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European Union Launches €55 Million GENESIS Project to Drive Semiconductor Industry Sustainability

June 7, 2025

The European Union today announced the launch of GENESIS (Generate a Sustainable Industry for Semiconductors), a groundbreaking €55 million project aimed at significantly improving the environmental footprint of the European semiconductor sector. This three-year initiative, spearheaded by French research institute CEA-Leti, unites 58 partners from across the European chip ecosystem, encompassing major corporations, small and medium-sized enterprises (SMEs), research and technology organizations, universities, and industry associations.

The GENESIS project is strategically designed to address the entire lifecycle of semiconductor manufacturing, from raw material sourcing to waste management, through the development of sustainable, circular, and lower-impact processes. This launch is particularly timely as Europe strives to enhance its domestic semiconductor production under the European Chips Act, a multi-billion-euro industrial policy program focused on bolstering supply chain resilience and technological sovereignty, while simultaneously adhering to the ambitious environmental targets set forth in the European Green Deal.

Laurent Pain, Sustainable Electronics Programme Director at CEA-Leti, commented, “GENESIS is engineered to tackle the multifaceted challenges inherent in constructing a truly sustainable semiconductor ecosystem. Its comprehensive structure reflects both the urgency and the immense opportunity presented by Europe’s green transition, powered by the synergistic expertise and close collaboration of its diverse partners.”

This initiative is a critical component of the EU's broader objective to double its global semiconductor market share by 2030. Anton Chichkov, Head of Programmes at the Chips Joint Undertaking (Chips JU), the EU-backed public-private partnership co-funding the project, emphasized, "The commencement of the GENESIS project marks a pivotal step toward aligning Europe's semiconductor ambitions with its crucial climate commitments. As semiconductors become increasingly integral to technologies ranging from artificial intelligence to energy systems, their environmental impact is growing rapidly. GENESIS directly addresses this urgent challenge by pioneering sustainable alternatives across materials, waste reduction, and resource efficiency."

The GENESIS project receives co-financing from the European Commission, participating EU member states, and the Swiss State Secretariat for Education, Research and Innovation (SERI) through the Chips JU framework. A key focus area of the project is the development of PFAS-free alternatives, in response to rising global scrutiny over the environmental and health risks associated with per- and polyfluoroalkyl substances extensively used in semiconductor manufacturing. GENESIS aims to deliver viable, industrial-scale substitutes to reduce dependency on these persistent chemicals. Additionally, the project will integrate advanced sensor-based abatement systems for real-time emission control, targeting a significant reduction in greenhouse gas emissions during manufacturing processes.