
How next generation energy can set America free from oil dependence

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Institute for the Analysis of Global Security
<http://www.iags.org>





The Institute for the Analysis of Global Security (IAGS) is a Washington based non-profit public educational organization dedicated to research and public debate on issues related to energy security. IAGS seeks to promote public awareness to the strong impact energy dependency has on our economy and security and to the myriad of technological and policy solutions that could help us move into an era of energy independence, and increase peace, prosperity and stability in the world.

IAGS is not beholden to any industry or political group.

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The top banner features a stylized American flag with stars and stripes in shades of red, white, and blue. The text is overlaid on this graphic.

SET AMERICA FREE

Cut dependence on foreign oil. Secure America.

THE SET AMERICA FREE COALITION brings together prominent individuals and non-profit organizations concerned about the security and economic implications of America's growing dependence on foreign oil. The coalition, organized by the Institute for the Analysis of Global Security promotes a blueprint which spells out practical ways in which real progress toward energy security can be made over the next several years.

www.setamericafree.org

We all agree that it's time to *Set America Free*

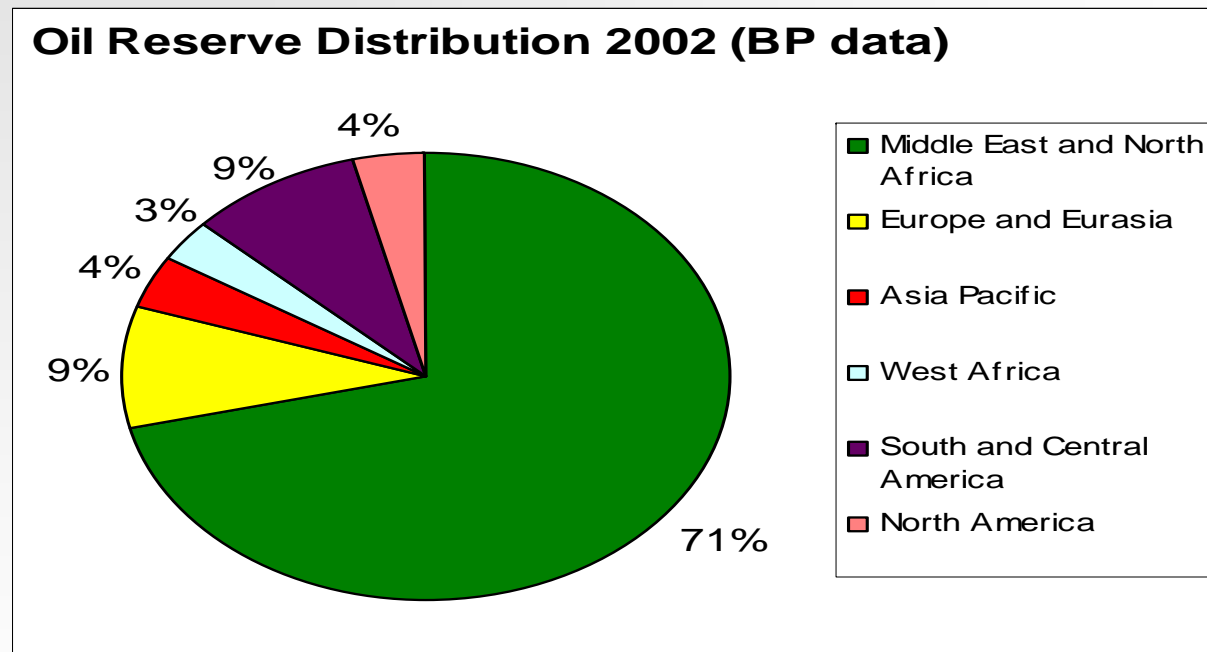


National Defense Council Foundation

A 501(c)(3) nonprofit think tank serving US national security interests since 1978

