

# Fuel Use for

OAK RIDGE NATIONAL LABORATORY  
U. S. DEPARTMENT OF ENERGY

# Off-highway

**OAK RIDGE NATIONAL LABORATORY**  
**U. S. DEPARTMENT OF ENERGY**



# Transportation- related

# Vehicles

**OAK RIDGE NATIONAL LABORATORY**  
**U. S. DEPARTMENT OF ENERGY**



# Definition of Off-highway Transportation-related

**All devices that :**

**❖ have wheels,**

**❖ can move or be moved from one point to another,**

**❖ and use fuel.**

This definition excludes engines such as chain saws and generators.

# Study Approach

## ❖ Literature review

No new data were collected for this study. Only existing data were considered.

## ❖ Data compilation and comparison

## ❖ Data sets combined to provide a final estimate

# Major Sources of Data

- ❖ **Federal Highway Administration**
- ❖ **Environmental Protection Agency**
- ❖ **U.S. Bureau of the Census**

# Other Sources Investigated

- ❖ **Energy Information Administration**
- ❖ **Diesel Technology Forum**
- ❖ **Washington State's Off-road Vehicle Survey**
- ❖ **Kean, Sawyer, and Harley's "A Fuel-based Assessment of Off-Road Diesel Engines"**

# Final Methodology - 1

- ❖ **Use EPA's NONROAD2002 model for annual fuel use by sector, fuel type, and source category code (SCC).**
- ❖ **Cull out the SCC's that do not meet the definition.**

NONROAD2002 does not include off-highway truck fuel use.

# Final Methodology - 2

- ❖ **Use Census Bureau's 1997 Vehicle Inventory and Use Survey (VIUS) for fuel use of trucks traveling off-highway by sector and fuel type.**

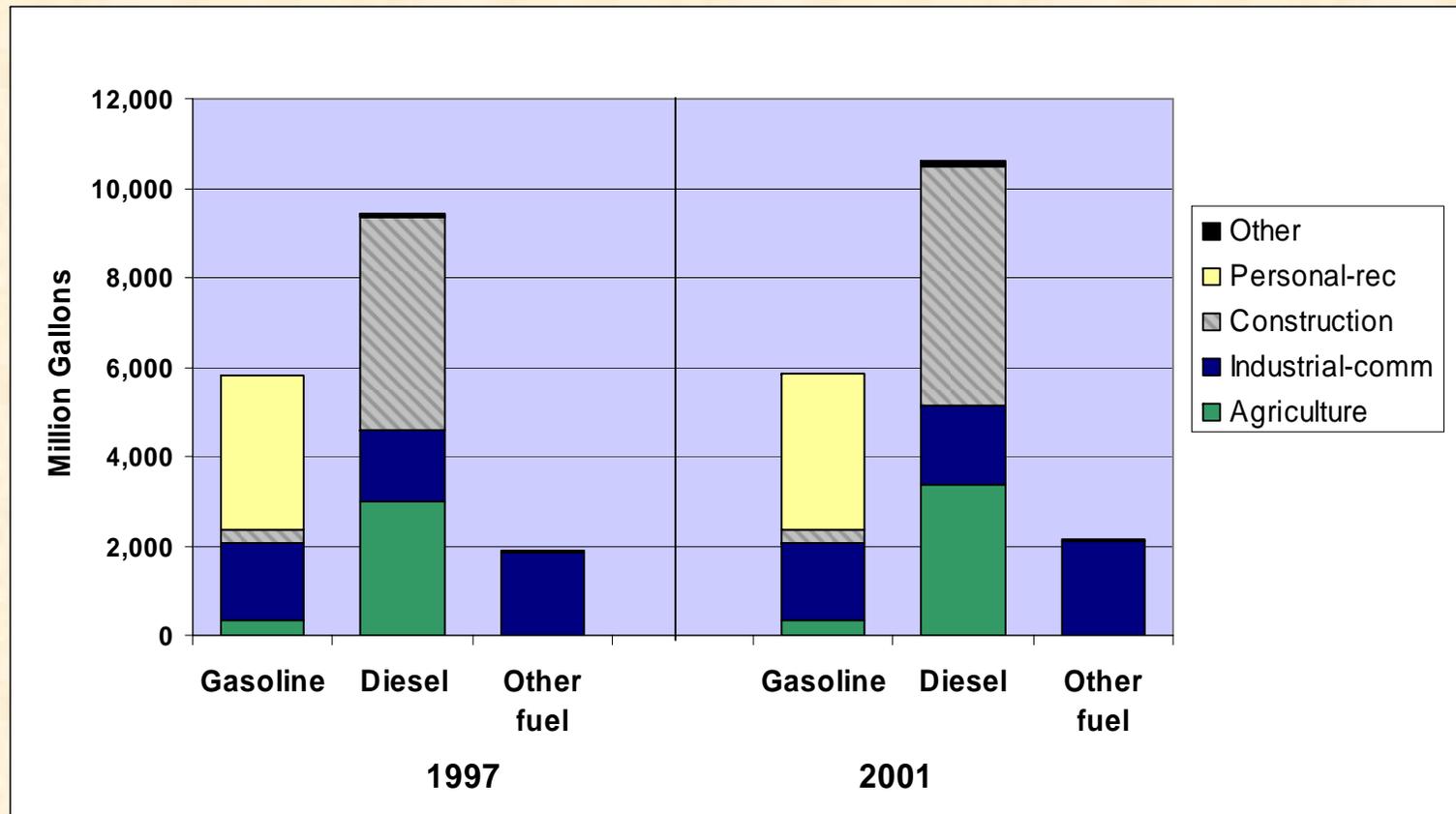
**Total 1997 off-highway fuel use estimate =  
NONROAD2002 + VIUS**

