COMMUNIQUÉ DE PRESSE

13 novembre 2026

Le projet EHEAT est une initiative innovante qui s'attaque à l'un des défis les plus complexes de la décarbonation en Europe : la production de chaleur à haute température au sein des industries énergivores. L'objectif : une réduction des émissions de CO2 de 90 à 95 %.

Lancé le 1er juin 2026, le projet EHEAT* est soutenu et cofinancé par l'Union Européenne. Il réunit un consortium de 15 partenaires européens, coordonné par la Fundación Tecnalia Research & Innovation. Doté d'un budget de 11 millions d'euros, ce projet vise à électrifier les procédés industriels nécessitant de la chaleur à haute température. Il propose ainsi une solution pour éliminer les brûleurs fonctionnant aux combustibles fossiles et accélérer l'adoption de technologies « zéro émission nette » dans les secteurs industriels européens à forte intensité énergétique.

** EHEAT: Electric HEATing systems for decarbonization in the aluminium, steel, and cement industries*

Le défi européen

Le chauffage des procédés industriels constitue le principal poste de consommation énergétique du secteur industriel ; il représente 47 % de la demande en énergie de l'industrie dans l'UE et environ les trois quarts des émissions de CO_2 générées directement par l'industrie en 2018. Près de 75 % de cette énergie provient de la combustion de combustibles fossiles, principalement le gaz naturel, tandis que l'électricité ne représente qu'environ 4 % du total.

Les industries européennes énergivores ont un besoin urgent de technologies d'électrification de grande puissance, capables d'atteindre de manière fiable des températures comprises entre 900 et 1 250 °C, et pouvant être intégrées aux fours existants tout en limitant les investissements nécessaires.

L'ambition d'EHEAT

EHEAT relève ce défi en proposant une solution modulaire, certifiable et économiquement viable pour électrifier des fours jusqu'à environ 1 250 °C, grâce à une plateforme d'électrification prête à être adaptée, qui associe le chauffage par micro-ondes à la recirculation des fumées.
Il en résulte un chauffage rapide, uniforme et sans contact, offrant une récupération d'énergie élevée et des émissions minimales ; une solution déployable dans les fours existants sans nécessiter de reconstructions lourdes ou perturbatrices.

Solution et approche d'EHEAT

EHEAT concevra des modules micro-ondes, des systèmes de recirculation des gaz de combustion et des réfractaires compatibles micro-ondes ; qualifiera les capteurs et les commandes et les intégrera dans des projets pilotes avant des démonstrations industrielles (TRL7) dans trois secteurs : l'aluminium (fusion/maintien au chaud), la production d'argile calcinée pour le ciment et le réchauffage/traitement thermique de l'acier. Les démonstrateurs fonctionneront à des débits pertinents pour la production, visant une uniformité de température rigoureuse et une réduction des émissions de CO_2 de 90 à 95 %

par rapport aux procédés utilisant des énergies fossiles, tout en préservant la qualité des produits et la disponibilité de la production.

Afin d'accélérer la réplication, EHEAT fournira des interfaces normalisées (mécaniques, de compatibilité électromagnétique et de données), des procédures opérationnelles standardisées ainsi que des programmes de formation destinés aux opérateurs. Le projet proposera également des dossiers complets incluant des analyses du cycle de vie, des analyses des coûts sur le cycle de vie, des évaluations technico-économiques, ainsi qu'une méthodologie pour quantifier les émissions de gaz à effet de serre évitées.

EHEAT élabore ainsi un modèle reproductible et extensible pour une production de chaleur à émissions quasi nulles dans les secteurs de l'aluminium, du ciment et de l'acier — un modèle aisément transposable à des procédés industriels connexes — tout en accélérant la transition de l'Europe vers une industrie climatiquement neutre.

Ce projet, d'une durée de 4 ans, poursuit donc 5 objectifs :

1. **Concevoir** un système de chauffage hybride hautement performant combinant le chauffage par micro-ondes des gaz de combustion et une alimentation auxiliaire au gaz naturel.

2. **Intégrer et valider** ce système de chauffage hybride dans le cadre de projets pilotes avant de passer à la démonstration industrielle dans trois secteurs : l'aluminium (fusion/maintien en température), la production d'argile calcinée pour le ciment, et le réchauffage ou traitement thermique de l'acier.