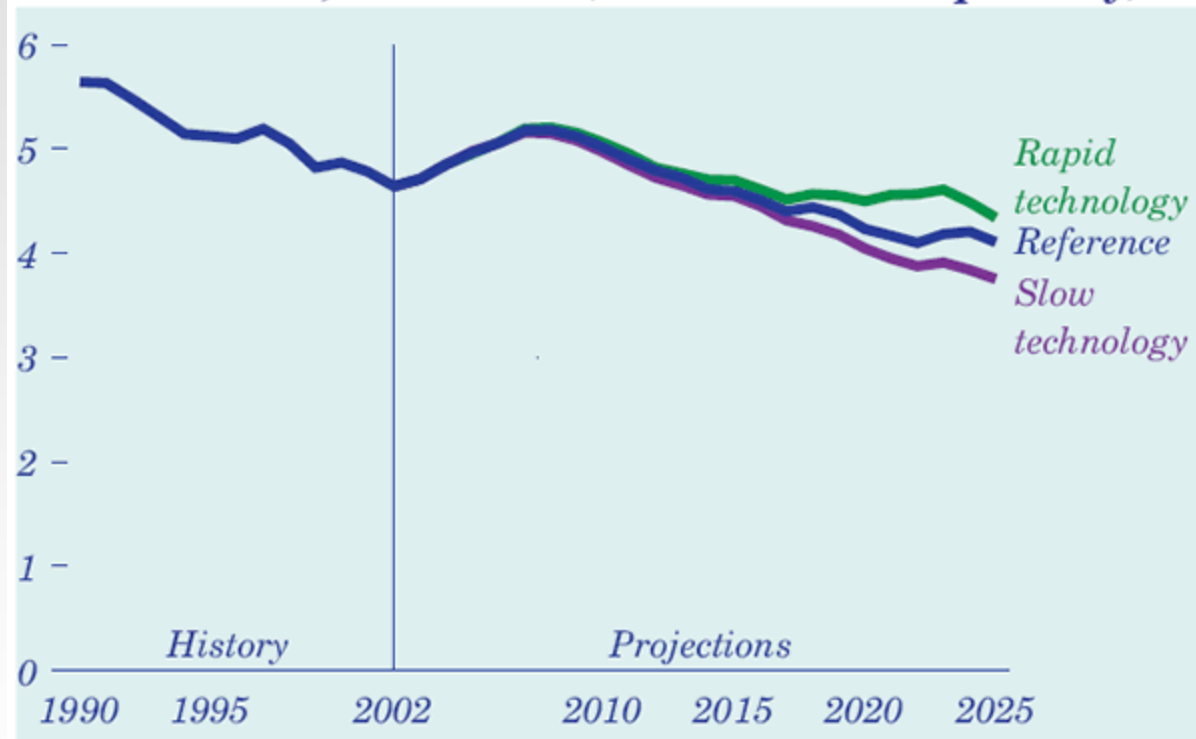
Our Dependence

- The United States consumes 25% of world oil.
- but holds barely 3%



- In 1973 (Arab Oil Embargo) we imported 35% of our oil needs.
- Today, we import 58%

Figure 97. Lower 48 crude oil production in three cases, 1990-2025 (million barrels per day)



History: Energy Information Administration, Annual Energy Review 2002, DOE/EIA-0384(2002) (Washington, DC, October 2003). Projections: Table F11.



How does all this affect our
security?



[Click here](#) to learn more about threats to our oil supply

Terror's next target



“By hitting the oil tanker in Yemen the Mujahadeen hit the secret line, the provision line and the artery of the life of the crusader nation.”

Al Qaeda statement following the Oct. 6, 2002 attack on the French oil tanker the Limburg off the coast of Yemen.



[Click here](#) to learn
more about
petrodollars and terror.

**We're fighting a war against terror
and paying for both sides**



Enriching the enemy

Last year oil stood on \$27 per barrel

Today it is sold for \$52

Extra revenue for producers: \$25 per barrel

Net loss for the US economy: \$100B per year

Extra revenue for OPEC \$250B

**We're on a collision course with
China in the Middle East**

A nation of riders turns into a nation of drivers





The economic toll



[Click here](#) for a summary of the NDCF report.

