



Capturing Growth in Clean Mobility

SPEAKERS

Dr. Ilham Kadri | Michael Finelli

February 2, 2022

Disclaimer: this presentation layout was updated to Syensqo's corporate branding, but the content is unchanged versus the initial presentation



The future of mobility



Materials business delivers above market growth at superior returns



Transportation is a significant growth driver



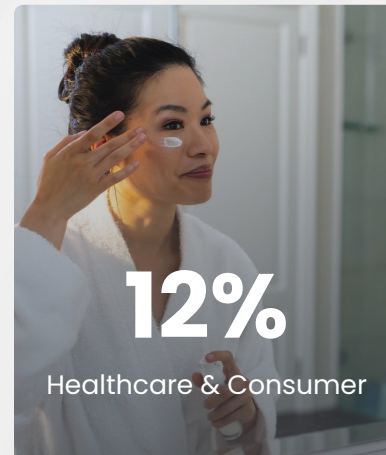
50%

Transportation (Auto, Civil Aero, Defense)



26%

Electronics & Industrial



12%

Healthcare & Consumer

Syensqo SALES %

24%

27%

16%

Materials
FY 2021



Sales
€ **2.9 bil**

Sales Growth
~**10%**
(2021-2025)

EBITDA margin
30%

ROCE
~**12%**

Unmatched specialty portfolio to offer best technology for each customer unmet need



High Performance Polymers

High Perf Composites

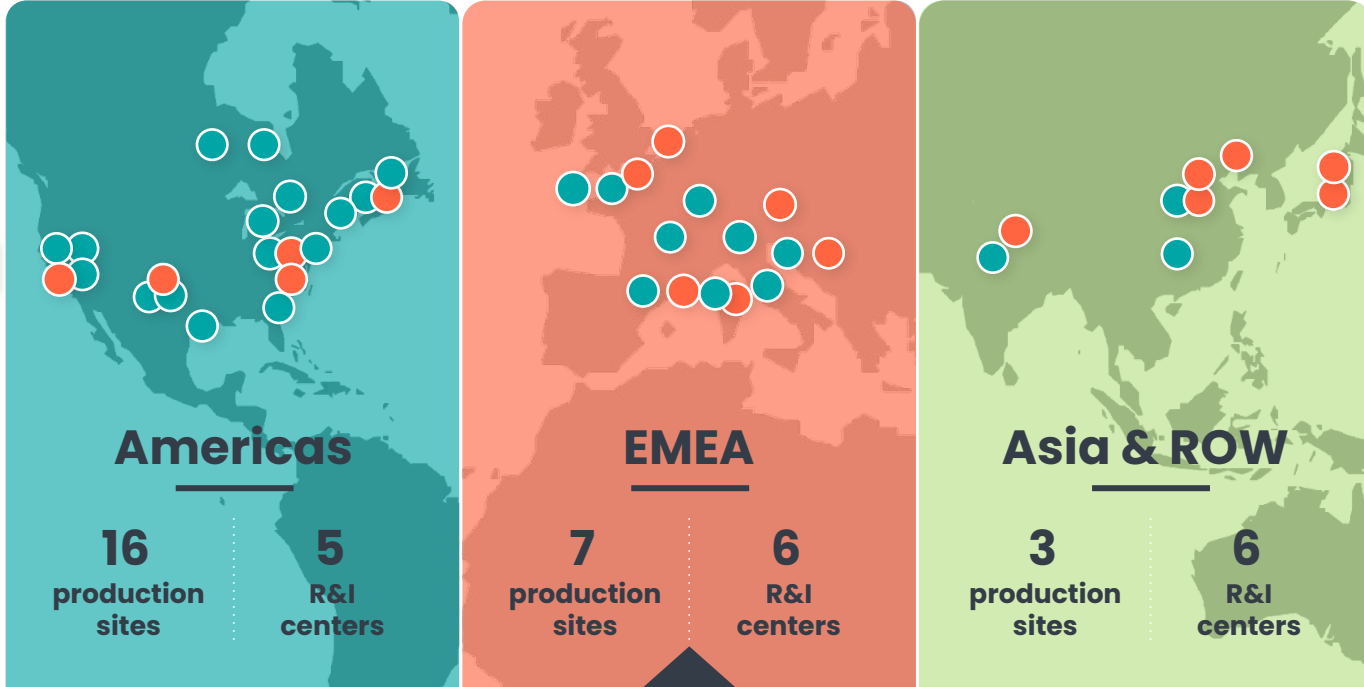
	HPPA	PPS	PEEK	PSU	PTFE	PVDF	PFA	FKM	PEPE	Thermo-plastic comp.	Carbon Fiber	Thermoset comp.	Resin Infusion	Adhesives & films	3D Additive Mfg	Space Ablatives
ARKEMA	✓					✓								✓		
BASF	✓			✓												
Celanese		✓													✓	
Chemours					✓		✓	✓	✓							
DAIKIN					✓	✓	✓	✓	✓							
DSM	✓	✓														
DUPONT	✓															
dynacon					✓	✓	✓	✓								
EMS	✓															
HEXCEL										✓	✓	✓	✓	✓	✓	✓
Henkel 3M														✓		
KUREHA		✓				✓										
SYENSQO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TORAY		✓								✓	✓	✓	✓	✓	✓	✓
TEIJIN										✓	✓	✓				
victrex			✓													

