



Norsk Hydro – Automotive

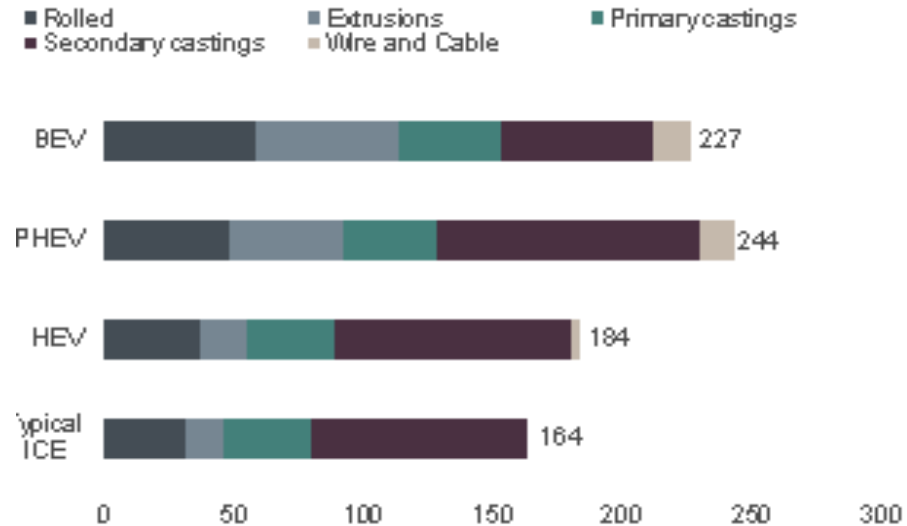
Nordea event: Porsche Center Asker & Bærum

Pål Kildemo, CFO
15 September 2021

Positive demand picture for aluminium in automotive



Aluminium intensity of vehicle types Kg per unit

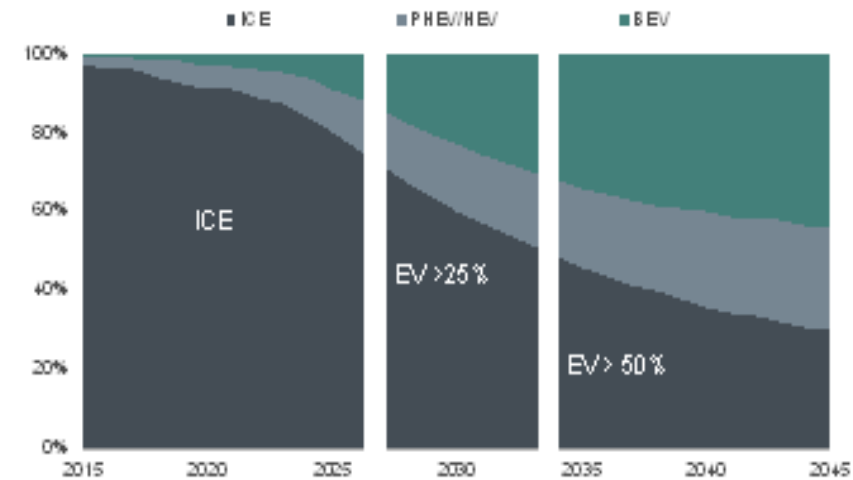


- Cars are aluminium intensive products – especially BEV are focusing on light-weightening
- ICE cars have lower aluminium content, but a higher secondary content in cast engine blocks
- CRU estimates 1.8 Mt additional demand through NEVs until 2030

