

Advanced Hybrid Powertrains for Commercial Vehicles

Second Edition



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Advanced Hybrid Powertrains for Commercial Vehicles, 2E

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Book Description

Commercial vehicle manufacturing and operation is a major source of energy consumption globally, and in 2019, the United States consumed 20.3% of the global petroleum production. Hybrid powertrain technologies can reduce CO₂ and fuel consumption by up to 50% compared to the conventional internal combustion engine (ICE) powertrain.

Powertrains for commercial vehicles have evolved since the late nineteenth-century invention of the ICE. In the revised second edition of *Advanced Hybrid Powertrains for Commercial Vehicles*, the authors explore commercial powertrains through history, from the ICE through the introduction of the hybrid powertrain in commercial vehicles. Readers are given an understanding of the ICE as well as the classification of commercial vehicle hybrid powertrains, the variety of energy storage systems, fuel-cell hybrid powertrain systems, and commercial vehicle electrification.

The authors review the legislation of vehicle emissions and the regulation necessary to promote the production of fuel-efficient vehicles. Emission standards have become increasingly stringent since the passage of the Clean Air Act of 1963 in the United States. Future powertrain technologies for sustainable transportation will include fuel cell and fuel cell hybrid, hydraulic hybrid powertrain, multimodal transportation with intelligent transportation technologies, plug-in hybrid, range-extender electric vehicles, and pure electric vehicles. The future of commercial vehicles depends on the development and implementation of sustainable technologies, and the hybrid powertrain is the first step on this path.

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