

# Combustion TCP Highlights

## Policy messages

- Worldwide, more than 80% of the energy used is converted by combustion to usable forms for transportation, power generation, and industrial, commercial, and residential heat. Combustion will continue to be a significant part of the world energy mix for the foreseeable future and needs to be made sustainable with continued technology advancements and fuel de-carbonization. Advanced combustion technologies offer pathways to zero carbon, carbon neutral, and reduced carbon emissions technologies for all the major energy sectors.

## Achievements / Ongoing Activities

- Three new tasks (annexes) were initiated in 2021: a) System Analysis, b) Hydrogen and Its Vector Fuels (HVF), and c) net-Zero Carbon Engine Technology (n-ZCET). The new tasks respond to needs to develop new technologies to reduce carbon emissions and provide policy guidance.
- Coupled fundamental advanced combustion research results to policy recommendations through vehicle level systems analysis. Demonstrated 20% fuel economy improvement over diesel in a US Class 6 delivery application with advanced combustion.

## Dissemination

- The project “Combining Low Temperature Combustion and Low Carbon E-fuels or Bio-fuels for Cleaner and More Efficient Transportation” was accepted for the “Today in the Lab, Tomorrow in Energy” initiative.

## Collaboration

- The Combustion TCP in collaboration with the AMF TCP, and the H2 TCP, have proposed a lifecycle analysis of hydrogen-fueled ICEs for the IEA GREET+ Extension Project.