Our global materials presence supports customers globally and locally



26

Production Sites



17

Research & Innovation Centers

5,800 Global Employees

We help our auto customers reduce emissions



LIGHTWEIGHTING

Reduced vehicle
weight and
emissions



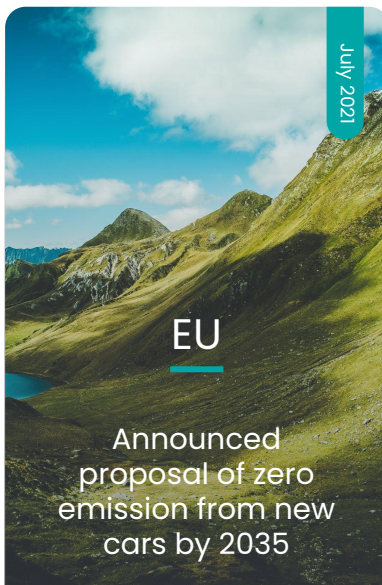
SYENSQO



ELECTRIFICATION

Improved
Energy Density
& Safety

Auto industry transformation underway driven by policy and major players



Main drivers



Consumer preferences



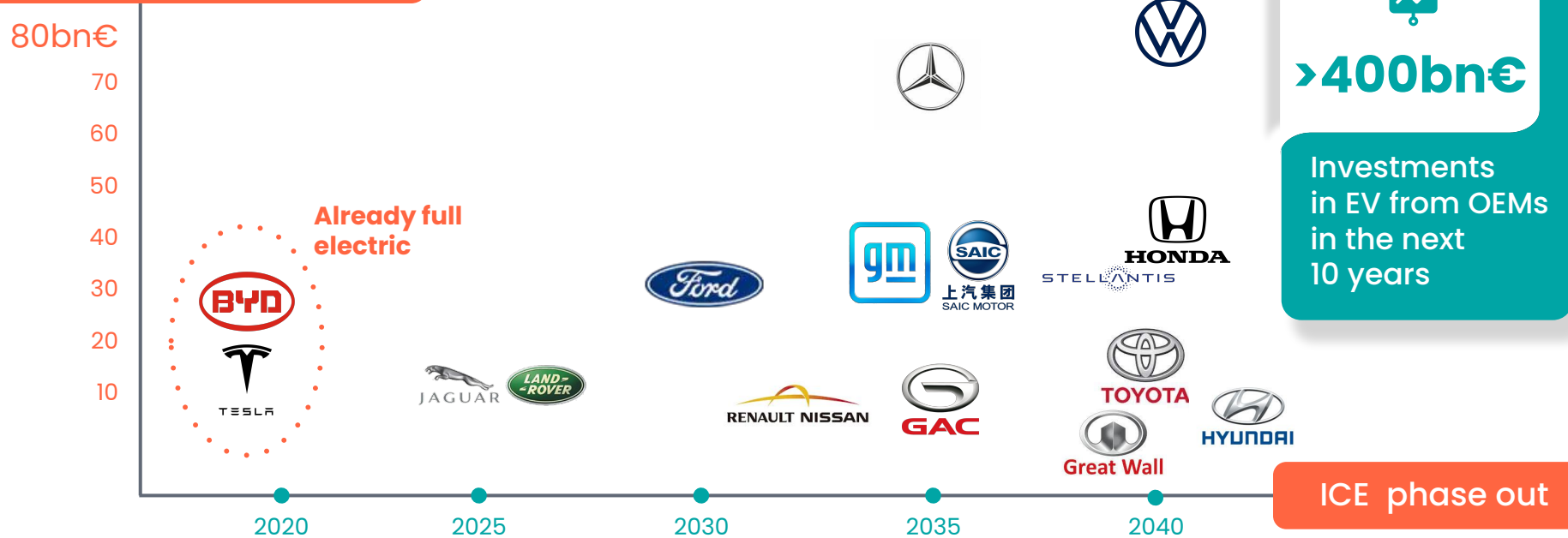
Fundamental shift in regulatory environment