The True Cost of Oil

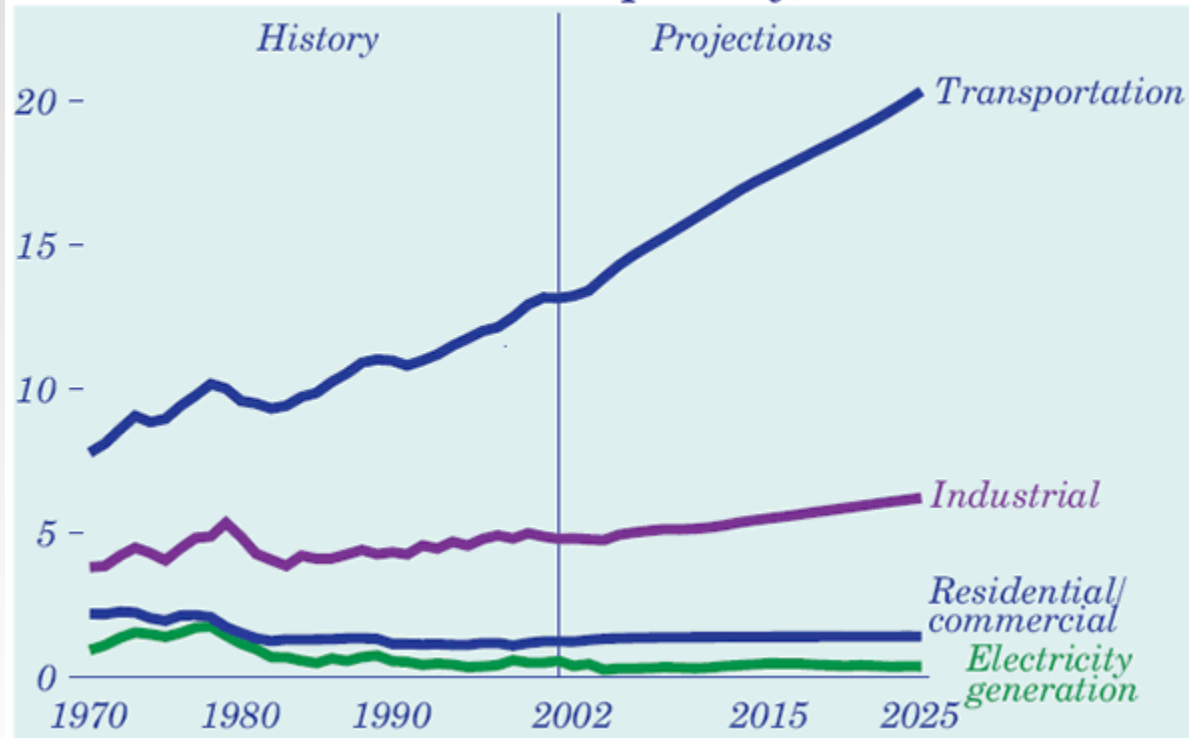
If reflected at the gasoline pump, the “hidden costs” of oil would raise the price of a gallon of gasoline to over \$5.28, a fill-up would be over \$105.

National Defense Council Foundation report



What can be done?

Figure 102. Petroleum consumption by sector, 1970-2025 (million barrels per day)



