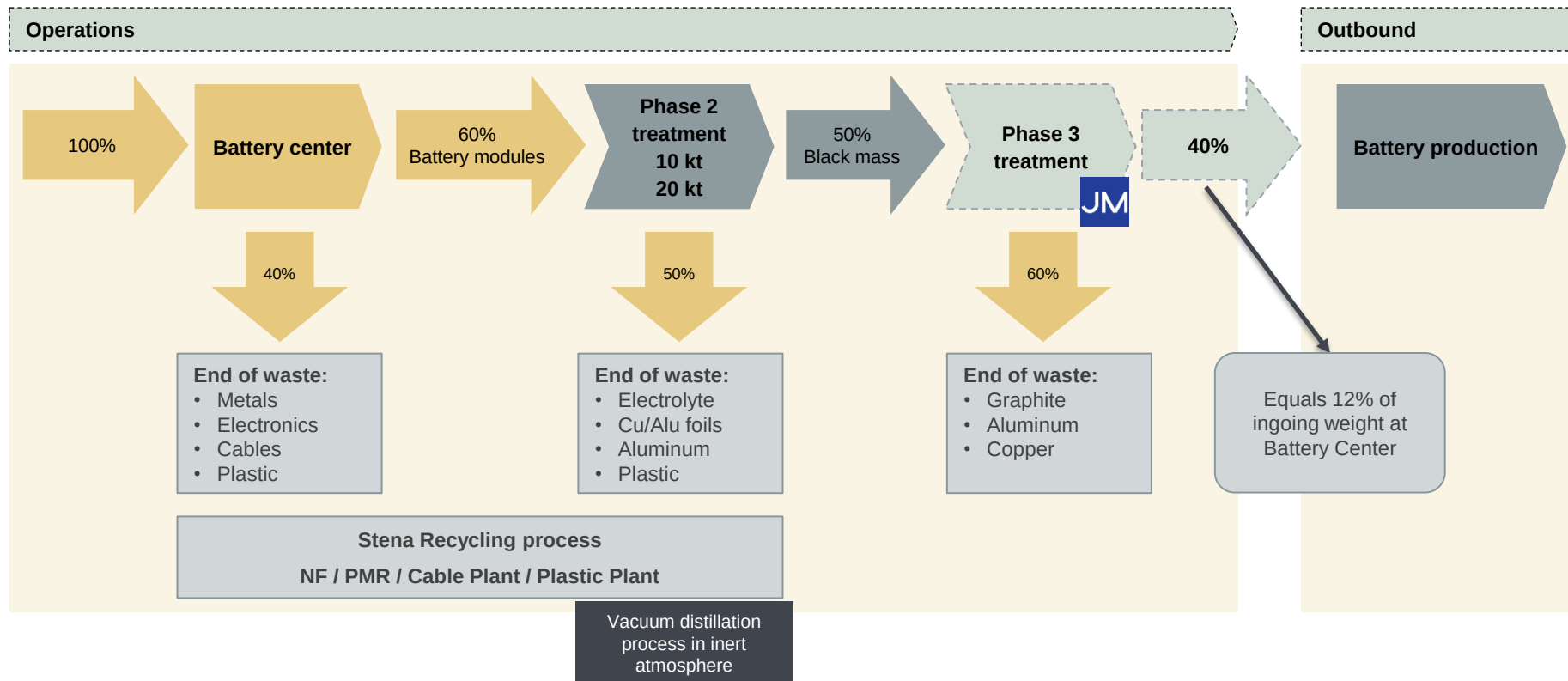
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Phase 2 - Halmstad