Source: CRU

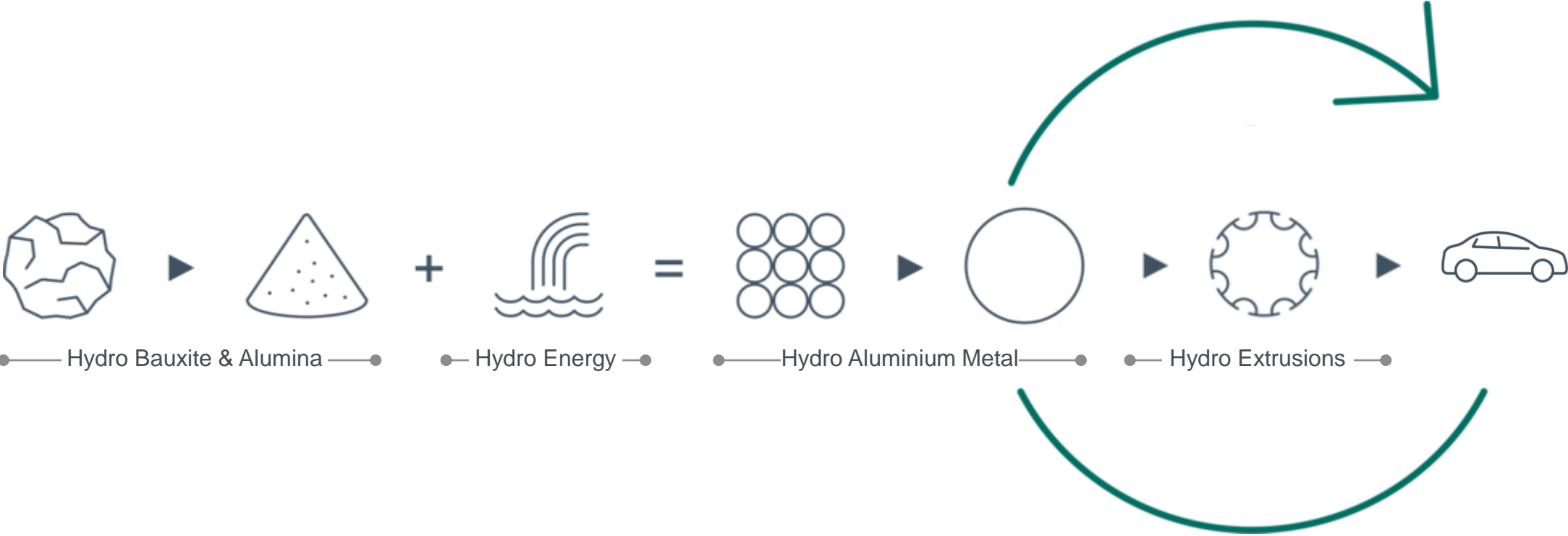
EV vs. ICE

Percentage of total lightweight vehicle sales (%)



- The share of BEV of total vehicles expected to increase over the next decades, driven by global decarbonation efforts
- In addition, the aluminium content in BEV expected to increase over time

Hydro operates across the aluminium value chain and Hydro Extrusions serves automotive industry



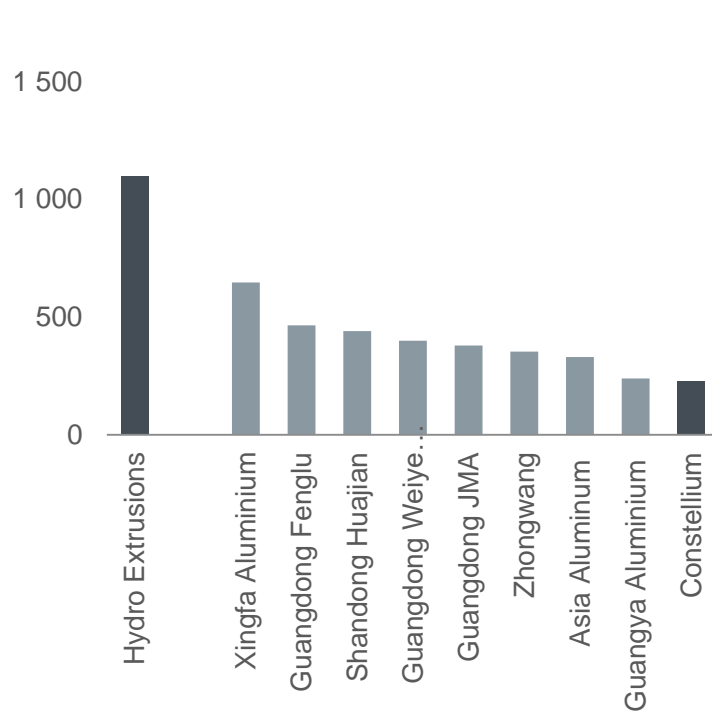
**Safe, compliant and efficient operations
– The Hydro Way**