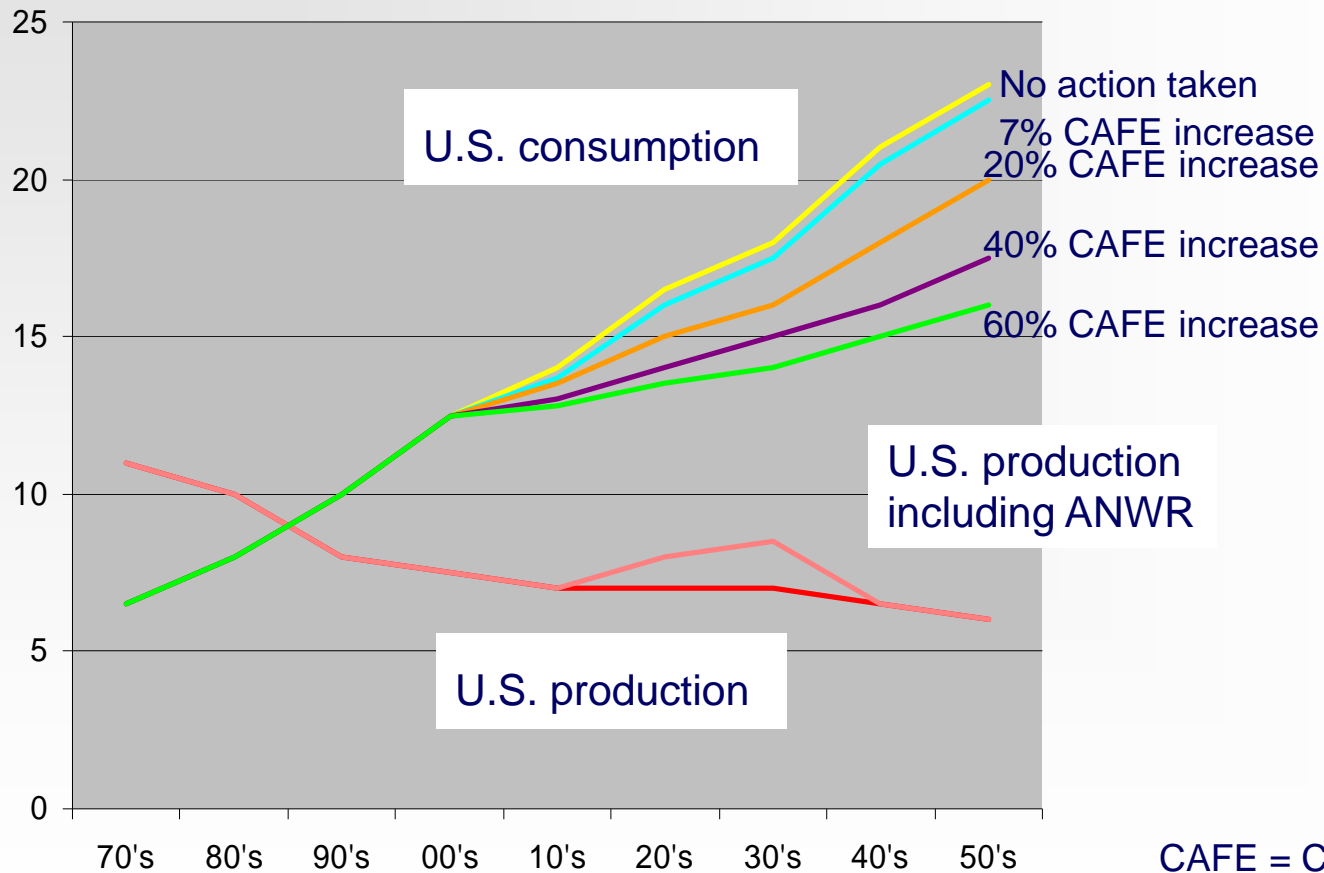
History: Energy Information Administration, Annual Energy Review 2002, DOE/EIA-0384(2002) (Washington, DC, October 2003). Projections: Table A11.

Conservation is not enough:

The Oil Gap in the Transportation Sector

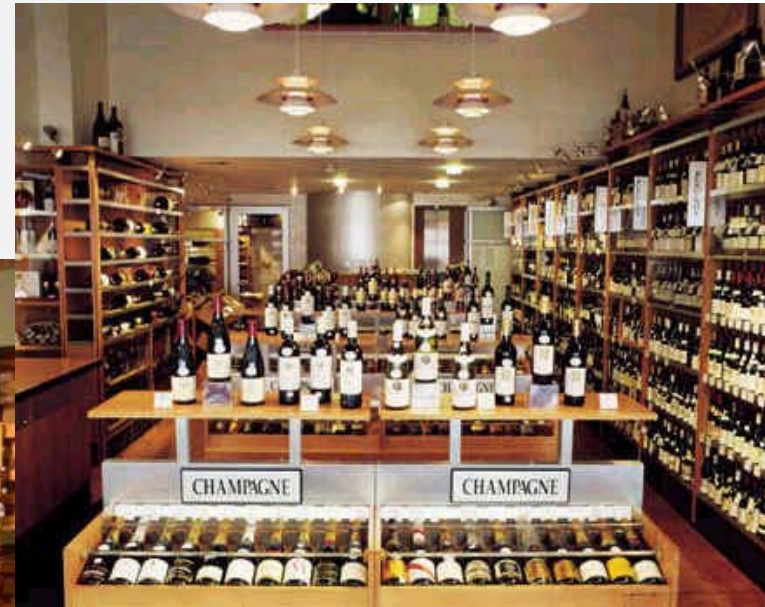
(Source: US Dep. Of Energy)

Mil barrels/ day



CAFE = Corporate
Average Fuel Efficiency
= average mpg

We have choice in every aspect of our lives...



