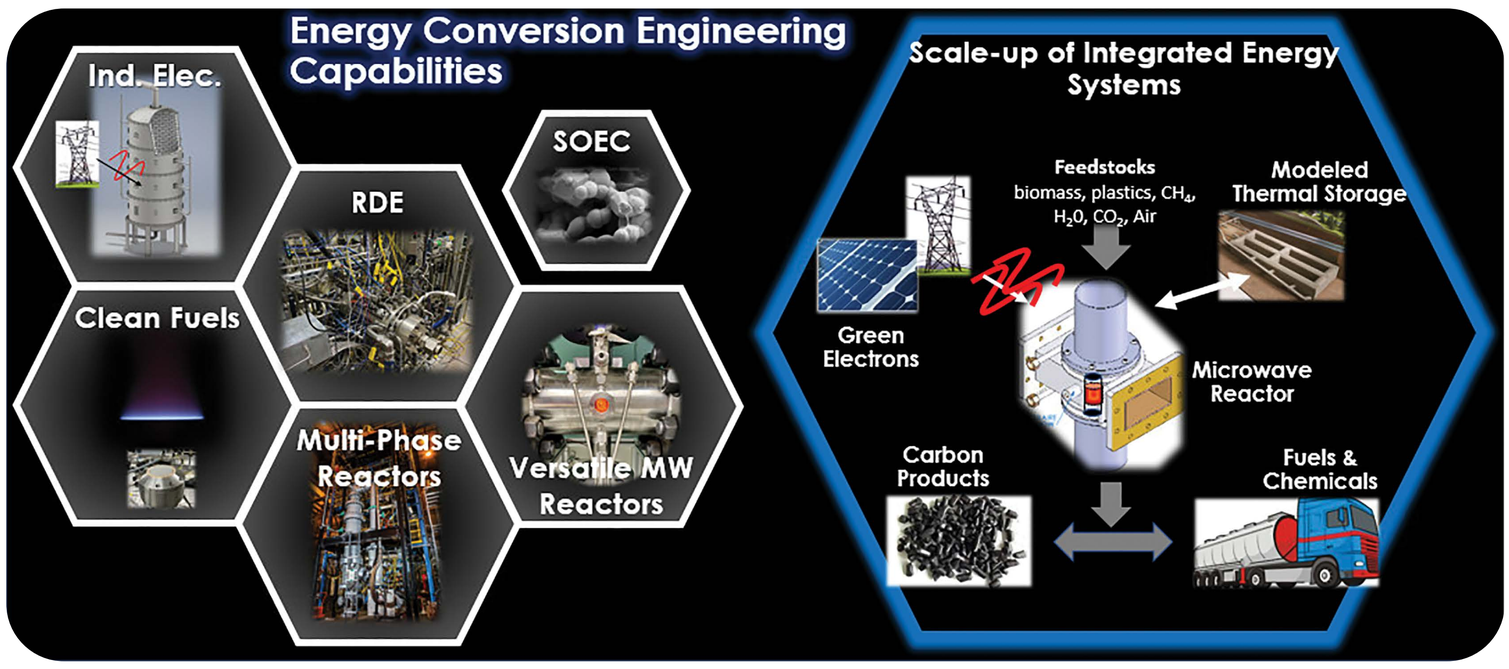
Energy Conversion Engineering Accelerates Development of Clean Energy Technologies

Providing mission-critical support to FECM and valued partners toward accelerated technology development and deployment.



Summary of the R&D capabilities of the Energy Conversion Engineering directorate.

Energy Conversion Engineering aims to reduce industrial CO_2 emissions by improving efficiency, advancing the use of clean fuels, converting CO_2 to useful products, and electrifying industry. Current efforts include—

- Efficiency and Clean Fuels: Supporting the transition to a hydrogen economy by investigating turbine H_2/NH_3 combustion performance and advanced technologies such as rotating detonation engines and solid oxide fuel and electrolysis cells.
- CO_2 Conversion and Industrial Electrification: Advancing CO_2 conversion and other reactor technology employing catalyst materials developed under Materials Engineering and Manufacturing and by others. Reactors using microwave power generated by renewable energy enable carbon-negative products (e.g., ammonia and ethylene) and can be used by industry to replace fossil-based processes.
- Technology Acceleration: Increasing development speed and lowering costs through a cyber-physical development approach (combining real-time component models with existing technology hardware) can help new technologies traverse the valley of death, reducing R&D timetables and saving millions of dollars.

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DOE Hydrogen & Fuel Cell Technologies Office (HFTO)

DOE Energy Efficiency & Renewable Energy (EERE)

DOE Geothermal Technologies Office (GTO)

DOE Advanced Manufacturing Office (AMO)

DOE Industrial Efficiency & Decarbonization Office (IEDO)

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