Unrivalled position as the largest extrusion provider globally with a strong and diversified segment footprint



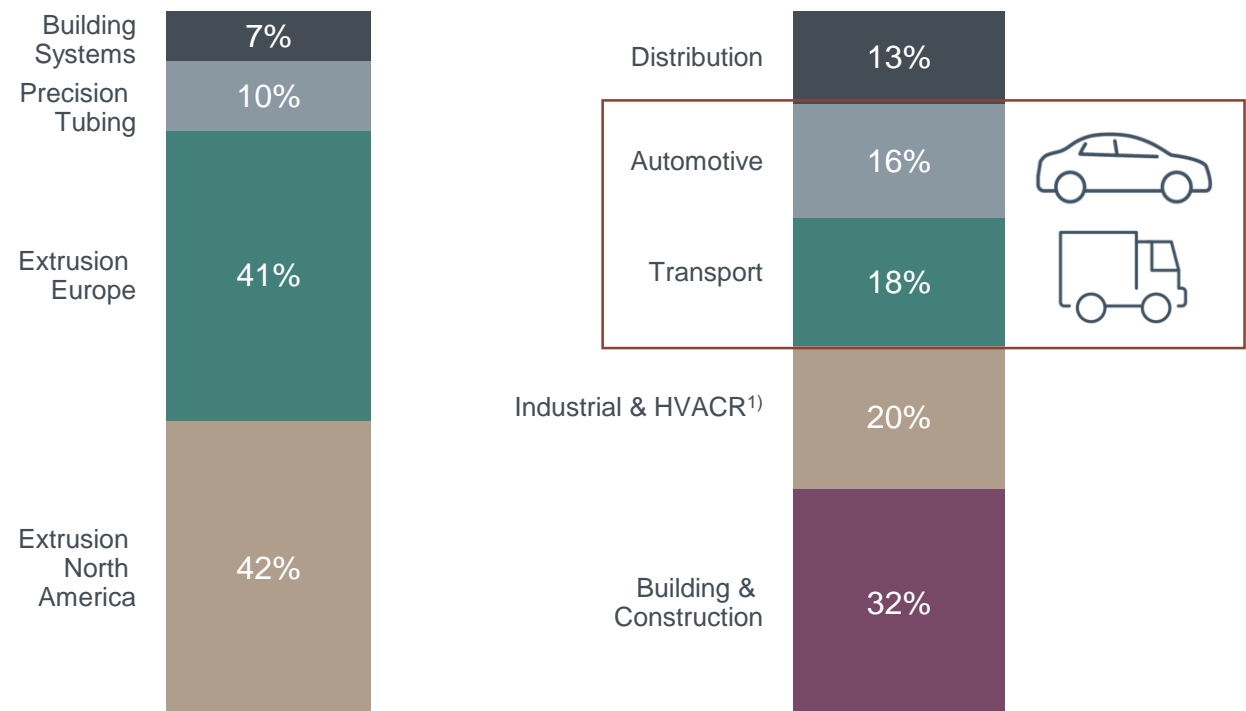
Unrivalled position

Extrusion sales volume 2020: k tonnes



Four distinct Business Units, all with strong segment presence

Total volume 2020: 1.1 mill tonnes



Source: Company filings, CRU

1) HVACR: Heat, ventilation, air condition & refrigeration

Hydro Extrusions well positioned to serve the automotive market



Background

Automotive an attractive segment

- Trend towards lighter cars and more environmentally friendly solutions
- Attractive margins from development of unique solutions in partnership with customers

Extruded Solutions competitively positioned

- Innovative solutions based on R&D capabilities
- Strong and well-developed supply chain and global footprint
- Unique product offerings and close customer relationships
- Annual volumes of ~200 k tonnes (17% of total)

