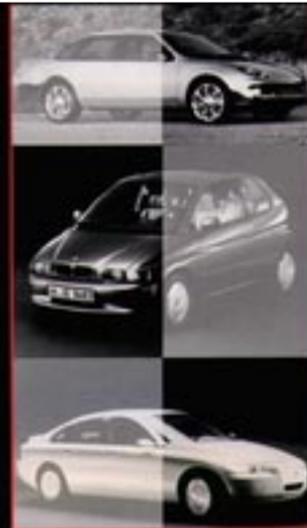


*Advanced Automotive Technology: Visions
of a Super-Efficient Family Car*

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**Advanced
Automotive
Technology**

*Visions of a super-efficient
family car*

Foreword

This report presents the results of the Office of Technology Assessment's analysis of the prospects for developing automobiles that offer significant improvements in fuel economy and reduced emissions over the longer term (out to the year 2015). The congressional request for this study—from the House Committees on Commerce and on Science, and the Senate Committees on Energy and Natural Resources and on Governmental Affairs—asked OTA to examine the potential for dramatic increases in light-duty vehicle fuel economy through the use of “breakthrough” technologies, and to assess the federal role in advancing the development and commercialization of these technologies.

The report examines the likely costs and performance of a range of technologies and vehicle types, and the U.S. and foreign research and development programs for these technologies and vehicles (to allow completion of this study before OTA closed its doors, issues such as infrastructure development and market development—critical to the successful commercialization of advanced vehicles—were not covered). In particular, the report presents a baseline forecast of vehicle progress in a business-as-usual environment, and then projects the costs and performance of “advanced conventional” vehicles that retain conventional drivetrains (internal combustion engine plus transmission); electric vehicles; hybrid vehicles that combine electric drivetrains with an engine or other power source; and fuel cell vehicles. OTA has focused on mass-market vehicles, particularly on the mid-size family car with performance comparable to those available to consumers today. Based on our analysis, OTA is quite optimistic that very high levels of fuel economy—up to three times current averages—are *technically* achievable by 2015; attaining these levels at a commercially viable price will be a more difficult challenge, however.

This report is the last in a series on light-duty vehicles that OTA has produced over the past five years. Previous topics include alternative fuels (*Replacing Gasoline: Alternative Fuels for Light-Duty Vehicles*); near-term prospects for improving fuel economy (*Improving Automobile Fuel Economy: New Standards, New Approaches*); and vehicle retirement programs (*Retiring Old Cars; Programs To Save Gasoline and Improve Air Quality*). OTA also has recently published a more general report on reducing oil use in transportation (*Saving Energy in U.S. Transportation*).

OTA is grateful to members of its Advisory Panel, participants in workshops on vehicle safety and technology, other outside reviewers, and the many individuals and companies that offered information and advice and hosted OTA staff on their information-gathering trips. Special thanks are due to K.G. Duleep, who provided the bulk of the technical and cost analysis of technologies and advanced vehicles.



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Note: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

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