

Abstract
Process Economics Report 231
FUELS FOR 21ST CENTURY VEHICLES
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Driven by pressures for very low vehicle emissions and very high fuel economy, automakers are spending billions of dollars to develop 21st century vehicles. Although traditional internal combustion engines (ICEs) powered by gasoline and diesel will remain the dominant vehicle power source for the foreseeable future, they will be joined by hybrid electric vehicles, fuel cell vehicles running on methanol or hydrogen, and ICE vehicles running on alternative fuels such as compressed natural gas or liquefied petroleum gas. These changes in fuels will have important consequences for the petroleum refining industry worldwide.

Cooperation and competition in the auto industry, spurred on by regulations such as the California zero emission vehicle (ZEV) mandates, have led to rapid technology advances. Many oil companies have joined in the infrastructure effort. Cleaner and more efficient conventional vehicles and fuels are also being developed. The technologies that ultimately win out will be determined as much by market factors like refueling availability and convenience, as by vehicle performance and economics.

The focus on air quality concerns will allow the current movement toward alternative fuels to be sustained, unlike previous efforts based on energy security, which died away when the price of oil dropped.

Because this report focuses on the current status and future direction of new transportation technologies, it will be of particular interest to petroleum refiners and producers of alternative fuels and vehicles.

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