



Mastering Energy Storage

your partner for cutting-edge  
energy storage technologies

When **energy** matters

***SUNSYS HES L***

Outdoor Energy Storage System



## In summary

“An electrical equipment engineering and manufacturing company, specialising in low voltage energy performance”

**99**

years

**3 600**

employees

**12**

production sites

**572**

M€ turnover

**10%**

of turnover in R&D

**28**

subsidiaries

Notre expertise

# Innovative Power Solutions



POWER SWITCHING



POWER MONITORING



POWER CONVERSION



ENERGY STORAGE



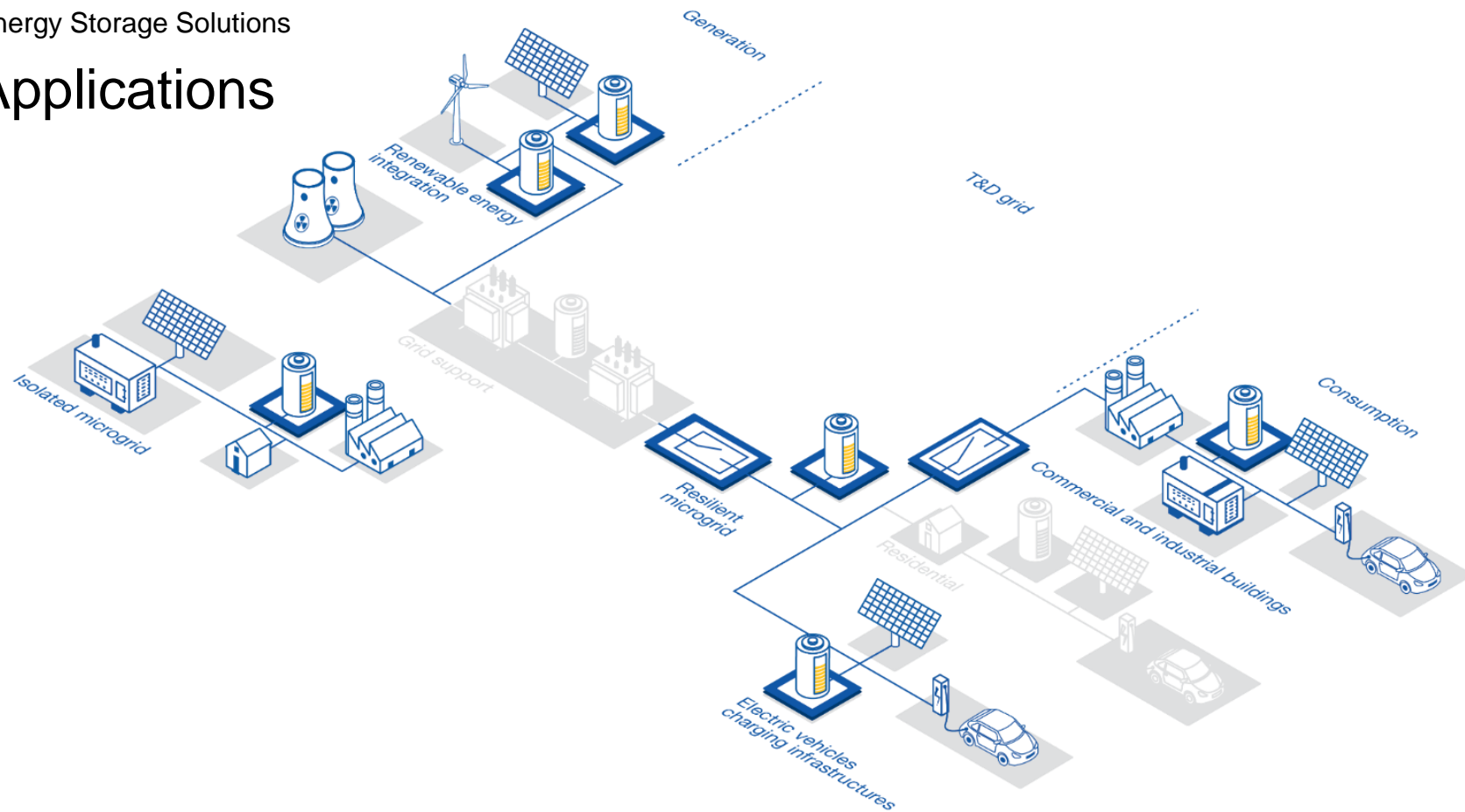
EXPERT  
SERVICES



# A complete offer to meet your needs



# Applications



# More than 185 installations worldwide



Canada – Montréal  
Canada – Ontario  
Caraïbes – Saint Vincent et les Grenadines  
Indonésie – East Kalimantan Province  
Mauritanie  
Maldives – Lhaviyani Atoll  
Malawi – Lilongwe  
Maroc – BenGuerir  
République du Congo – Lubumbashi  
Tunisie – Tunis  
Senegal – Saloum Island  
Singapore  
USA – Californie (+80 projets)  
USA – New York  
USA – Alaska  
USA – Hawaï  
USA – Colorado  
USA – New Mexico



# 5 main customer challenges identified



# SUNSYS HES L range

Optimise as much as possible the system sizing



## **SUNSYS HES L**

2 standards cabinets  
from 50kVA/186kWh to 550kVA/1116kWh systems  