Examples of strategic positioning

Extrusion North America

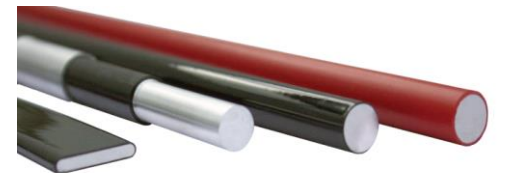
- Improvements in capability and capacity with Cressona & Phoenix, both high performance press investments
- Targeted approach to grow by focusing on e-mobility, BIW¹⁾, structural and ABS segments

Extrusion Europe

- Investments made in fabrication recent years enabling strong position within e-mobility
- Cross-plant collaboration through Automotive platform to streamline deliveries

Precision Tubing

- New low- and high-voltage line cables for e-mobility; contracts closed with several OEM's
- New products using precision tubing material science competence for automotive and e-mobility



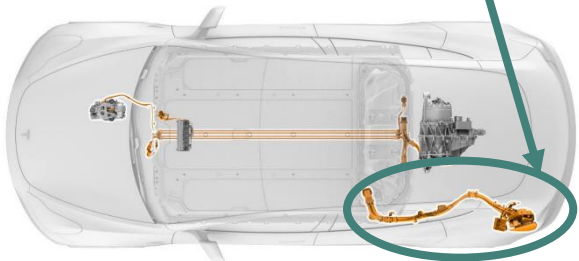
Aluminium battery cable
Significant advantages in material, weight and cost

1) BIW = body-in-white

Case: Developing the right solutions for automotive

Substituting current copper cables with High-Voltage aluminium charging cables

Current copper solution



Substitution

- Copper replaced with aluminium
- Currently delivering straight busbars to some car models
- Deliveries will also cover bending services and the full range of models
- Strong interest from other OEM's