- ❖ **2001 estimates derived by applying growth rate to 1997 VIUS data.**

# Examples of the Types of Engines Included by Sector

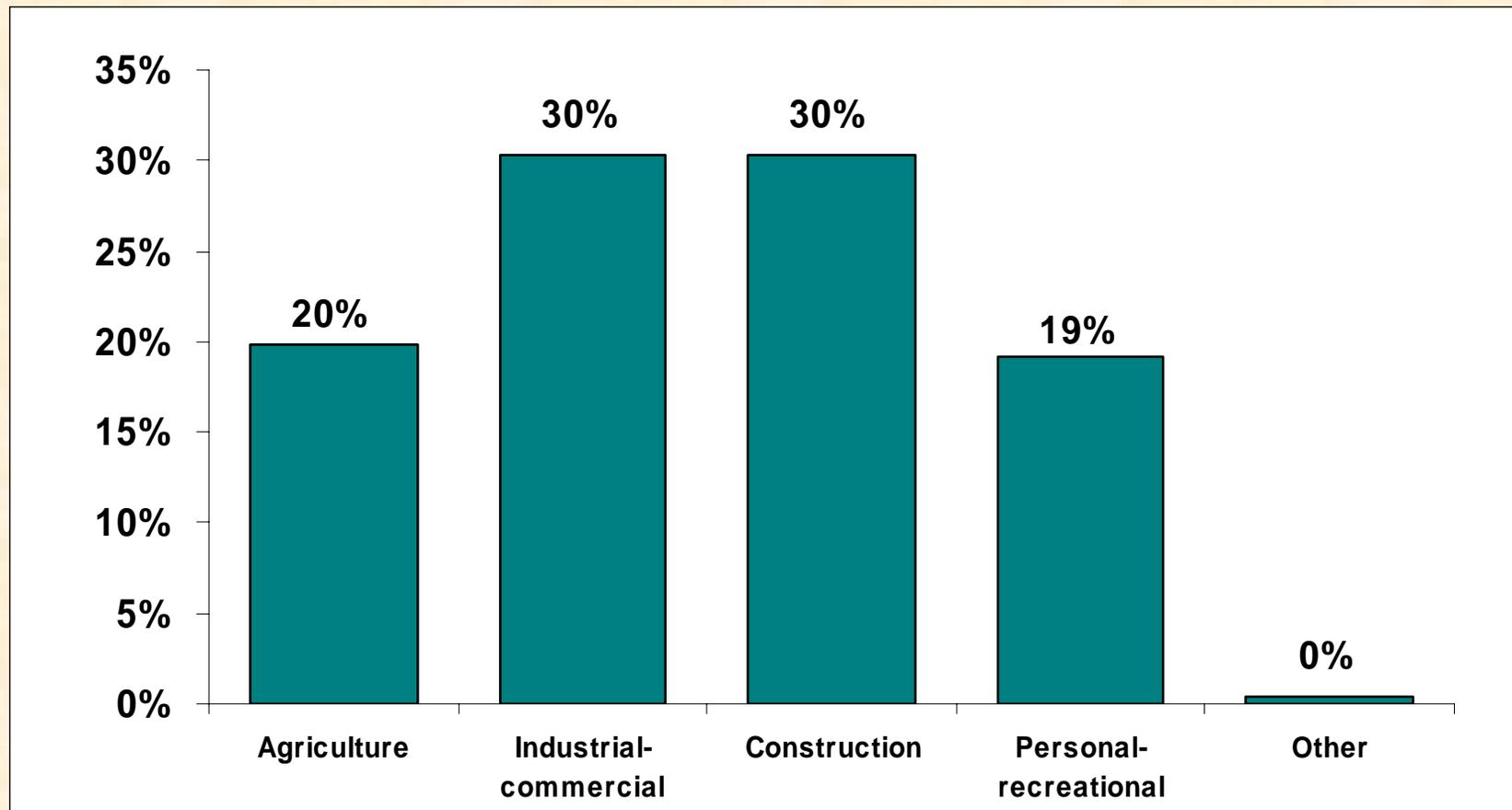
<b>Agriculture</b>	<b>Industrial &amp; commercial</b>	<b>Construction</b>	<b>Personal &amp; recreational</b>	<b>Other</b>
<b>Tractors, combines, balers, tillers, mowers</b>	<b>Forklifts, sweepers, commercial mowers, shredders, tillers</b>	<b>Pavers, tampers, rollers, scrapers, excavators, graders, tractors, backhoes</b>	<b>Lawn mowers, golf carts, snowmobiles, tillers, lawn tractors, off-road motorcycles, all-terrain vehicles</b>	<b>Airport ground equipment</b>

