

Press Release

## CSEM OPENS SWITZERLAND'S FIRST DRY ROOM TO ACCELERATE NEXT-GENERATION BATTERY INNOVATION

### Key information:

- CSEM has inaugurated, a dry room unlike anything in the country, a start-of-the-art facility for assembling and prototyping cutting-edge batteries.
- Equipped with a pilot production line, this new infrastructure will play a crucial role in fast-tracking the commercialization of next-generation batteries.
- A dedicated section of the room is **reserved for start-ups and small- and medium sized businesses (SMEs)**, providing them with strategic opportunities while lowering the risk and costs of innovation.

**Neuchâtel, February 25, 2024 – CSEM, the Swiss technology innovation center, has announced the launch of the country's first dry room as part of its Battery Innovation Hub (BIH). This facility—unparalleled among Swiss research institutions and universities—is set to become operational in September 2025 and will be instrumental in advancing next-generation battery technologies toward industrial production. With an ultra-low dew point of  $-50^{\circ}\text{C}$ , the dry room provides the perfect environment for handling moisture-sensitive materials, such as lithium metal. It will also feature a pilot production line for assembling pouch cells—the battery type commonly used in smartphones and electric vehicles—bringing prototypes closer to industrial-scale formats.**

### A cutting-edge facility to accelerate innovation and time-to-market

A dry room is a controlled environment where humidity levels are kept extremely low—an essential requirement for working with the sensitive materials used in today's batteries and, most importantly, the batteries of tomorrow.

*"CSEM's dry room isn't just a technical upgrade—it's a key enabler for proving the industrial viability of the technologies developed within our Battery Innovation Hub,"* explains Andrea Ingenito co-director of the Battery Innovation Hub.

By maintaining strict humidity control, the facility allows researchers and engineers to rapidly test and iterate new technologies. Among the materials benefiting from this controlled setting is lithium metal, a crucial component for high-energy-density batteries of the future. With this optimized environment, CSEM's dry room will help refine these breakthrough technologies, ensuring they align with industry standards and accelerating their path to large-scale production and adoption.

CSEM is leveraging this scale-up of its groundbreaking prototypes to showcase its experts' unique expertise and reinforce the excellence of Swiss technology in a more concrete way. Covering 37 square meters, the dry room includes a pilot line for assembling A-sample pouch cells capable of delivering up to 5 ampere-hours (5Ah)—enough to power a 1-ampere device for five hours, or a 5-ampere device for one hour. Additionally, a 10-square-meter section is reserved for start-ups and small- and medium-sized enterprises (SMEs), providing them with direct access to high-tech infrastructure.

### A boost for Swiss start-ups and SMEs

By opening part of the dry room to start-ups and SMEs, CSEM is giving smaller companies an unprecedented opportunity to reduce the risks and costs associated with developing next-generation battery technology.

These companies, often limited by the high costs of accessing state-of-the-art infrastructure, will gain not only access to CSEM's advanced equipment but also its deep expertise in battery technology. This support will help them advance their innovations to higher technology readiness levels (TRL) and accelerate their journey toward industrialization. Andrea Ingenito explains:

*"Our goal is to strengthen Switzerland's industrial competitiveness while supporting start-ups and SMEs on their innovation journey. By pooling resources, we can help turn breakthrough ideas into industry-ready solutions."*

## Solid-state batteries: A Swiss-led revolution?

CSEM's Battery Innovation Hub focused materials and interfaces, leveraging decades of experience in photovoltaic coating technologies. The hub is also active in developing advanced battery management systems (BMS). *"Beyond enhancing battery performance, our ultimate goal is to develop smart, integrated energy storage solutions. By combining solid-state batteries, optimized battery management systems, and our recognized expertise in photovoltaics, we are poised to lead in creating more efficient and resilient energy infrastructures,"* explains Hutter, co-director at CSEM's Battery Innovation Hub.

Solid-state lithium-metal batteries are poised to transform the electric vehicle (EV) market, offering higher energy density, lower costs, faster charging times, and improved safety by eliminating fire risks. However, their production remains challenging due to the complexity of manufacturing and handling lithium metal anodes. CSEM's new dry room will play a key role in developing scalable processes to overcome these obstacles and bring these next-generation batteries closer to commercialization.

Moreover, these batteries will have applications in numerous fields, ranging from biomedical devices to space applications. This ambitious initiative is supported by key financial partners, including the Neuchâtel Cantonal Bank (BCN), the Cantonal Energy Fund, the Service of Energy and Environment for the Canton of Neuchâtel (SENE), and the Vitale Energy Fund, along with contributions from several industrial partners.

### Additional information

#### CSEM

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### About CSEM – Promoting sustainable innovation in batteries

CSEM is a public-private, non-profit, Swiss technology innovation center, known for developing next-generation technologies with the potential to transform and improve people's lives. Our mission is to transfer these innovations to industries to bolster the economy. Within CSEM's Sustainable Energy center, the Battery Innovation Hub is a pioneer in revolutionizing batteries for a sustainable future. Our comprehensive range of services includes design, development, optimization, and characterization of batteries. We specialize in the development of materials for lithium-ion and solid-state batteries and in creating battery management systems based on electrochemical impedance spectroscopy (EIS). At CSEM, we actively meet the key challenges of battery technologies. By facing these obstacles directly, we play an essential role in the transition to a cleaner-energy future. [Find out more.](#)

