CIC energiGUNE

MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

SODIUM-ION batteries

Sustainable and Affordable Energy Storage

Powering a new era of energy storage

Why Sodium-ion?

While lithium remains dominant, sodium-ion technology emerges as a **sustainable and cost-effective alternative for specific applications**.

By replacing lithium with abundant and locally available sodium, we achieve:

- Comparable **performance** with **enhanced safety**
- **Lower production costs** through simpler processes
- **Greater sustainability** thanks to widely available raw materials

This technology opens new possibilities for stationary storage and light mobility, among others, where **cost, safety, and sustainability** are key drivers.

Our Value Proposition

Leaders in next-generation battery development

CIC energiGUNE is at the forefront of advanced battery research, developing breakthrough chemistries and materials that drive the future of sustainable energy storage — from solid-state and sodium-ion to other emerging technologies.

Bridging science and market implementation

Our multidisciplinary team works closely with industry and institutional stakeholders to transform research outcomes into scalable, high-impact energy solutions ready for real-world applications.

Complete va capabil

With state-of-the-a materials synthesis, performance va comprehensive exp battery devel

lue chain ilities

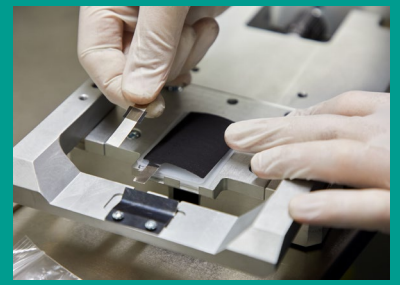
rt facilities covering cell prototyping, and lidation, we offer ertise across the full opment cycle.

MATERIALS ANALYSIS

Characterization of cathodes, anodes, and electrolytes to enhance electrochemical performance and thermal stability.

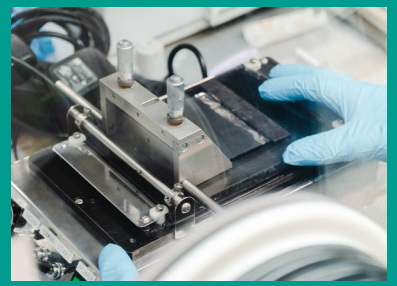
MECHANISTIC STUDIES

Advanced in situ / operando analysis using diffraction, spectroscopy, and electron microscopy.



CELL DESIGN & ASSEMBLY

Fabrication of Na-ion cells in lab and pre-industrial formats compatible with Li-ion production lines.

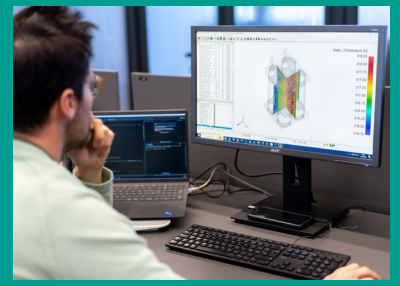


MATERIALS SYNTHESIS

Development of sodium-adapted compounds such as layered oxides, Prussian white, and porous hard carbons.

SAFETY & TESTING

Assessment of prototype cells for safety, lifetime, and energy efficiency under varied conditions.



MODELING & OPTIMIZATION

Electrochemical modeling to correlate material properties with real-cell behavior and performance.

What drives our research

OPTIMIZING SODIUM-ION CHEMISTRY

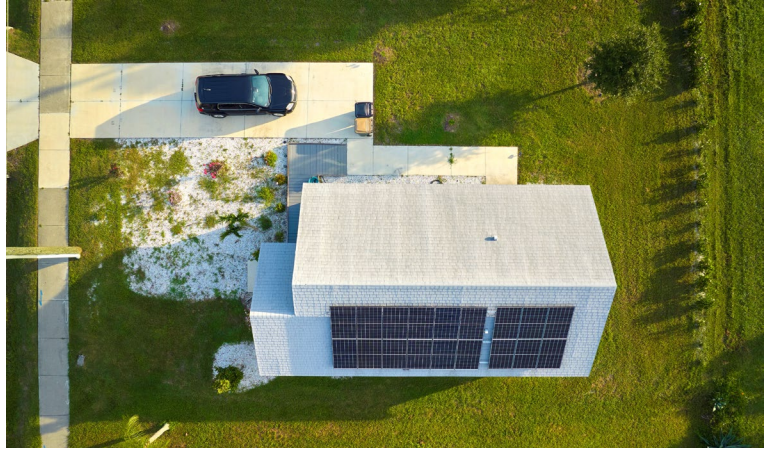
To achieve safe, long-lasting, and competitive batteries.

DEVELOPING COST-EFFICIENT MATERIALS AND PROCESSES

To lower production costs and enable local manufacturing.

VALIDATING CELLS AND COMPONENTS

To ensure seamless integration within existing Li-ion industrial lines.



Potential Applications

RESIDENTIAL AND GRID STORAGE

Reliable energy storage for decentralized and renewable-powered grids.