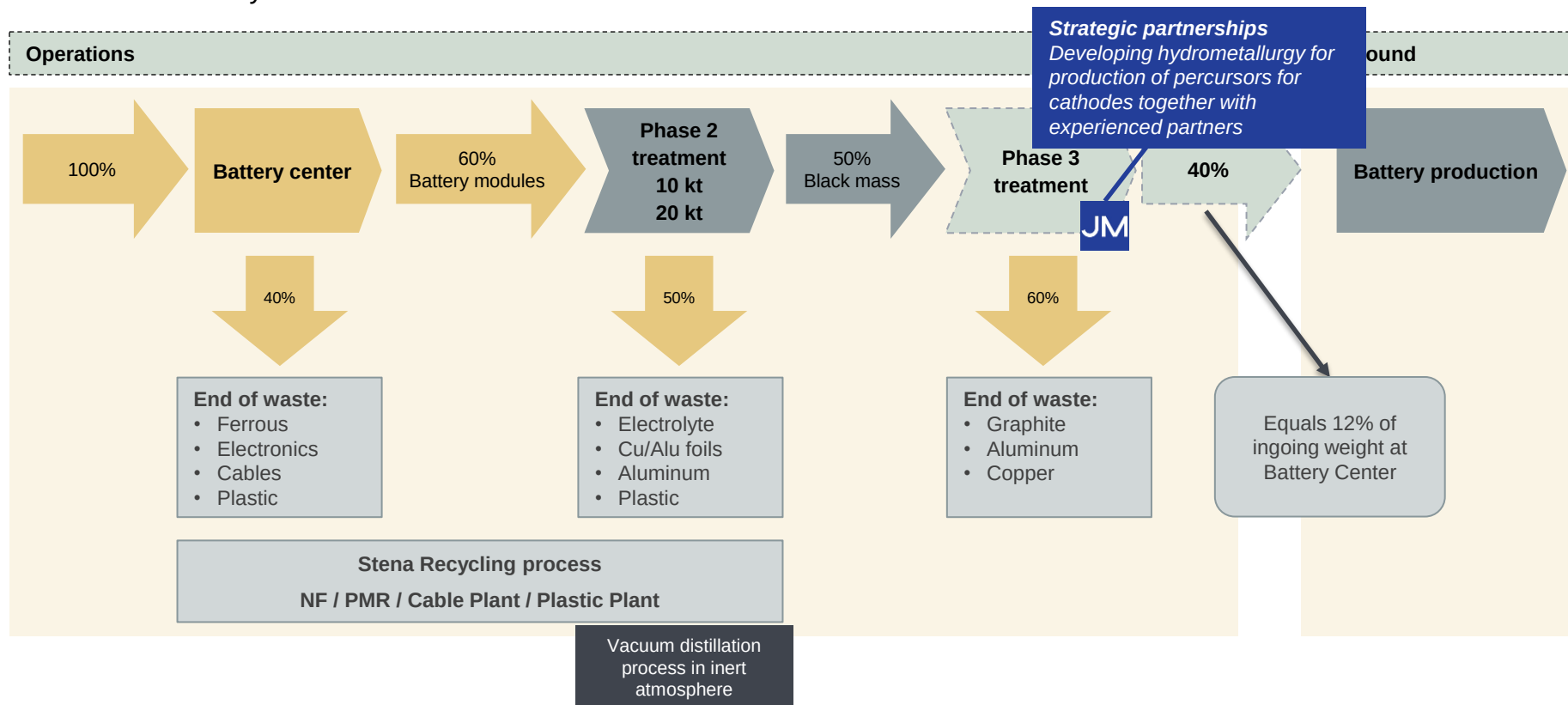
It starts here.

Stena battery value chain



It starts here.

Stena battery value chain



It starts here.



Cu



Al



Fe



Plastics

It starts here.



Cu



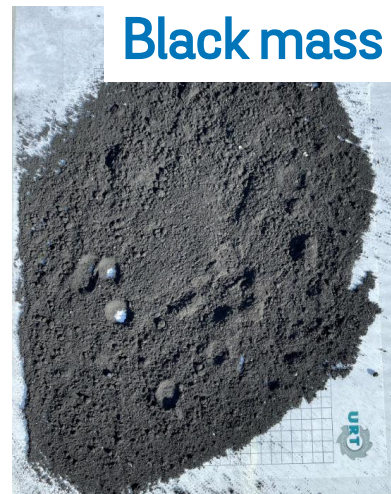
Al



Fe



Plastics



Black mass

It starts here.



Cu



Al



Fe



Plastics



Black mass

It starts here.

Johnson Matthey

Our analytical capabilities and battery materials understanding, supporting our leading-edge technology flowsheet implementation



Johnson Matthey Battery Technology Centre

Safety

Process designed to be inherently safe, "aiming for zero", transparent and traceable.

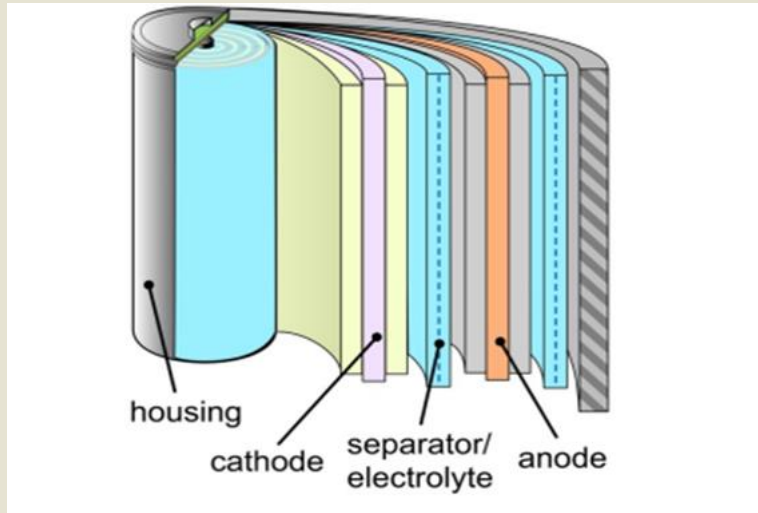
Characterisation

Sample preparation, high accuracy analysis; elemental, structural (XRD, XPS), morphology (SEM, FIB) and homogeneity both ex-situ and in-situ.

Chemistry

Collaborate with OEMs and cell manufacturers / JVs to synthesise bespoke salts / precursors

It starts here.



So.. Recycling of batteries is rather complex.

Choose materials wisely!
..and make them disassemblable

It starts here.