multiple combinations



B-Cab L  
Battery Cabinet

C-Cab L  
Converter Cabinet



# SUNSYS C-Cab L

Converter cabinet

From 100 to 850 kVA\*

\*1 Master + 2 Extensions



Highly modular

Fully integrated system

Maximum availability

Easy to install

## Much more than a simple PCS

- 50 kVA power conversion modules  
Vertical paralleling up to 300 kVA  
Horizontal paralleling up to 850 kVA
- Combination of hardware and control software  
Converter modules with their controller  
Automation functions through PMS  
AC and DC distribution and protections  
Battery Management System  
Cloud interaction
- Hot-swappable modules during maintenance
- Native outdoor
- Direct connection up to 600 kVA & 6 battery racks (1116 kVA) without additional cabinet
- Compatible with your own EMS
- On and off-grid operation with smart transition

# SUNSYS B-Cab L

Battery cabinet

186 kWh / rack



Safe technology  
& design

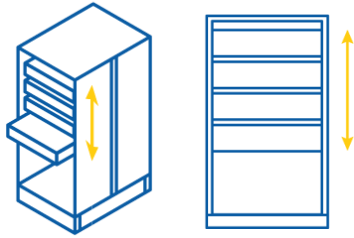
High density &  
performances

Improved logistic &  
installation

## Energised by CATL

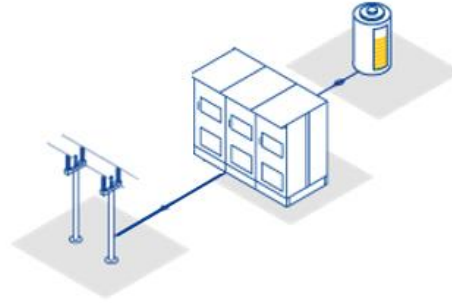
- Lithium Iron Phosphate batteries (LFP)  
UL 9540-A certified
- Fire safety system included
- Outdoor liquid-cooled thermal management
- Over 7000 cycles
- Ready to use: delivered with the modules installed and wired

