

Alliance for the European Battery of the Future

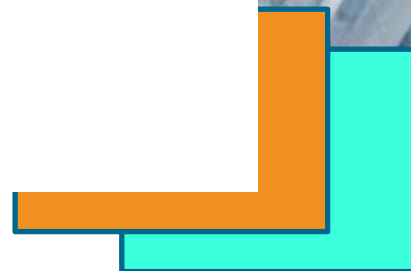
2018 ~ 2025

28th March 2018

 **manz**
passion for efficiency

SIEMENS
Ingenuity for life

 **SOLVAY**
asking more from chemistry®



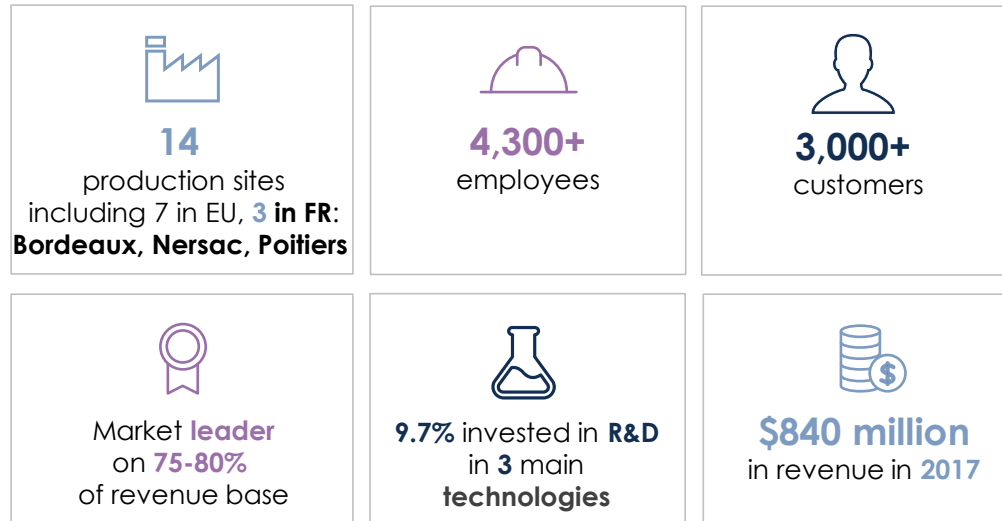
SAFT
100
1918 • 2018

- **WHO?**
- **THE LANDSCAPE ...**
- **WHAT?**
- **WHY?**
- **HOW?**

WHO?

SAFT: a world leader in high performance batteries for demanding applications

SAFT at a glance



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”

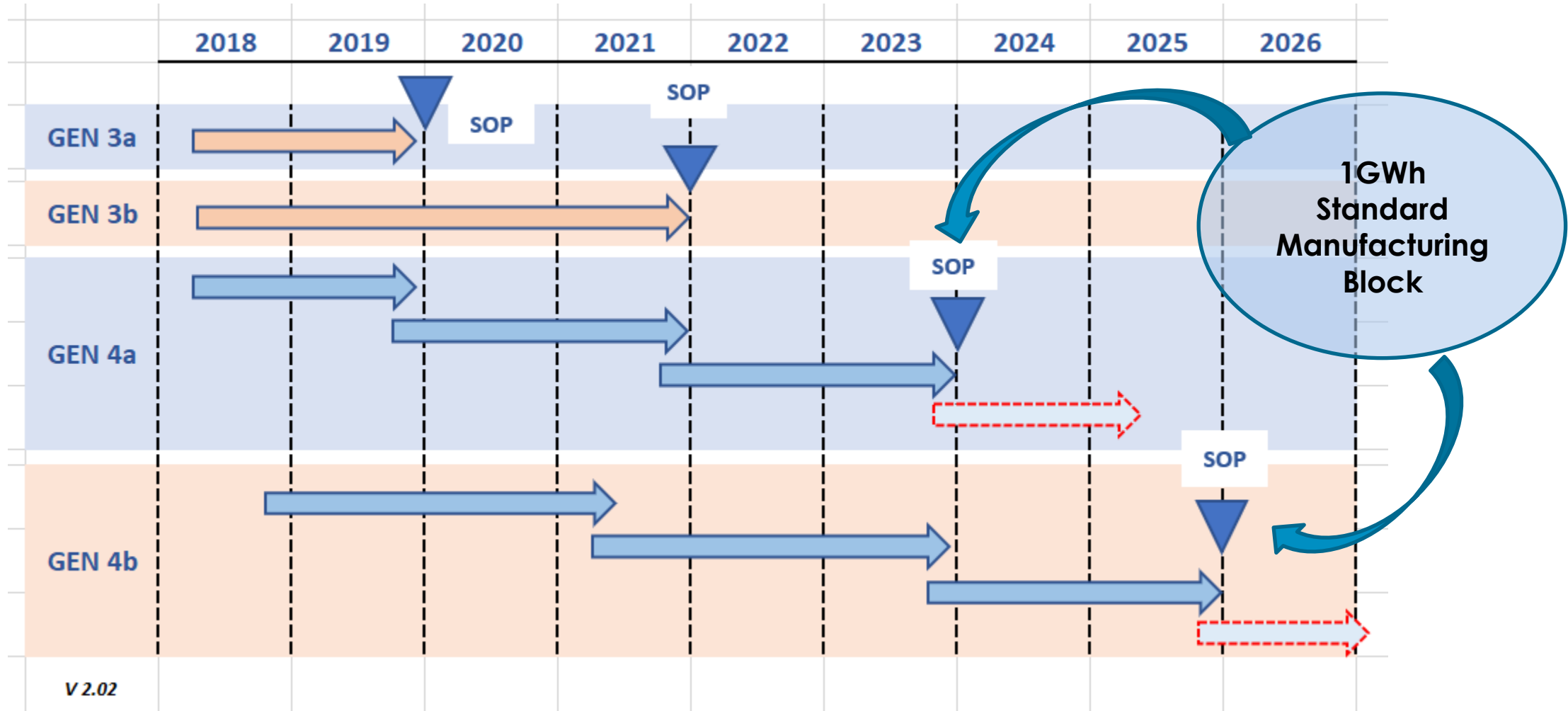
WHAT? – (1)



- 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



– 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
- ...

– 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