Summary

Batteries as a technology is amazing! And there are many, many, types.

The recycling processes are complex, but necessary to care for the world's resources.

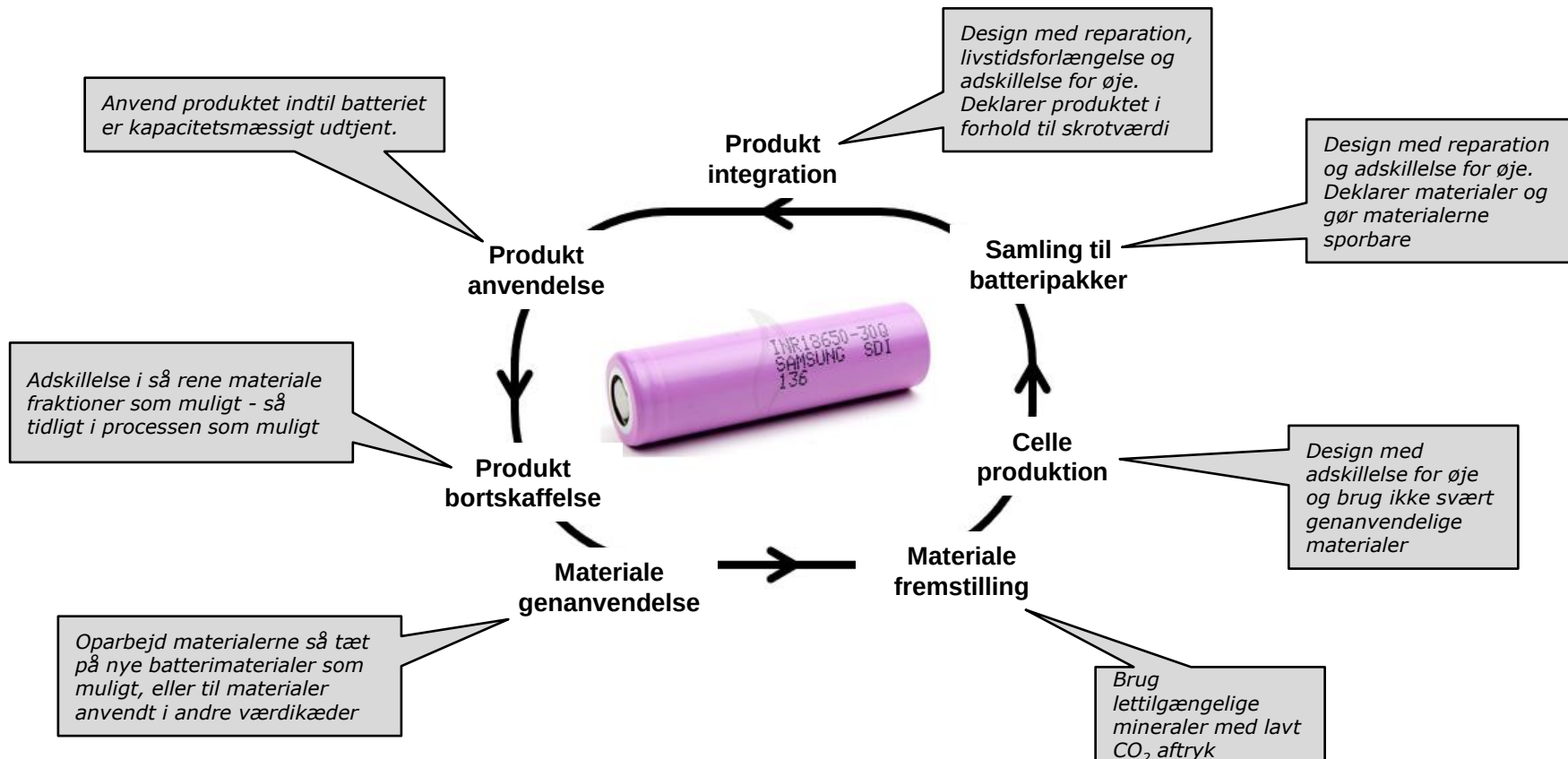
As the producers, you can impact the resource efficiency greatly.

It starts here.





Hvordan forbedrer vi bæredygtighed af Li-batterier?



A person with blonde hair, wearing a black beanie and a bright yellow sweater over a denim shirt, stands on a bridge overlooking a canal. They are holding a smartphone in their hands. A bicycle is parked next to them, with its handlebars and seat visible. The background shows a canal with water, buildings, and trees, all bathed in the warm, golden light of a sunset or sunrise. The scene is slightly out of focus, emphasizing the person and the text.

TOGETHER TOWARDS
A SUSTAINABLE FUTURE

It starts here.

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RECYCLING

A woman with curly hair is shown in profile, looking out over a city skyline at sunset. The sky is a warm orange, and the city buildings are silhouetted against the light. The woman is in the foreground, slightly to the right, looking towards the left.

THANK YOU!

It starts here.

The logo consists of a square icon containing the letters 'S', 'A', and 'O' arranged in a circular pattern.

STENA
RECYCLING