Massive investments in capacity and infrastructure

Major OEM investments in e-mobility are underway

Investments announced



We have a track record of outgrowing the auto market with a proven model



Key Takeaways



We have
a track record
of outgrowing
the Auto Market



Shift to EV will
accelerate
Syensqo growth
to double digit



We have an
unrivalled
leadership position
in EV batteries



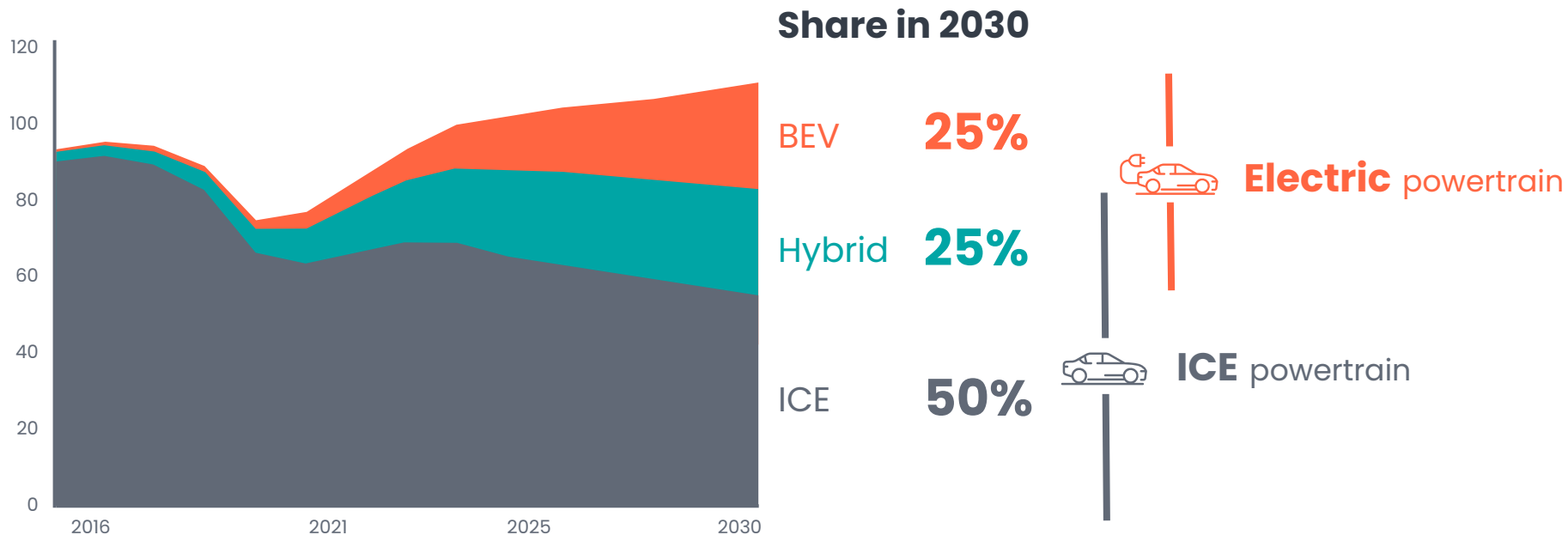
We announced
a major capacity
expansion to secure
our growth until
2025