3. **Développer** une infrastructure numérique et de contrôle interopérable, sécurisée et certifiable pour le système de chauffage hybride EHEAT.

4. **Démontrer** la viabilité économique et environnementale de la solution EHEAT.

5. **Faciliter** la réplication du projet en élaborant et en testant des procédures opérationnelles normalisées, des protocoles de sécurité, des modules de formation ainsi que des guides d'intégration.

Calendrier du projet

2026 – 2027 : Analyse et définition des exigences système : établir les bases techniques, opérationnelles et réglementaires qui orientent la R&D et permettent la réalisation de projets pilotes ou de démonstrations.

2026 – 2028 : R&D et essais du système hybride et du système de recirculation des gaz de combustion.

2027 – 2028 : Intégration de procédés, validation et études pilotes : campagnes d'essais et intégration des systèmes développés dans des lignes pilotes (représentatives des secteurs de l'aluminium, du ciment et de l'acier).

2028 – 2030 : Démonstration à l'échelle industrielle : intégration des systèmes développés dans les lignes de démonstration à l'échelle industrielle.

2026 – 2030 : Évaluation de la sécurité et des impacts afin de faciliter la réplication.

En savoir plus sur EHEAT : eheat-project.eu - contact@eheat-project.eu

À propos de nos partenaires

Fundacion Tecnalia Research & Innovation

TECNALIA is the largest applied research and technological development centre in Spain, a European benchmark and member of the Basque Research and Technology Alliance. Its mission is to transform technological research into prosperity, and its vision is to anticipate the future as the leading agent of transformation in companies and society, adapting them to the challenges of an ever faster evolving world. Our scopes of action are aligned with the Sustainable Development Goals (SDG). With a multi-sectoral and multi-technological perspective, we listen and work with companies to respond to the major global challenges. Our Open Innovation strategy arises from the collaboration with external stakeholders in a structured, planned and R&D prioritised way in order to have more resources, talent, infrastructure and/or complementary technological expertise. In short, seeking co-development to innovate faster and more effectively and have a greater impact on the market. https://www.tecnalia.com/en

BluEnergy Revolution (BER)

BluEnergy Revolution (BER) is an Italian engineering company specialized in developing and integrating innovative thermal energy solutions for industrial applications. The company focuses on electrification technologies, hydrogen energy systems, energy efficiency, renewable energy integration, and decarbonization strategies supporting the transition to sustainable industry. BER has strong expertise in green hydrogen and Power-to-X solutions, contributing to the development, integration, and deployment of hydrogen technologies for industrial decarbonization and clean energy applications. The company provides capabilities in system design, project management, technology validation, and implementation of advanced energy solutions, collaborating with industrial partners, research organizations, and technology providers across Europe. Through participation in international R&D projects, BER supports low-carbon industrial processes, hydrogen value chains, and the acceleration of the clean energy transition. https://bluenergyrevolution.com/en/

Capenergies

The Capenergies competitiveness cluster facilitates the emergence of innovative projects and supports their financing and development to accelerate the Energy Transition in the territories. It runs a dynamic network of nearly 500 members – large industrial groups, companies including a majority of SMEs & start-ups, research and training centers, communities and financiers specializing in energy and associated uses. It intervenes for the benefit of low-carbon energy sectors and its established members in Provence-Alpes-Côte d'Azur, Corsica, Guadeloupe as well as in the Principality of Monaco. https://www.capenergies.fr/en/

Fraunhofer ISC

Fraunhofer ISC is one of the leading research institutions for sustainable, chemistry-based material solutions. Building on more than 100 years of expertise in materials research, the institute develops resource-efficient technologies for industries including energy, environment, mobility, electronics and aerospace. Digitalization, automation, simulation and machine learning are key enablers for accelerating innovation and technology transfer. The Fraunhofer Center for High Temperature Materials and Design HTL, part of Fraunhofer ISC, specializes in energy-efficient thermal processes, advanced ceramics and ceramic matrix composites (CMCs). HTL covers the entire value chain from material and component design to prototyping, manufacturing and testing. Using integrated computational materials engineering, digital twins and advanced measurement technologies, HTL develops innovative materials, components, furnace systems and thermal processes that contribute to industrial competitiveness and climate protection. https://www.isc.fraunhofer.de/

