

A nighttime cityscape featuring tall buildings and a highway with light trails from traffic. A semi-transparent blue overlay covers the left side of the image.

**Saft**

28 April 2019

**saft**

a company of



# SAFT Solid State (3S) program overview

## Program with 2 related targets

1. Develop state-of-the-art high energy Li-ion cell with a **liquid** electrolyte (catch up with the best in class)
2. Develop a true **Solid** State Li-ion system



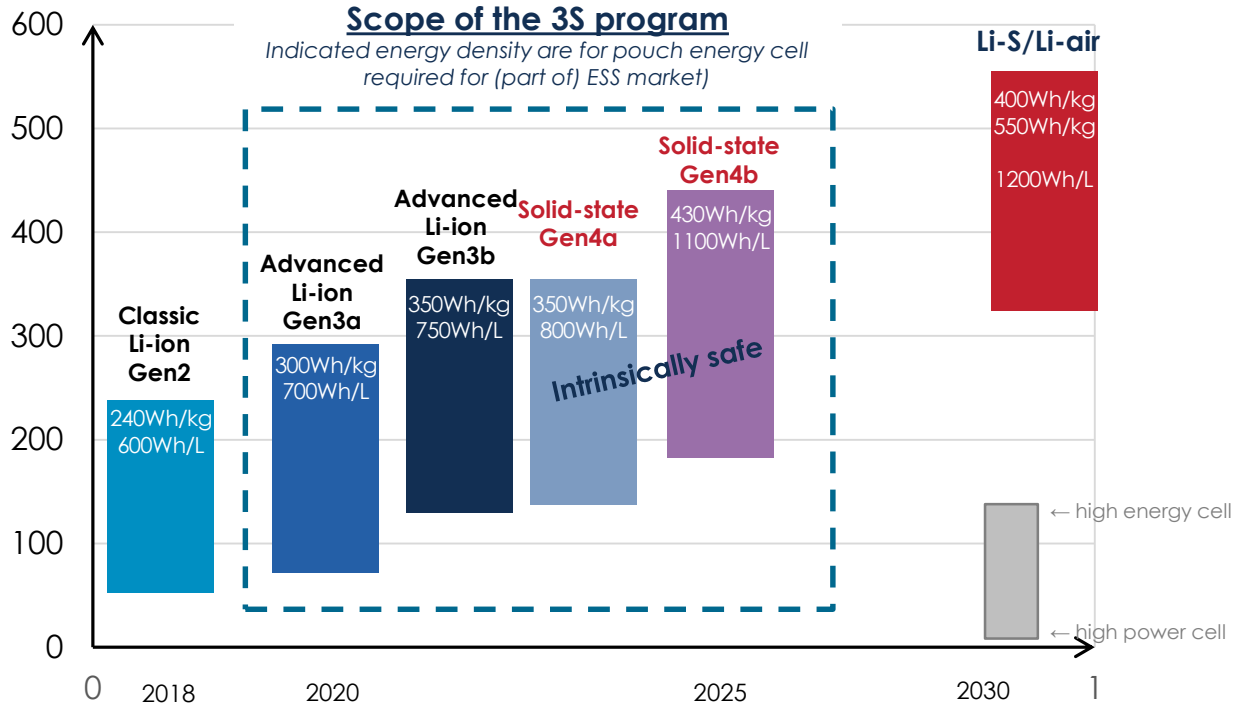
## What will Solid State deliver?

- High energy
- Lower cost
- **Improved safety**
- Long life
- Potential other benefits

## Keys to success

- Ionic conductivity equal or better to liquid electrolyte
- Solid electrolyte membrane mechanically able to prevent Li dendrites from causing a short circuit
- Active materials electrochemically stable with the chosen solid electrolyte
- High speed manufacturing processes creating a solid matrix structure vs the current “wet sponge” structure

# 3S Program roadmap for ESS Energy application – May 2019



## 2025 Competitiveness criteria

- Cost competitiveness
- Energy density
- Cycling
- Calendar life
- Safety
- Ethics / traceability
- Large scale
- Eco designed, low CO2 content
- Circular : 2nd life, recyclability

Source: Saft, based on internal expertise, EU commission, MIIT, NEDO, German VDA. Generation names aligned with EU commission roadmap.

# The Alliance for the European battery of the future - launched in February 2018

## 5 European groups join forces : Saft, Umicore, Solvay, Manz, Siemens



### Alliance covers all critical topics

- Cell design, prototyping & test
- Active material
- Electrolyte
- Manufacturing processes & industrialization
- Equipment for cell assembly
- Automation & Digitalisation

### A partnership until industrial production



### We gather all critical capabilities to succeed

- World class R&D facilities and experts
- World class industrial experience
- Global players with strong financial stability
- European lobbying power

# Our R&D ecosystem : worldwide cooperation

## R&D partners

CEA (Grenoble, Bordeaux)

Total Prospective Lab,  
Montreal University

Universities and Labs : IPREM,  
ICMCB, UMD, LEPMI, Crismat, PSI,  
CIC Energigune, Fraunhofer, ...



## Industrial partners



+ other US companies

Japanese suppliers



**with good support from Ademe through IDOLES project !**