SYENSQO

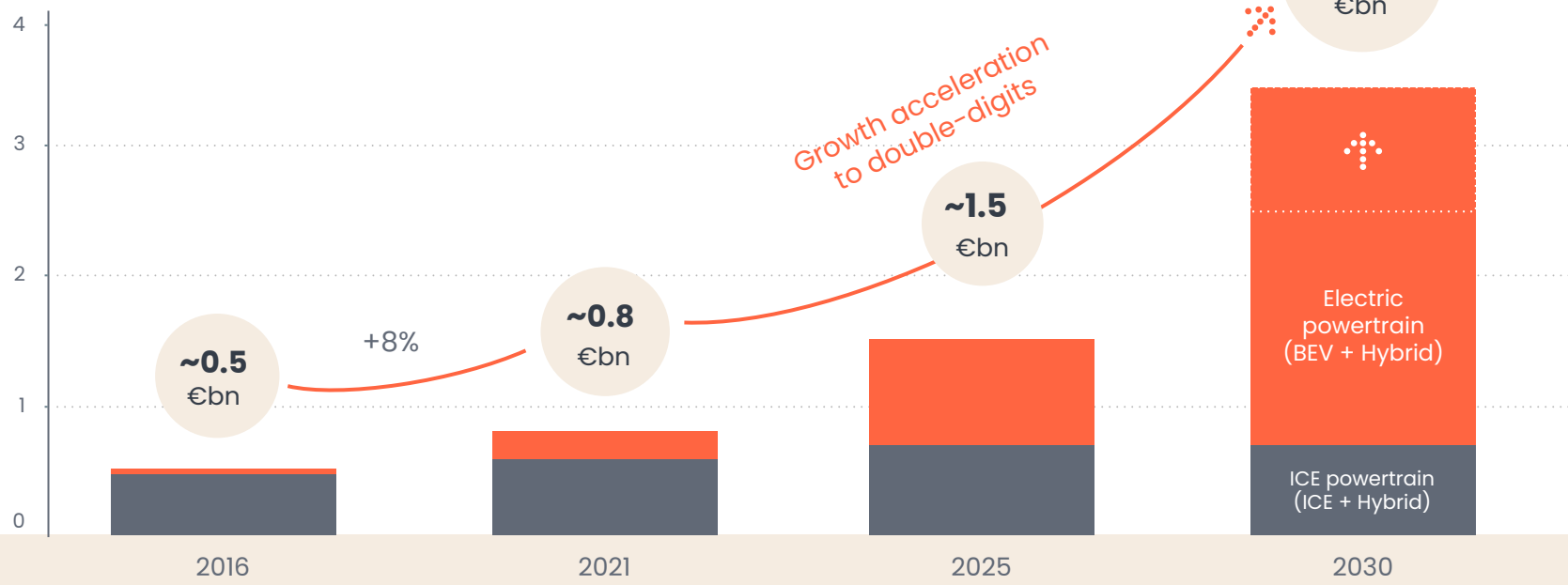
The electrification transformation is accelerating

Light Duty Vehicles,
global production by powertrain (million units)



Syensqo growth will accelerate to double digit, building on our proven track record

Automotive sales (€B)