# 3 ways of doing Power paralleling



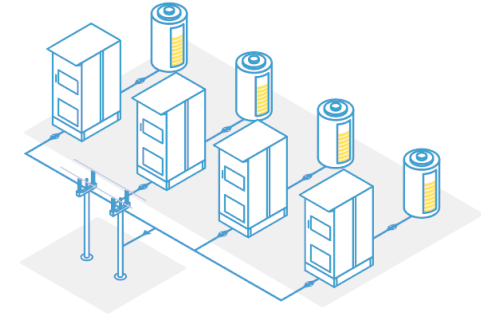
## Vertical paralleling

*Up to 6 x 50kVA modules per C-Cab L*



## Horizontal paralleling

*Up to 3 C-Cab L*

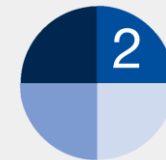


## AC paralleling

*Up to several MVA*

# Fast and error-free installation

## Get rid of difficult installation constraints



### Reduced installation costs

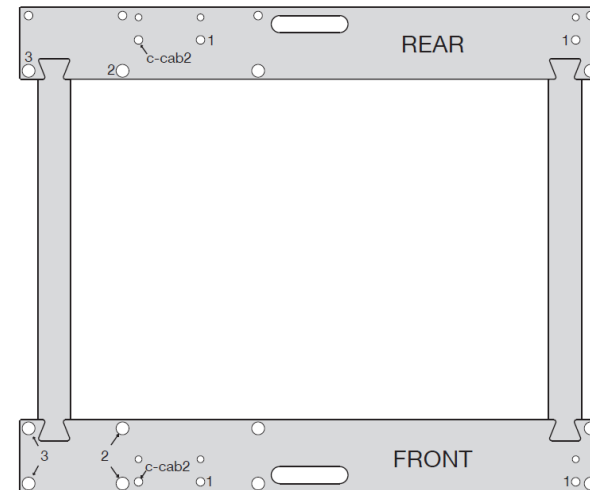
- Modules are already installed, making possible to
  - Optimize transportation costs
  - Reduce installation time

### Simple handling

- Lifting eyes
- Forklift space

### Error-free installation

- Drilling plate provided - to prepare the location of the drillings
- PMS, BMS are integrated
- DC connecting kits to simplify the connection between the converters and batteries.



C-Cab drilling plate

# Fast and error-free installation



# Compliance to standards



## Equipment Test Method

UL9540A: Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage

## Equipment Level Safety Standard

UL1741: Power Converters for Stationary Energy Storage

UL1973: ANSI/CAN/UL Standard for Batteries used in Stationary Energy Storage

## System Level Safety Standard

UL9540-2020: Complete energy storage system safety certification for Canada and the USA

Batteries, battery management software, converters, system-level controls, enclosures...

Integrates NFPA 855 fire safety requirements

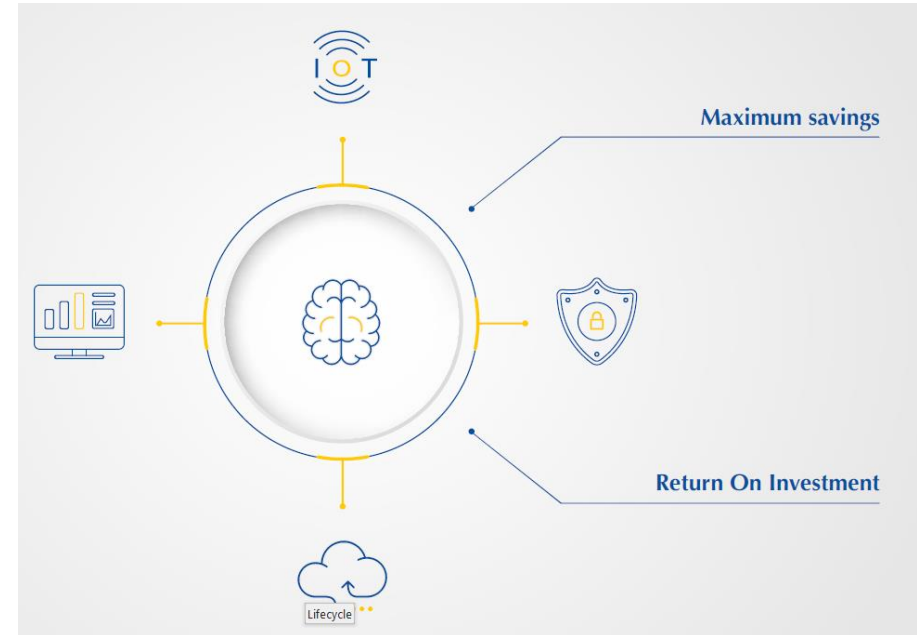
Latest standard requires Large Scale Fire Test

# Multi-function management

## Maximize the system Return On Investment



- One system for several applications
  - > On-Grid operation
  - > Off-Grid operation enabling resiliency operations
- Specific Islanding Mode operations
  - > Blackstart management capability
  - > Automatic transitions between on-grid and off-grid
  - > PV integration
  - > Optional microgrid upgrades



# Revenue streams stacking



Demand Charge Management



PV Self-consumption



Resilience

# Lifecycle



# Support the customer during all the project lifecycle

## A proven process to support customer's projects



Based on our experience and Battery Energy Storage achievements, Socomec has designed a process to support customer projects.

