NEWS RELEASE

GENESIS Project Launches to Lead Europe's Transition To Sustainable Semiconductor Manufacturing

58 Partners Charged with Implementing Cutting-Edge Solutions
For Emission Control, Materials Innovation, Waste Reduction, & Raw Material Reuse

GRENOBLE, France – June 6, 2025 – A pan-European consortium dedicated to developing sustainable processes and technologies for the semiconductor-manufacturing industry today announced the launch of the GENESIS project. This integrated, large-scale initiative aims to enable Europe's chip industry to meet its sustainability goals—from materials development to final waste treatment.

Coordinated by CEA-Leti, the three-year project brings together 58 partners spanning the entire European semiconductor value chain, from large enterprises and SMEs to research institutes, universities, and industry associations. GENESIS will drive innovative solutions in emission control, eco-friendly materials such as alternatives to PFAS-based ones, waste minimization, and raw material reuse, directly aligned with the European Green Deal and European Chips Act.

"GENESIS is designed to address the complex challenges of building a truly sustainable semiconductor ecosystem," said Laurent Pain, Sustainable Electronics Program director at CEA-Leti**.** "Its structure reflects both the urgency and the opportunity of Europe's green transition, powered by the complementary expertise and close collaboration of its partners."

45 Sustainability Innovations Driven by Four Strategic Pillars

Pain, manager of the project, noted that the team expects to deliver approximately 45 sustainability-driven innovations covering the semiconductor lifecycle, guided by **four strategic pillars** that form the technological foundation of GENESIS's vision for a green European semiconductor industry:

- Pillar 1 – Monitoring & Sensing**:** Real-time emissions tracking, traceability, and process feedback systems,
- Pillar 2 – New Materials: PFAS-free chemistries and low-GWP alternatives for advanced semiconductor processes,
- Pillar 3 – Waste Minimization: Innovations in recycling (solvent, gas, slurries), reuse, and sustainable replacements, and
- Pillar 4 – Critical Raw Materials Mitigation: Strategies to reduce dependency on CRM and strengthen resource security.

Complimenting these pillars, the project's objectives establish an overall framework that includes deploying sensor-integrated abatement systems to reduce PFAS and GHG emissions. It also aims to position Europe as a leader in green semiconductor innovation by aligning supply-chain practices with environmental regulations.

A Green Fit for Europe's Chips Agenda

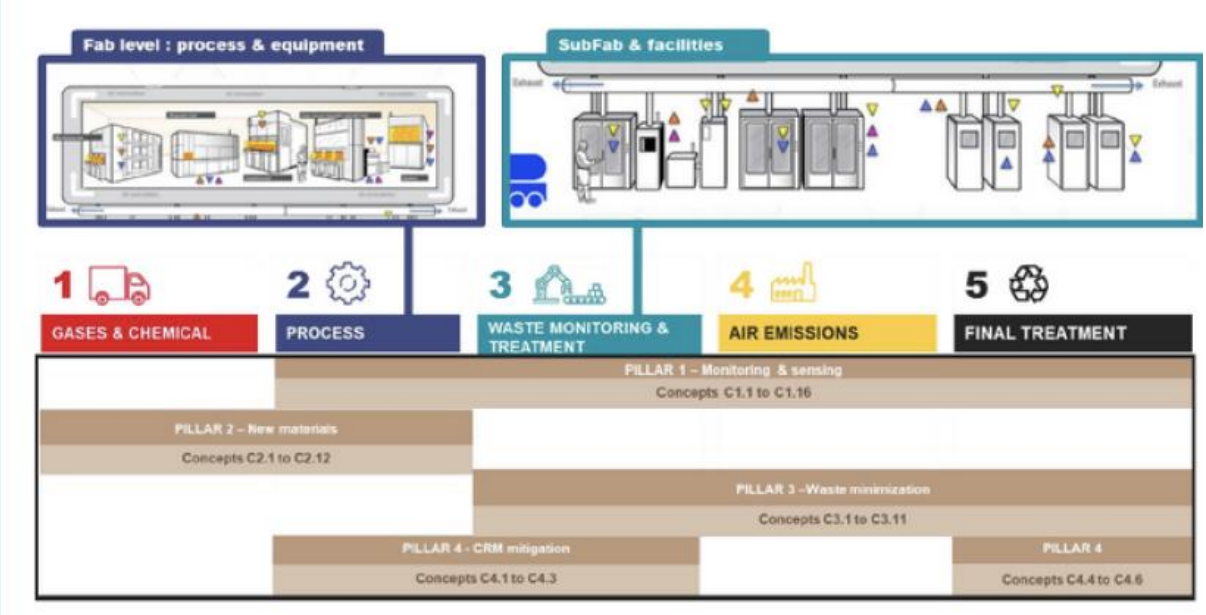
"The launch of the GENESIS project marks a critical step toward aligning Europe's semiconductor ambitions with its climate commitments," said Anton Chichkov, head of programs at Chips Joint Undertaking (Chips