LEGEND



ICE powertrain



Electric powertrain



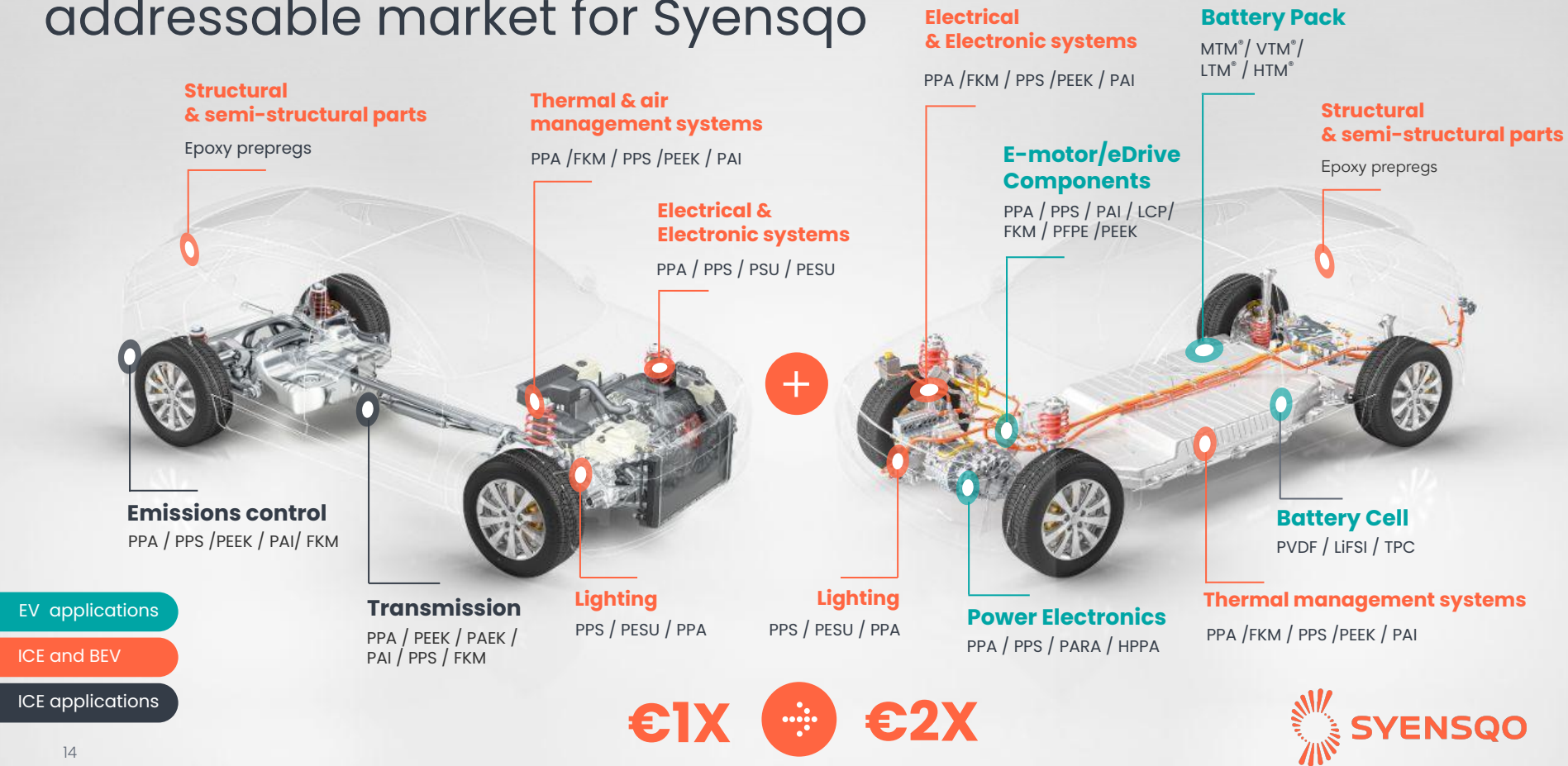
SYENSQO

Reinforcing our leadership position in highest growth, highest value part of the market



Note: (1) Value of polymers Syensqo can provide;
Hybrid represented in both ICE and Electric powertrains Source: LMC

Transition to EV doubles addressable market for Syensqo



Examples of high performance solutions

Coolant Lines



ICE POWERTRAIN

50%

weight
reduction

- Metal replacement by **Ryton XE PPS**
- Design flexibility
- High heat resistance
- Safety (lower leakage risk)

e-Motor Magnet Wire Insulation



ELECTRIC POWERTRAIN

25% motor
weight reduction
9% horsepower
3% higher torque

- 1st mover with PEEK
- magnet wire application
- Thermal endurance at 240 °C
- Electrical properties at temp

Battery



ELECTRIC POWERTRAIN

25% vs aluminum
40% vs steel
casing weight
reduction

- Inside: PDVF + LiFSi
- Outside: PPA + TPC
- Weight savings
- Improved economics vs Aluminum
- Functional integration of multiple components