MICROMOBILITY

Efficient, lightweight, and affordable batteries for e-bikes and urban mobility.

SOLAR LIGHTING SYSTEMS

Autonomous and maintenance-free power for off-grid lighting and remote installations.

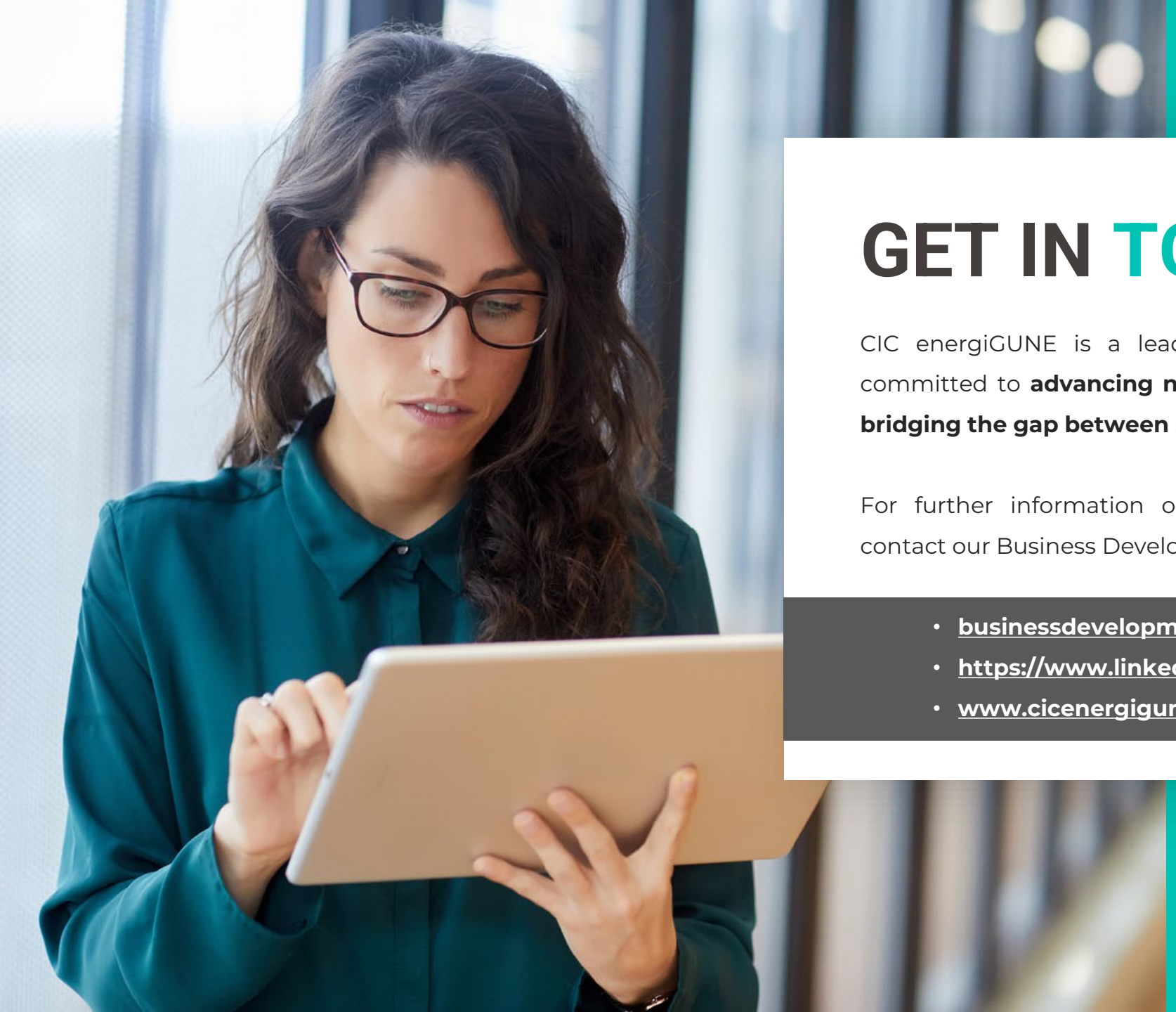
CONSUMER ELECTRONICS

Safe and sustainable power solutions for portable devices and low-cost electronic products.

A unique offer

At CIC energiGUNE, we believe that the best technologies are those capable of addressing the real challenges of the industry. That's why we enhance the value of our science through key activities that drive the development of strategic, sustainable, and scalable solutions.

- **Advisory on Na battery technology selection.**
- **Life Cycle Analysis & Levelized Cost of Storage.**
- **End-of-life models (SOH & SOC).**
- **Analysis of the degradation mechanisms .**
- **Commercial and technical-economic analysis of solutions.**
- **Accelerated prototyping of sodium battery cells for functional validation.**



GET IN TOUCH

CIC energiGUNE is a leading research centre in energy storage, committed to **advancing next-generation battery technologies and bridging the gap between science and industry**.

For further information on our sodium-ion developments, please contact our Business Development Department:

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THANK YOU