

## FOREWORD

**Welcome to this 28th edition of the Transportation Energy Data Book. Over two-thirds of these editions have been produced by Stacy Davis. DOE is grateful for her dedication and the skill she has brought to this effort.**

**We would like to bring to your attention some of the data that is new in this edition:**

Figure 2.2: Light Rail Transit Energy Intensity. These data show the large variation in light rail energy intensity across metropolitan areas in the U.S.

Table 3.10: Car and Light Truck Survivability Rates and Lifetime Miles. A new source for these data is now being used. The light truck lifetime miles is 174,954, which is 27,817 more miles than for cars.

Table 5.10: Effect of Terrain on Class 8 Truck Fuel Economy. These data show the affect of slope and of single wide tires on fuel economy.

Table 8.11: Share of Vehicles by Annual Miles of Travel and Vehicle Age. These data show the annual travel for vehicles as a function of age. For example, only 3% of new vehicles travel less than 1,000 miles per year, whereas, 7% of 10-year old vehicles and 47% of vehicles over 20 years old travel less than 1,000 miles per year.

Table 10.11: Average Price of a New Car, 1906-2007. A number of sources were used to develop these estimates of new car prices back to 1906. These data show that in 2007 constant dollars, a new car in 1906 had a cost that was \$13,106 greater than the cost of a new car in 2007. The real cost of a 2007 new car was \$453 less than a new car in 1986.

Table 11.7: Transportation Greenhouse Gas Emissions by Mode, 1990 and 2007. Heavy trucks had the biggest percent increases in CO<sub>2</sub> between 1990 and 2007.

Table 11.11: Carbon Dioxide Emissions from a Gallon of Fuel.

**We hope you find value in this data book. We welcome suggestions on how to improve it.**





## ACKNOWLEDGMENTS

The authors would like to express their gratitude to the many individuals who assisted in the preparation of this document. First, we would like to thank Phil Patterson, Jacob Ward, and the Energy Efficiency and Renewable Energy staff for their continued support of the Transportation Energy Data Book project. We would also like to thank Jamie Payne for the cover design and Patricia Hu for her guidance and mentoring. Finally, this book would not have been possible without the dedication of Debbie Bain, who masterfully prepared the manuscript.



## ABSTRACT

The *Transportation Energy Data Book: Edition 28* is a statistical compendium prepared and published by Oak Ridge National Laboratory (ORNL) under contract with the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Vehicle Technologies Program and the Hydrogen, Fuel Cells, and Infrastructure Technologies Program. Designed for use as a desk-top reference, the Data Book represents an assembly and display of statistics and information that characterize transportation activity, and presents data on other factors that influence transportation energy use. The purpose of this document is to present relevant statistical data in the form of tables and graphs. The latest edition of the Data Book is available to a larger audience via the Internet ([cta.ornl.gov/data](http://cta.ornl.gov/data)).

This edition of the Data Book has 12 chapters which focus on various aspects of the transportation industry. Chapter 1 focuses on petroleum; Chapter 2 – energy; Chapter 3 – highway vehicles; Chapter 4 – light vehicles; Chapter 5 – heavy vehicles; Chapter 6 – alternative fuel vehicles; Chapter 7 – fleet vehicles; Chapter 8 – household vehicles; Chapter 9 – nonhighway modes; Chapter 10 – transportation and the economy; Chapter 11 – greenhouse gas emissions; and Chapter 12 – criteria pollutant emissions. The sources used represent the latest available data. There are also three appendices which include detailed source information for some tables, measures of conversion, and the definition of Census divisions and regions. A glossary of terms and a title index are also included for the reader's convenience.



## INTRODUCTION

In January 1976, the Transportation Energy Conservation (TEC) Division of the Energy Research and Development Administration contracted with Oak Ridge National Laboratory (ORNL) to prepare a Transportation Energy Conservation Data Book to be used by TEC staff in their evaluation of current and proposed conservation strategies. The major purposes of the Data Book were to draw together, under one cover, transportation data from diverse sources, to resolve data conflicts and inconsistencies, and to produce a comprehensive document. The first edition of the TEC Data Book was published in October 1976. With the passage of the Department of Energy (DOE) Organization Act, the work being conducted by the former Transportation Energy Conservation Division fell under the purview of the DOE's Office of Transportation Programs.

Policymakers and analysts need to be well-informed about activity in the transportation sector. The organization and scope of the data book reflect the need for different kinds of information. For this reason, Edition 28 updates much of the same type of data that is found in previous editions.

In any attempt to compile a comprehensive set of statistics on transportation activity, numerous instances of inadequacies and inaccuracies in the basic data are encountered. Where such problems occur, estimates are developed by ORNL. To minimize the misuse of these statistics, an appendix (Appendix A) is included to document the estimation procedures. The attempt is to provide sufficient information for the conscientious user to evaluate the estimates and to form their own opinions as to their utility. Clearly, the accuracy of the estimates cannot exceed the accuracy of the primary data, an accuracy which in most instances is unknown. In cases where data accuracy is known or substantial errors are strongly suspected in the data, the reader is alerted. In all cases it should be recognized that the estimates are not precise.

The majority of the statistics contained in the data book are taken directly from published sources, although these data may be reformatted for presentation by ORNL. Consequently, neither ORNL nor DOE endorses the validity of these data.

Currently, the Vehicle Technologies Program and the Hydrogen, Fuel Cells, and Infrastructure Technologies Program in the Office of Energy Efficiency and Renewable Energy, support the Data Book production.

