Joint press release

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Press release by Siemens Energy and Technip Energies

Siemens Energy and Technip Energies announce joint development of decarbonized Rotating Olefins Cracker technology and selection by Cracker of the Future Consortium

- Rotating Olefins Cracker (ROC) technology will advance the global energy transition by decarbonizing olefin production processes
- Demonstration project selected by the Cracker of the Future Consortium (COF) of industry majors

Technip Energies and Siemens Energy announced an exclusive agreement to jointly develop, commercialize, and license the Rotating Olefins Cracker (ROC) technology to decarbonize olefin production processes. The ROC technology employs a dynamic reactor system that replaces conventional furnaces used for pyrolysis when manufacturing light olefins – the building blocks for chemical products used in everyday materials, from packaging to polymers.

The ROC technology offers driver flexibility, and when driven by electric-powered motors or hydrogen-fired gas turbines, the technology leads the path to decarbonize the process used to produce light olefins. The decarbonization impact is even more significant when the electric power or hydrogen fuel is derived from renewable sources. The ROC process, once fully commercialized, is

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also expected to have better first pass olefins yields with similar operating costs compared to the currently commercially available technologies.

The companies have already validated the fundamentals of the reactor technology in laboratory testing and intend for the first turbomachinery prototype to enter shop testing in the first half of 2022. Both companies bring specialized experience to commercializing this technology: Siemens Energy contributes its expertise in turbomachinery, while Technip Energies has extensive knowledge in pyrolysis cracking to produce light olefins and process integration.

As a significant milestone in the commercialization of this groundbreaking technology, today Technip Energies and Siemens Energy entered into a Memorandum of Understanding (MOU) with the Cracker of the Future Consortium (COF). The MOU expresses the intent of the parties to negotiate a contract to install a hydrocarbon demonstration unit utilizing the ROC technology in a plant operated by one of the COF members.

The COF comprises major industry players Borealis (member of the OMV Group), BP, Repsol, TotalEnergies SE, Versalis (Eni), and coordinator Brightlands Chemelot Campus. The COF selected the ROC technology after assessing many electricity-based heating technologies for olefin crackers.

“The ROC technology is a step-change in cracking technology that leads to a significant reduction in greenhouse gases when combined with clean energy sources,” said Stan Knez, Chief Technology Officer at Technip Energies. “This collaboration with Siemens Energy highlights our commitment to decarbonization, and we are delighted to have the ROC technology selected for the COF demonstration unit.”

“It is our ultimate goal to turn ideas into reality as we support our customers in transitioning to a more sustainable world,” said Thorbjörn Fors, Executive Vice President, Industrial Applications at

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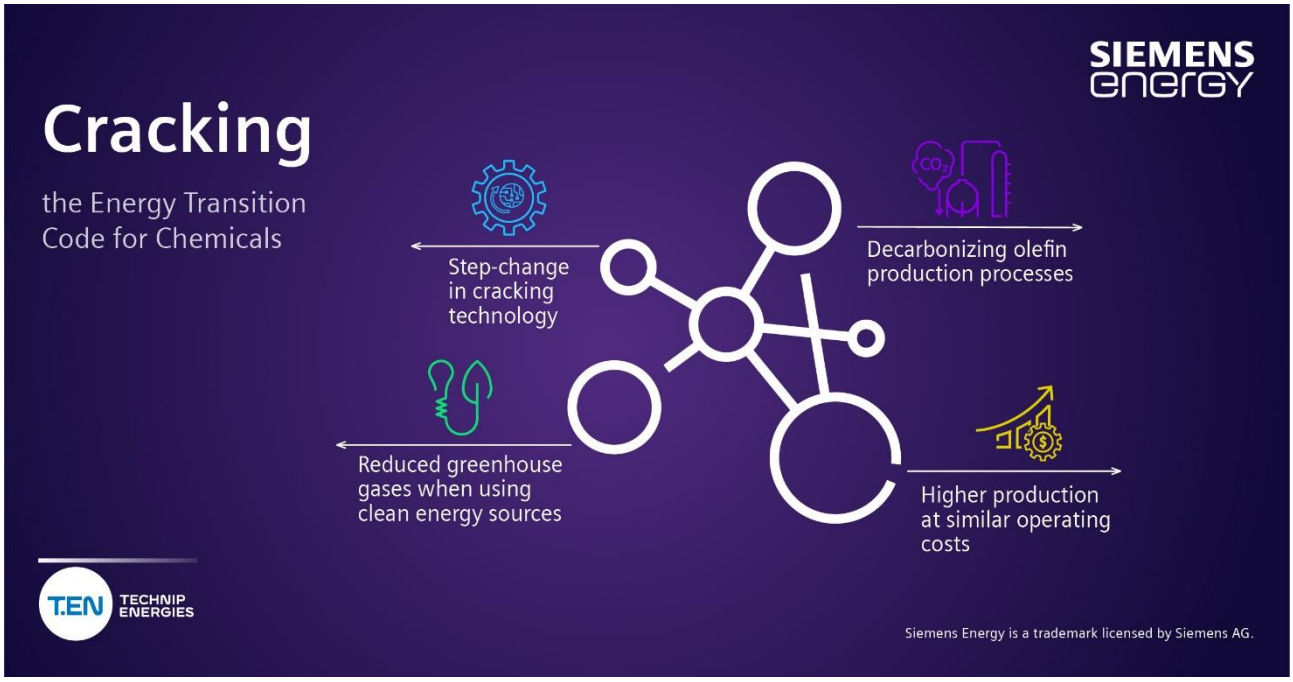
Siemens Energy. “Engaging directly with major operators in the Cracker of the Future Consortium is a great opportunity to materialize this objective. Furthermore, by working together with our partner Technip Energies, we are taking an important step towards driving decarbonization forward.”

“The ROC technology is a new paradigm in chemical process technology, as heating hydrocarbon molecules by converting the molecular kinetic energy into heat so that that thermal cracking can occur, has never been done before,” said Walter Vermeiren, Chair of the Cracker of the Future Consortium. “The Cracker of the Future Consortium is delighted to cooperate with Siemens Energy and Technip Energies on this unique opportunity.”



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Siemens Energy is one of the world's leading energy technology companies. The company works with its customers and partners on energy systems for the future, thus supporting the transition to a more sustainable world. With its portfolio of products, solutions and services, Siemens Energy covers almost the entire energy value chain – from power generation and transmission to storage. The portfolio includes conventional and renewable energy technology, such as gas and steam turbines, hybrid power plants operated with hydrogen, and power generators and transformers. More than 50 percent of the portfolio has already been decarbonized. A majority stake in the listed company Siemens Gamesa Renewable Energy (SGRE) makes Siemens Energy a global market leader for renewable energies. An estimated one-sixth of the electricity generated worldwide is based on technologies from Siemens Energy. Siemens Energy employs more than 90,000 people worldwide in more than 90 countries and generated revenue of around €27.5 billion in fiscal year 2020. www.siemens-energy.com.

Technip Energies Technip Energies is a leading Engineering & Technology company for the energy transition, with leadership positions in LNG, hydrogen and ethylene as well as growing market positions in blue and green hydrogen, sustainable chemistry and CO2 management. The company benefits from its robust project delivery model supported by extensive technology, products and services offering. Operating in 34 countries, our 15,000 people are fully committed to bringing our client's innovative projects to life, breaking boundaries to accelerate the energy transition for a better tomorrow. Technip Energies is listed on Euronext Paris with American depositary receipts ("ADRs"). For further information: www.technipenergies.com.

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