# Results - Off-highway transportation-related fuel use by sector & fuel type

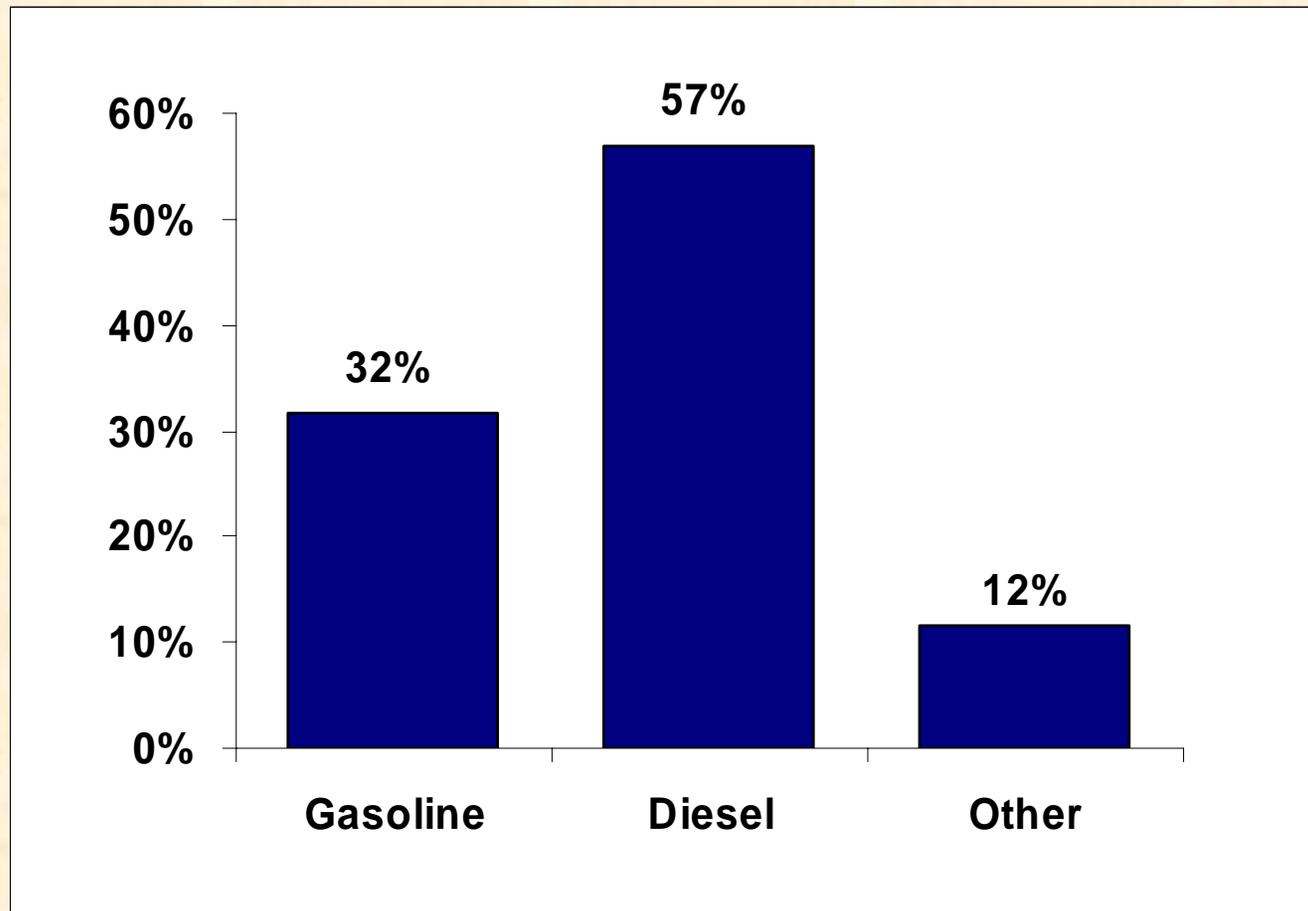


# Results –

## Proportion of transportation-related fuel used off-highway by sector, 2001



## Results – Proportion of transportation-related fuel used off-highway by fuel type, 2001



For more information on off-highway fuel use

**TRB Paper #05-1347 on the CD-ROM**

**See the full report on the Internet at:**

**[http://cta.ornl.gov/cta/Publications/pdf/ORNL\\_TM-2004\\_92.pdf](http://cta.ornl.gov/cta/Publications/pdf/ORNL_TM-2004_92.pdf)**