Our materials circle the battery with a total opportunity of >€2B by 2030



Li-ion battery cell

PVDF cathode binder

Keeps the cathode active material in place and connects it to the cathode current collector

PVDF separator coating

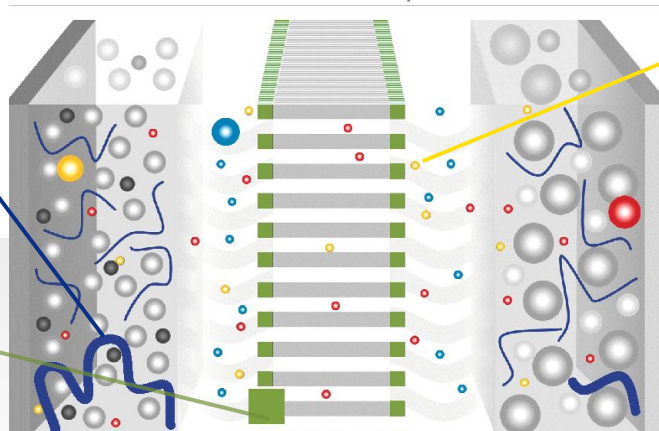
Improves the chemical and mechanical resistance of the separator

Electrolyte Ingredients & Solutions

LiFSI salt, Energain® high voltage solvent, Solgain® solid electrolyte, Inorganic conductors

Structural Components

Thermoplastic composite casing
Gaskets and insulators



We enable
key functionalities:

