Alliance for the European Battery of the Future
2018 ~ 2025
28th March 2018
IFRI – in a few words

– WHO?

– THE LANDSCAPE …

– WHAT?

– WHY?

– HOW?
WHO?
SAFT: a world leader in high performance batteries for demanding applications

SAFT at a glance

- **14** production sites including 7 in EU, 3 in FR: Bordeaux, Nersac, Poitiers
- **4,300+** employees
- **3,000+** customers
- Market leader on 75-80% of revenue base
- **9.7%** invested in R&D in 3 main technologies
- **$840 million** in revenue in 2017

Our 4 divisions

- Transportation, Telecom & Grid
- Industrial Standby
- Space & Defense
- Civil Electronics

SPOTLIGHT: ENERGY STORAGE PROJECT IN THE FAROE ISLANDS
A wind farm with a maximum production capacity of 12 MW, connected to a 2.3 MW lithium-ion battery system
THE LANDSCAPE HAS SOMEWHAT OF A FAVORABLE FLAVOR

- **CHINA**
  - Using the ICE to EV transition to gain market prominence in the automobile market

- **CHINESE BATTERY MANUFACTURERS**
  - Benefit from a very large home market
  - And strategic governmental support

- **ACTIVE MATERIALS MANUFACTURERS**
  - They have a long term interest in having a healthy EU customer base

- **TIER ONE AUTOMOTIVE SUPPLIERS**
  - Will they retain the ability to influence cell design to their specific needs?
  - They have a long term interest in securing a diversified portfolio of cells suppliers

- **THE EU COMMISSION**
  - Keen to support the development of EU industry
  - Launched the “European Battery Initiative”
WHAT? – (1)

- Saft and partners are launching an ambitious research, development and industrialization project for new generations of batteries
- Alliance members bring competencies beyond Saft’s expertise in advanced materials and manufacturing 4.0
- Markets addressed will be e-mobility (EV, e-Bus, railways, marine, aviation), energy storage (ESS), as well as some specialty industrial markets
- Focus is on advanced Li-ion (GEN 3) and Solid-State (GEN 4)
- Benefits will be: higher intrinsic safety, better energy density, lower costs
- Project includes the construction of a Manufacturing Building Bloc of 1 GWh/yr for GEN 4
- Further scale-up will be based on business secured/market demand
WHAT? – (2)
A multi year research / development / industrialization plan

- 2018
- 2019
- 2020
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026

- GEN 3a
- SOP
- SOP
- GEN 3b
- SOP
- SOP
- GEN 4a
- SOP
- SOP
- GEN 4b

1GWh Standard Manufacturing Block

Technology Alliance for EU battery of the Future
WHY?

Why have we chosen this approach?

• Technical disruptions create opportunities
• We can regain differentiation
• We are open to widen the consortium

Why do we have confidence?

• Saft and Alliance members are experienced
• Saft and Alliance have superior competence
• We have already done it!

GEN 4 advantages

• Solid state means no liquid electrolyte, higher intrinsic safety
• Simplified BMS
• Higher volumetric energy density
• Lower costs
• …

GEN 4 challenges

• The right electrolyte material
• The proper contact between the electrolyte and the electrodes
• The manufacturing process
• …
HOW?

- **Build a Consortium with European companies, expert in complementary fields beyond Saft’s expertise**
  - A Core Group, and other partners
  - Experts in Materials & Recycling
  - Experts in Manufacturing, Modelling, Automation, Digitization

- **Secure support from the EU and National governments**
  - Pick locations smartly
  - Push for fairness: on import duties, on reciprocity of public procurement, rules

- **Build on our values**
  - Compliance with **CSR principles**: The Climate change challenge must be met by an industry & supply chain which complies with social, societal, environmental expectations
  - **Carbon content**: Efforts made by EU industry to mitigate CO₂ emissions should be turned into a differentiating advantage
  - **Sustainable resources management**: The supply chain must extract, use and recycle materials in a sustainable way