GHI Smart Furnaces

Founded in 1937 in Galdakao (Basque Country), **GHI Smart Furnaces** is a family-owned company with almost 90 years of experience in industrial furnaces. A leader in the aluminium market, GHI designs, engineers, manufactures and commissions industrial furnaces and auxiliary equipment for aluminium melting and heat treatment. GHI's strategy is based on three main pillars which serve as the focus for the company R&D development: Recycle, decarbonize and digitalize. The objective is to be able to develop more efficient and sustainable furnaces and equipment, reducing energy consumption, lowering emissions and optimizing the process control of our customers. Within this project, GHI contributes its know-how and its ability to validate new developments under real industrial conditions. https://www.ghifurnaces.com/

Industrias R.Jimenez – S.A

INDUSTRIAS R. JIMENEZ, S.A., is a privately held company specializing in die casting and machining of aluminum alloys, and serves as a cornerstone of the GEISPEN GROUP, to which it belongs. Located in Valencia, Spain, with more than 50 years of history and the experience of having successfully completed over 1,500 projects involving the industrial production of HPDC parts, we have the best technicians and facilities to undertake any project involving the manufacture or improvement of die-cast aluminum parts. We manufacture all types of parts with complex geometries and high technical requirements, specializing in the production of safety components for gas and automotive applications, with weights ranging from 0.5 g to 1,000 g.

Committed to sustainability, we are certified under the UNE-EN ISO 14001:2026 standard, and we are actively engaged in various improvement projects to ensure our operations are environmentally responsible. https://www.geispen.com/

Kalfrisa

Kalfrisa is a Spanish engineering company with over 60 years of experience developing thermal solutions for industrial processes. Our activity covers heat recovery, industrial heaters, emissions treatment, waste-to-energy solutions, and cremation technologies through eticK. We provide

comprehensive support throughout the project lifecycle, from engineering and manufacturing to installation, commissioning, and technical service. With an international presence, including offices and manufacturing facilities, as well as projects and equipment installed worldwide, Kalfrisa combines engineering expertise, in-house manufacturing capabilities and extensive industrial experience to deliver solutions adapted to the specific operating conditions of each facility. Today, Kalfrisa Group continues to develop technologies focused on energy efficiency, emissions reduction and the decarbonization of industrial processes. https://www.kalfrisa.com/en/

Limak Cement

As a subsidiary of Limak Holding, Limak Cement has been operating in the cement industry since 2000. With 11 cement plants, 31 ready-mixed concrete plants, 8 sub-brands and more than 2,000 employees, the company continues to strengthen its position in the sector. Guided by a robust decarbonisation roadmap, Limak Cement adopts Best Available Techniques (BAT) and advances sustainable cement production through innovative and cutting-edge technologies. Through its R&D and Innovation Center, Limak Cement focuses on low-carbon cement, alternative raw materials and fuels, energy and resource efficiency, electrification, hydrogen technologies, carbon capture and digitalisation. Its activities span the entire innovation cycle, from laboratory research and process modelling to pilot-scale testing and industrial demonstration. Limak Cement actively participates in national and European R&D programmes, including Horizon Europe, collaborating with universities, research institutes and technology providers to accelerate the transition towards climate-neutral cement production. https://www.limakcimento.com/en

Microwave Industrial Solutions (MIS)

Microwave Industrial Solutions (MIS) is a consulting, support, and training company specializing in industrial technologies that utilize microwaves and radio frequency. With 40 years of international experience, the company helps businesses identify, design, and optimize processes tailored to their production and innovation challenges. Its expertise includes drying, heating, extraction, pasteurization, sterilization, and laboratory or R&D applications. MIS works with organizations seeking to improve the efficiency of their processes while exploring advanced technological solutions in fields as diverse as the food industry, chemistry, plasma technology, and more. It also provides expertise in analyzing and identifying opportunities to improve existing microwave and radio frequency production lines. http://www.microwave-industrial-solutions.com/

Microwave Technology Consulting (MTC)