Safer



Better energy density



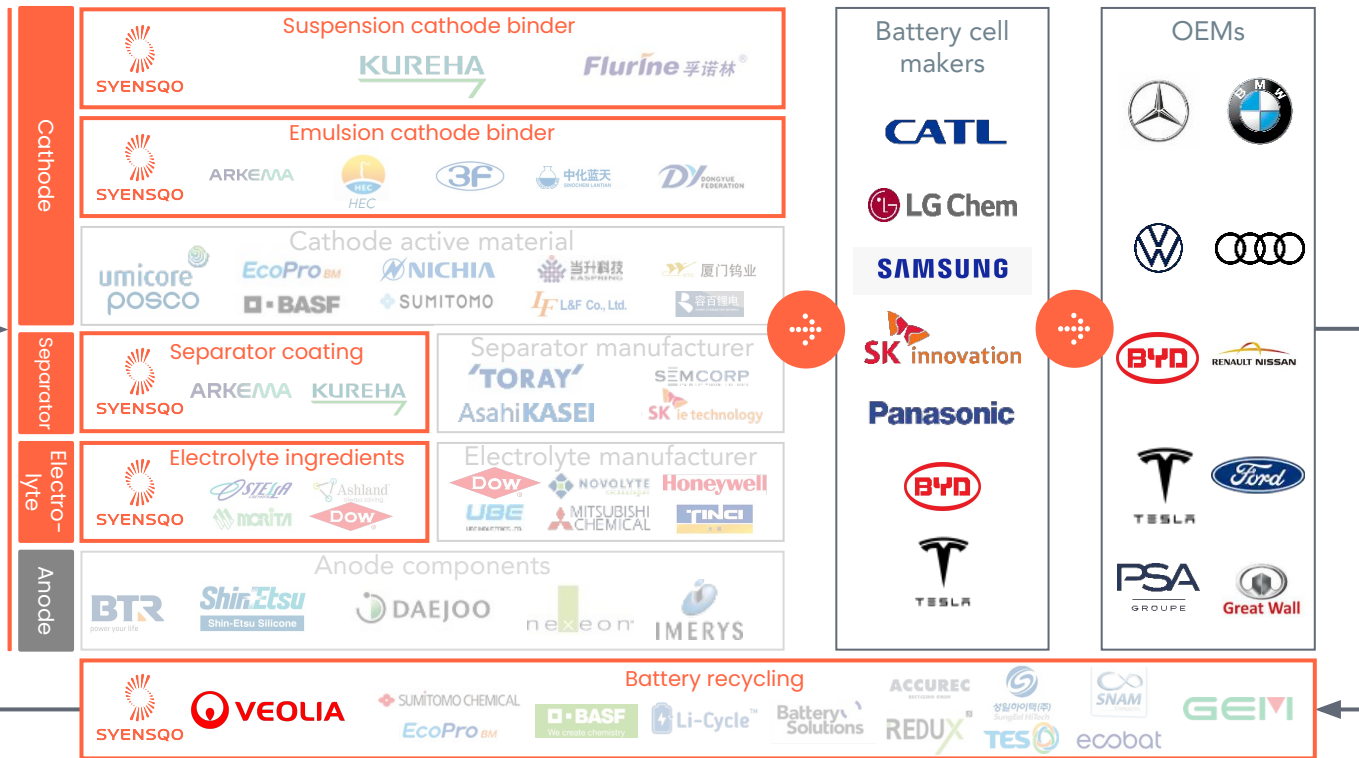
Better power



Lower cost

We are uniquely positioned in the value chain

Syensqo presence



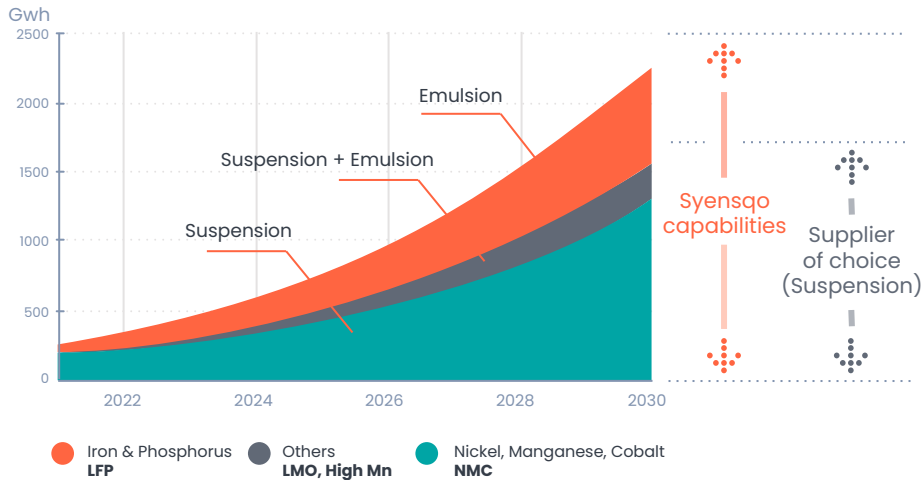
- Syensqo is specified with all of the major players
- We continuously innovate together with our key customers
- Syensqo is the undisputed leader on suspension PVDF, with backward integration



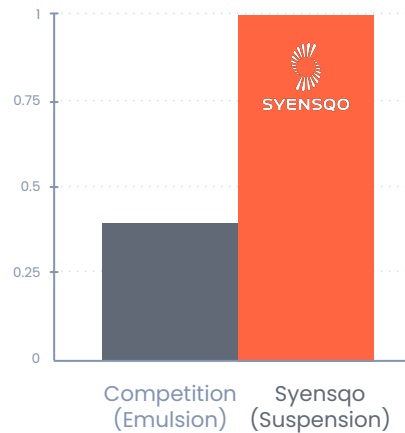
We are the technology of choice for higher end battery applications



Evolution of Auto Gwh demand by cathode binders technology



Relative electrode adhesion in NMC



We have the full range of **technological capabilities**

We are battery **technology agnostic**

We focus on the **higher-end segment** where we are the **supplier of choice**



Suspension PVDF offers a unique combination of properties that makes it the solution of choice for NMC cathodes

Our innovation enables further progress in safety, energy density and total cost of ownership

2015 – 2028

LI-ION BATTERIES



Generation 2

150 – 180 Wh/kg

- Fluorinated additives
- Solef® PVDF as cathode binder or separator coatings



Generation 3

180 – 320 Wh/kg

- New lithium salt (LIFSI)
- Energain® for high voltage batteries
- New PVDF as binder & separator coatings
- Solgain® for dry process as cathode and anode