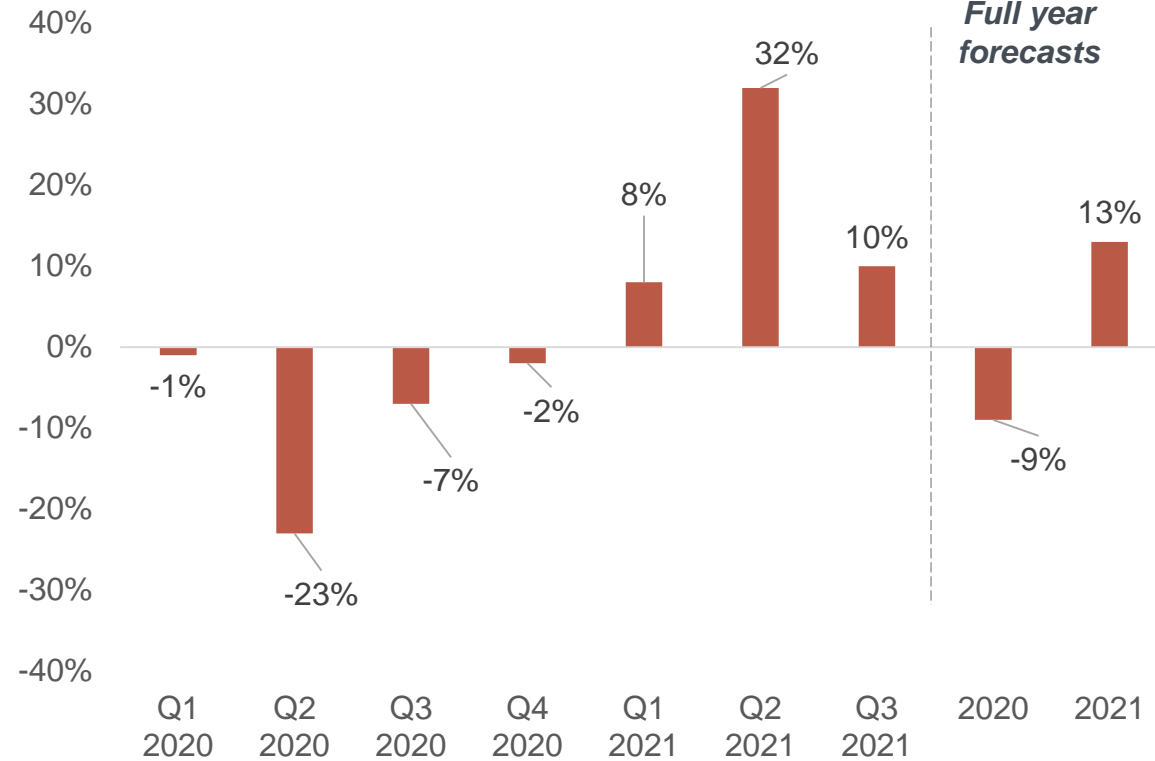
New aluminium solution



Extrusion market recovery still on course despite some issues related to chip shortage in automotive

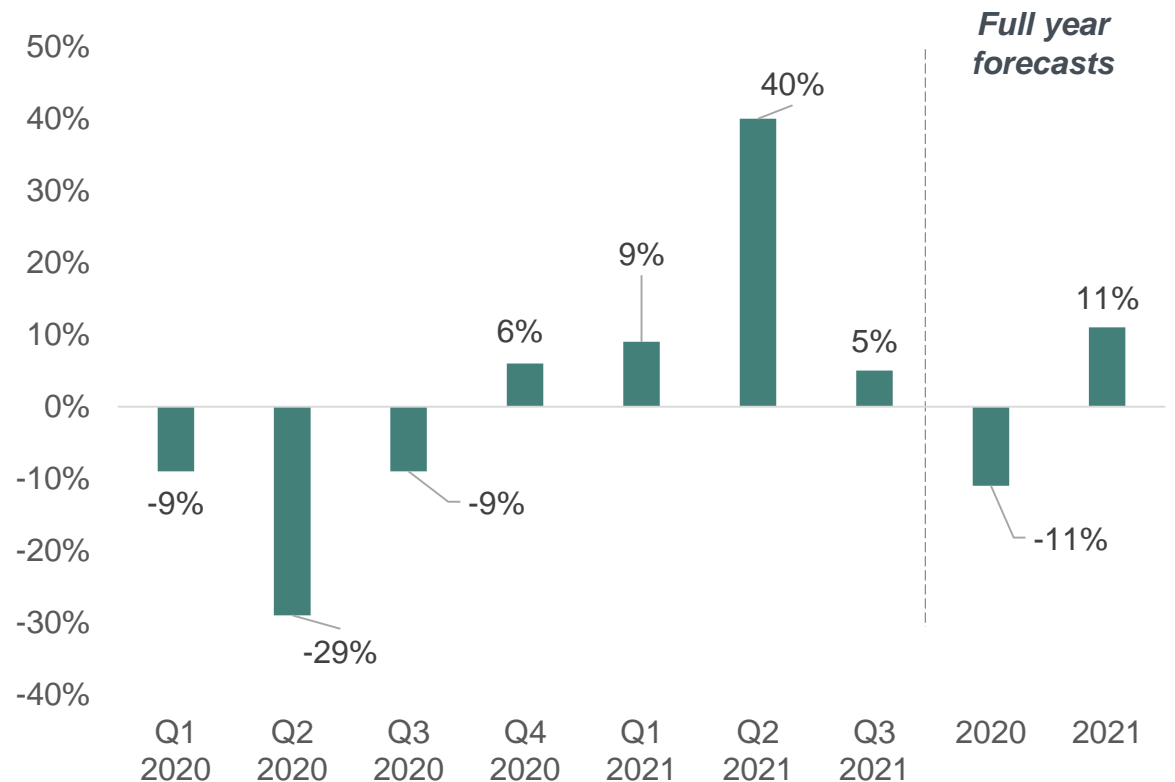
Europe

(YoY growth)



North America

(YoY growth)



Source: CRU
 * Industrial includes consumer durables, electrical and machinery
 Europe excluding Russia/Turkey. North America: US & Canada



Hydro

Industries that matter