Microwave Technology Consulting (MTC) specialises in advanced research, process development, and equipment design using microwave and RF heating and plasma technologies. MTC develops high performance, microwave enabled processes for biotechnology, food technology, nanomaterials, medical technology, and the chemical and pharmaceutical sectors. Its core mission is to deliver customer specific industrial solutions that generate demonstrable technical, environmental, and economic benefits. Leveraging deep expertise in microwave–matter interactions and robust engineering know how, MTC supports clients from concept development to full implementation,

ensuring reliable, scalable, and energy efficient processes tailored to industrial requirements. https://www.microwavetechs.com/

RINA Consulting

RINA Consulting is the engineering consultancy company of the RINA Group, providing multidisciplinary services throughout the entire project lifecycle, from feasibility studies and technical assessments to design, prototyping, testing, project management, site engineering, and operation & maintenance support. Acting as a trusted technical partner, RINA Consulting supports clients across a wide range of sectors, including energy, transport, infrastructure, manufacturing, advanced materials, and sustainability. Leveraging strong innovation capabilities and extensive experience in European research and innovation programmes, RINA Consulting contributes to the development and deployment of cutting-edge technologies, products, and processes that accelerate industrial competitiveness and the transition towards a more sustainable future.

RINA Centro Sviluppo Materiali (RINA-CSM)

RINA Consulting – Centro Sviluppo Materiali S.p.A. (in short RINA-CSM) is a fully private innovation centre with extensive experiences in the development and application of innovative processes and materials. Today RINA-CSM is part of RINA Group. Rina Group is a global provider of classification, certification, testing, inspection, engineering consulting and training services; Rina is a large international group with offices in 70 countries. Rina plays a dominant, high-impact role in EU-funded research and innovation, consistently positioning itself as a primary industrial participant and coordinator across major European framework initiatives. RINA-CSM is a leading centre for applied research founded in 1963 by Italy's major steel industry. RINA-CSM with a staff of over 260 talented researchers and technicians, 20 laboratories, pilot lines and full-scale testing facilities, is the partner of choice for any project in which materials, technology and innovation play a critical role. https://www.rina.org/en

TPM (Torre Pedrissa, S.L.)

TPM (Torre Pedrissa, S.L.) is a Spanish engineering company based in Catalonia, with more than 30 years of experience in microwave and radio-frequency solutions for industrial processes. We design and supply customised systems for B2B clients from any industry, with a particular focus on heating and drying processes that use electromagnetic energy. Examples of processes we have improved include industrial food thawing, drying of cork granulate, rubber vulcanisation and pyrolysis for bio gas. We have also taken part in many high-temperature heating studies, such as glass melting. We also work with and for technology centres and universities. Our strength is our closeness to the customer: we always look for the best solution for each need. We are strongly committed to projects that make industrial processes more sustainable and, in particular, help decarbonise industry. https://tpmicrowave.com/

Université libre de Bruxelles (ULB) – ATM Department

The Aero-Thermo-Mechanics (ATM) Department of the École polytechnique de Bruxelles at Université libre de Bruxelles (ULB) conducts research in aerodynamics, combustion, thermodynamics, applied

mechanics and energy systems. Combining experimental research, numerical simulations, and machine-learning techniques, ATM develops innovative solutions for complex thermal-fluid and energy challenges. Its research includes advanced combustion, hydrogen and e-fuels, heat networks, thermal-fluid measurements, data-driven modelling and industrial process modelling and control, with a strong focus on energy efficiency and decarbonisation. In EHEAT, ULB leads WP5 on the research and testing of sensors and control modules. Its work covers high-temperature, microwave-robust sensing, multiphysics modelling, numerical and experimental validation, digital twins, and model-predictive control, supporting the integration and optimisation of EHEAT technologies for industrial use. http://atm.ulb.ac.be/

VGT-DYKO

Ceramic fire-, heat-, break- and wear-resistant products of the highest quality. This is what VGT-DYKO GmbH stands for over 130 years. VGT-DYKO GmbH core competences include Industrial Refractories, Kiln Furniture, products for the Glass industry and Monolithics. Its dedicated team competently covers all areas from development to logistics. The company have continuously improved its processes in order to be able to offer the optimum of refractory ceramic production today. https://vgt-dyko.com/index_en.html

