

Press release

Munich, June 23, 2021

Siemens Energy to electrify first-of-its-kind biorefinery in Germany

- The industrial-scale facility will produce green biochemicals without the use of fossil-based raw materials
- The biorefinery will be the first industrial-scale facility of its type ever built
- Siemens Energy will provide the entire electrification, automation, and digitalization (EAD) solution as well as deliver a complete digital twin

The Finnish company UPM-Kymmene selected Siemens Energy to supply electrification, automation, and digitalization (EAD) packages for a next-generation biorefinery currently under construction in Leuna, Germany.

The biorefinery will be the first industrial-scale facility of its type ever built. It will apply novel process innovations to sustainably convert 100 percent wood into bio-based mono-ethylene glycol (MEG), mono-propylene glycol (MPG) as well as renewable functional fillers (RFF). Both MEG, MPG as well as functional fillers have traditionally been produced using fossil-based raw materials. UPM will provide alternatives to considerably reduce the CO₂ footprint of end-products such as PET bottles, packaging materials, textiles, or rubber products used in various automotive applications. Siemens Energy's scope of supply for the project includes:

- **Electrification:** mill-wide medium- and low-voltage power distribution system and drive system (motor control center, variable speed drives, motors)
- **Automation:** Distributed control system (DCS) for multiple process areas and remote I/O cubicles (total of 9,000 process objects), including safety and ATEX functions for explosive atmospheres
- **Digitalization:** Complete digital twin for the entire plant, covering the mill's whole life cycle – from integrated engineering to integrated operation.

The Leuna Biorefinery will be a big step for UPM to expand its business into wood-based biomolecular products and solutions.

“We are confident that the bio-based mono-ethylene glycol, mono-propylene glycol, and renewable functional fillers made in Leuna will meet the strong demand of customers and end-users looking to change towards a truly sustainable portfolio,” said Juuso Konttinen, Vice President UPM Biochemicals. “By implementing Siemens Energy’s digitalization solutions and digital twin, we can help ensure safe and efficient operations.”

The biorefinery is scheduled for start-up in late 2022. When fully operational, it will have a total annual capacity of 220,000 tons.

“As a global leader in industrial decarbonization, we are proud to be selected as a trusted partner and facilitator for this groundbreaking project,” said Jennifer Hooper, Senior Vice President, Industrial Applications Solutions for Siemens Energy. “We look forward to helping UPM reduce the world’s reliance on chemicals produced from fossil fuels as we move toward creating a more sustainable world.”



Above: An example of a biorefinery similar to the one UPM-Kymmene is building in Leuna, Germany (*photo courtesy of UPM-Kymmene*).

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