2027

SOLID STATE BATTERIES



Generation 4

300 – 500 Wh/kg

- Argyrodite – New inorganic conductors for all solid state batteries
- New polymers for polymeric solid state batteries



Main
benefits



Greater
Range



Faster
Charging



Safety



Lower Total
Cost of Ownership

Our planned capacity secures our growth until 2025 across US, Europe, and Asia

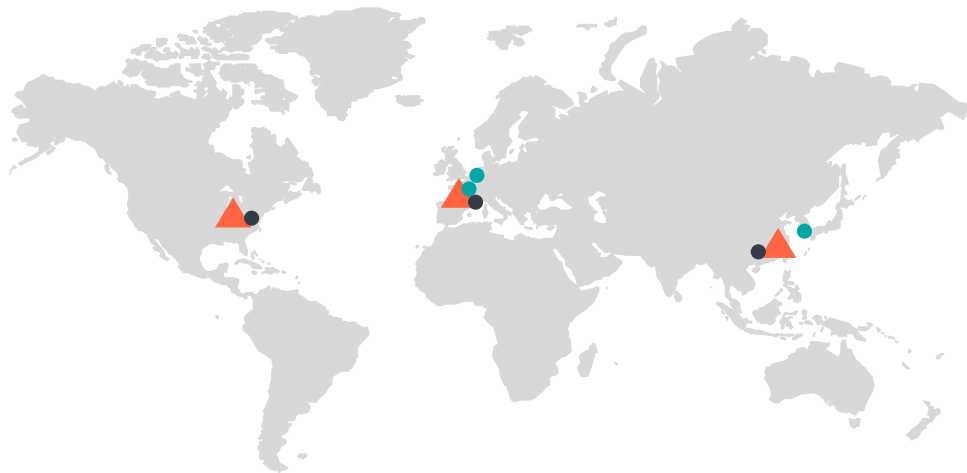


PVDF production

Tavaux,
France

West-Deptford,
USA

Changshu,
China



Research

Paris, France

Next-generation battery
Inorganic chemistry

Brussels, Belgium

Next-generation
battery Modeling

Bollate, Italy

Battery cell prototyping lab

Seoul, South Korea

Battery cell prototyping lab



~€300m

Investment
in France

~35 kt

PVDF in EU
by 2024



#1 PVDF

Producer
in Europe

#1 PVDF

suspension
producer
globally

Key Takeaways



We have
a track record
of outgrowing
the Auto Market

We reduce
emissions through
lightweighting
& electrification

**Syensqo +8%
vs. Market -4%
(2016-2021)**



Shift to EV will
accelerate
Syensqo growth
to double digit

**EV doubles the
addressable
market value**

**We have 1.5-2x
the market share
in EV vs. in ICE**



We have an
unrivalled
leadership position
in EV batteries

We are the
undisputed leader in
suspension PVDF

We are technology
agnostic and focus on
high end batteries



We announced
a major capacity
expansion to secure
our growth until
2025

**€300m announced
capacity expansion in
Tavaux**

**#1 PVDF in EU and
the only suspension
producer for high
end batteries**

Glossary

BEV: Battery Electric Vehicle

FCEV: Fuel Cell Electric Vehicle

ICE: Internal combustion engine vehicle

LDV: Light Duty Vehicles, mobile machine that is primarily used to transport passengers and cargo (e.g., cars, vans or SUVs)

OEM: Original equipment manufacturer, an organization that makes devices from component parts bought from other organizations

PHEV: Plug-in Hybrid

PVDF: Polyvinylidene Fluoride is a highly non-reactive thermoplastic fluoropolymer that is inherently flame retardant. It has a high degree of purity, robust mechanical properties, electrochemical stability, and broad chemical resistance at high temperatures.

- **Suspension PVDF** particles are much bigger, and they settle down when mixing is stopped. Because the polymers are more crystalline, they offer higher mechanical properties and higher melting points. Plus, they can be injection molded.
- **Emulsion PVDF** particles are physically stable, even in the absence of mixing, and they remain evenly dispersed in water. Smaller particle size promotes faster powder dispersion in solution processing, a higher degree of branching, and smaller crystallites that enhance film clarity.

Thank You