JU), a public-private partnership created to bolster Europe's semiconductor industry by fostering collaboration between the EU, member states, and the private sector.

“As chips become the backbone of everything from AI to energy systems, their environmental footprint is rapidly growing,” he said. “GENESIS responds to this urgent challenge by pioneering sustainable alternatives in materials, waste reduction, and resource efficiency. Through this initiative, Europe is not only investing in cleaner technologies—it’s positioning itself as a global leader in green semiconductor manufacturing.”

With a budget of close to €55 million, the GENESIS project is co-funded through the Chips Joint Undertaking by the European Commission, participating EU member states, and the Swiss State Secretariat for Education, Research and Innovation (SERI).

The Five Critical Stages in Chip-Making Lifecycle Addressed by GENESIS



The GENESIS integrated roadmap outlines five critical stages in the semiconductor manufacturing lifecycle—materials (PFAS-free alternatives & gases and chemicals, processes, waste monitoring & treatments, air emissions, and final treatments—where environmental impact can be minimized. This structured approach guides the project’s efforts to reduce emissions, eliminate harmful substances, and enable material recovery through innovation in sensing, materials, waste reduction, and raw material reuse.

About GENESIS

GENESIS (GENErate a Sustainable Industry for Semiconductors) is a pan-European project co-funded by the EU, Chips JU, Member States, and the Swiss State Secretariat for Education, Research and Innovation (SERI). Coordinated by CEA-Leti, it includes 58 partners from across Europe, focused on leading semiconductor manufacturing into a circular economy model, which aims to minimize waste and maximize resource reuse, and a low-impact, innovation-driven industry. https://www.genesiseu.eu/

About CEA-Leti (France)

CEA-Leti, a technology research institute at CEA, is a global leader in miniaturization technologies enabling smart, energy-efficient and secure solutions for industry. Founded in 1967, CEA-Leti pioneers micro-& nanotechnologies,

tailoring differentiating applicative solutions for global companies, SMEs and startups. CEA-Leti tackles critical challenges in healthcare, energy and digital migration. From sensors to data processing and computing solutions, CEA-Leti's multidisciplinary teams deliver solid expertise, leveraging world-class pre-industrialization facilities. With a staff of more than 2,000 talents, a portfolio of 3,200 patents, 11,000 sq. meters of cleanroom space and a clear IP policy, the institute is based in Grenoble, France, and has offices in Silicon Valley, Brussels, Tokyo, Taipei, Taiwan, and Seoul, South Korea. CEA-Leti has launched 80 startups and is a member of the Carnot Institutes network. Follow us on www.leti-cea.com and @CEA_Leti.

Technological expertise
CEA has a key role in transferring scientific knowledge and innovation from research to industry. This high-level technological research is carried out in particular in electronic and integrated systems, from microscale to nanoscale. It has a wide range of industrial applications in the fields of transport, health, safety and telecommunications, contributing to the creation of high-quality and competitive products.

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