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thyssenkrupp wins engineering contract for one of the largest carbon capture projects in Europe

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thyssenkrupp and TITAN Group signed in the Greek capital Athens a Front-End Engineering Design (FEED) contract for the Carbon Capture Project IFESTOS. IFESTOS is one of the largest carbon capture projects in Europe, enabling the production of zero-carbon cement and concrete. The signing ceremony was attended by Marcel Cobuz, Chairman of TITAN Group Executive Committee, Samir Cairae, Chief Technology Officer of TITAN Group, Leonidas Canellopoulos, Chief Sustainability and Innovation Officer of TITAN Group, Dr. Cetin Nazikkol, Chief Strategy Officer at thyssenkrupp Decarbon Technologies and Christian Myland, CEO thyssenkrupp Polysius. The engineering contract provides for thyssenkrupp to design and equip the two kiln lines of the Kamari cement plant with oxyfuel systems for CO₂ capture. This technology will enable the plant's CO₂ emissions to be reduced almost completely. The plant is scheduled to go into full operation at the end of 2029.

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Dr. Cetin Nazikkol, Chief Strategy Officer at thyssenkrupp Decarbon Technologies

Dr. Cetin Nazikkol, Chief Strategy Officer at thyssenkrupp Decarbon Technologies: "With the oxyfuel technology we have developed, around 1.9 million tons of CO₂ can be captured annually at the Kamari plant alone. This corresponds to around twelve percent of all greenhouse gas emissions from Greek industry. We are thus making a significant contribution to one of the largest CO₂ capture projects in Europe."

The captured CO₂ is then liquefied and transported to a permanent storage site in the Mediterranean region. This makes thyssenkrupp's technology the starting point for the development of important CCS value chains in southern Europe.

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Christian Myland, CEO of thyssenkrupp Polysius: "For our customer TITAN Group, we will be using the latest CO₂ separation technology. We will design and equip the first kiln line with the proven oxyfuel technology. When modernizing the second kiln line, the latest generation of this technology will be used with the Pure Oxyfuel system. Overall, this will enable us to capture almost 100 percent of CO₂ emissions."

Cement is the world's most important building materials. However, global cement production is also responsible for around seven percent of global CO₂ emissions. A switch to climate-friendly processes is therefore unavoidable. With global annual cement production of more than four billion tons, there is still great growth potential for thyssenkrupp's CO₂ capture technologies. Equipment from thyssenkrupp is already installed or services are provided in around a third of all cement plants worldwide.

Marcel Cobuz, Chairman of TITAN Group Executive Committee, stated: "This partnership further advances our efforts to achieve net-zero emissions and produce zero-carbon cement. We are committed to driving meaningful decarbonization initiatives that align with our vision for a sustainable future. IFESTOS is a complex project and we are aligning multiple stakeholders across the value chain at fast pace. It is currently the largest carbon capture project in Europe and is expected to have a highly positive impact in advancing our sustainability targets and offering green cements as modern materials for infrastructure and housing."

Samir Cairae, Chief Technology Officer of TITAN Group, stated: "TITAN is harnessing cutting-edge carbon capture technologies in collaboration with global leaders who share our commitment to green innovation. The agreement with our partners on conducting this particular FEED study on oxyfuel technology is the next step in the technical implementation of the IFESTOS project and establishes that we are moving systematically closer to our target. We are proud to be at the forefront of our industry's technological transition to a more sustainable future."

Innovative process for CO₂ enrichment enables CO₂ capture

The basic principle of the "pure oxyfuel" technology developed by thyssenkrupp Polysius is to separate the CO₂ produced in a kiln plant from the exhaust gases of cement factories and thus prevent it from being released into the atmosphere. To achieve this, pure oxygen is used in the combustion process instead of ambient air. In combination with downstream treatment, almost 100 percent of CO₂ emissions from cement clinker production can be captured. The separated process gas is then treated to produce high-purity CO₂ and can then be used as a feedstock in the chemical industry or as a raw material in other industries, or alternatively stored.



The bottom line: The "pure oxyfuel" technology was developed by thyssenkrupp Polysius, one of four business units of thyssenkrupp Decarbon Technologies. In this segment, thyssenkrupp bundles key technologies and services for CO2 reduction for industrial customers. The product portfolio ranges from components and systems for wind energy, ammonia and ammonia cracker plants to large-scale hydrogen electrolysis technology and solutions for decarbonizing the cement and lime industries.