- 1 Pre sales support
  - Analysis of customer requirements.
  - Pre-technical design.
  - Quotation of the technical solution.
- 2 Project design and realization
  - Allocation of a project manager to lead the project.
  - Design of the complete solution by co-engineering with the customer.
  - Production and procurement of all equipment
- 3 Tests and commissioning
  - Factory acceptance tests.
  - Site inspection.
  - Site acceptance tests and commissioning.
  - Documentation and customer training.
- 4 Operating and maintenance services
  - Troubleshooting, data management and reporting.
  - Periodic on-site inspections and preventive maintenance.
  - Warranty management.



## Custom Solutions

We are integrators of energy technology, we propose turnkey solutions with high add value for energy storage projects.

We propose a complete service from the design of the solution to the O&M activities.

Our customized solutions are built on advanced system architecture, considering both mechanical, electrical, electrochemical and thermal dimensions.

Whatever the configuration we propose, it has been tested and it's documented, to maximize people and good safety, system performance and lifetime

## Our workforce: a complementary set of profiles

### A wide range of skills

- Electro-mechanical engineers to design cutting-edge energy storage architectures
- Automation engineers to develop energy storage control systems
- Battery experts to provide advanced analysis for energy storage solution
- Dedicated customer resources to manage the project from design to commissioning
- Service experts to carry out the commissioning and to support customers for operation



Electrical



Mechanical



Thermal



Automation

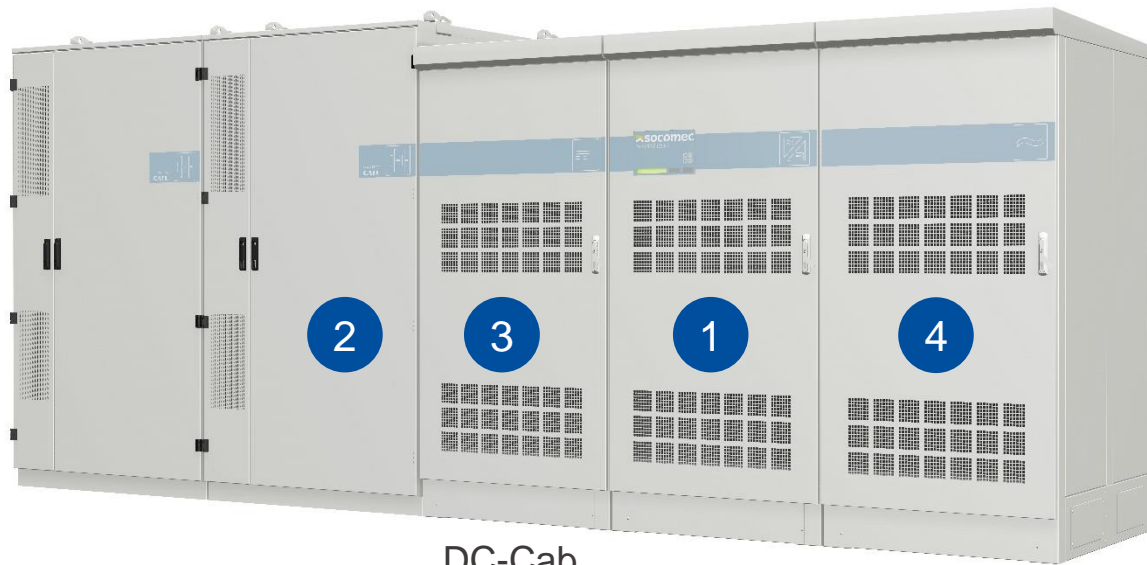


Battery  
technology



Communication  
& IOT

# 4 stackable cabinets to design your system



DC-Cab  
Distribution Cabinet

AC-Cab  
Distribution Cabinet



Document reference  
19 October 2021

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thank you **SO** much!