...but not when it comes to
transportation fuel



Energy Security through fuel choice

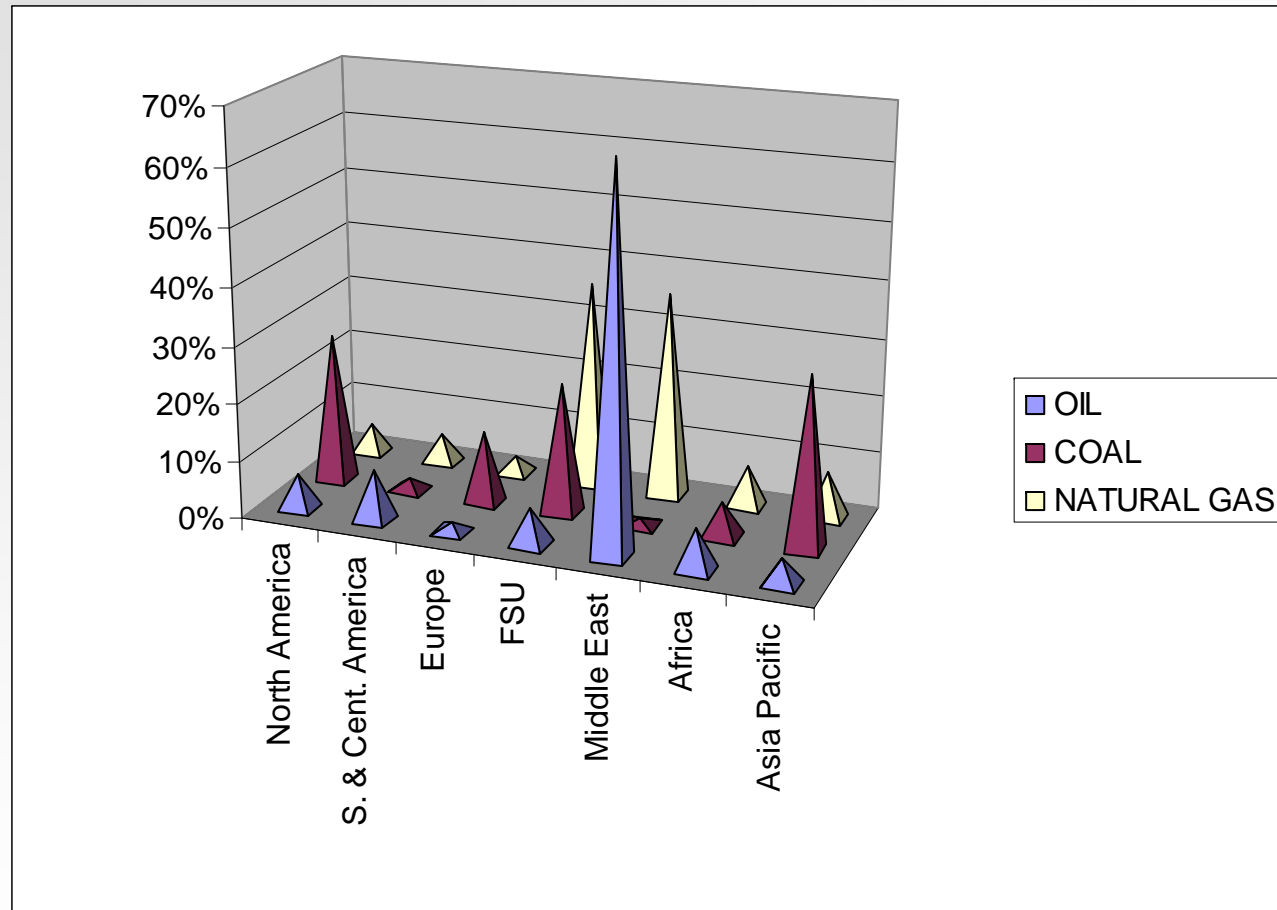


**miles per gallon of GAS,
not miles per BTU!!**

We're poor in oil, but rich in other domestic energy resources

- With 25% of global coal reserves the U.S. is the Saudi Arabia of coal.
- DOE estimates 2.45 billion metric tons a year of biomass are available for U.S. fuel production.
- In addition to the above solar, wind, hydro, geothermal, nuclear power are used to generate electricity.

Global distribution of energy reserves



Flexible fuel vehicles (FFV)



- FFV's are designed to operate on alcohol (ethanol, methanol..), on gasoline, or on any mixture of the two.
- Nearly three million FFV's have been manufactured since 1996.
- The marginal cost of FFV is less than \$100.

What is methanol?

- An alcohol fuel that can be produced from coal, natural gas, biomass.
- Can be used to power FFVs.
- Can also be used as a user friendly hydrogen-carrier fuel to power fuel cell vehicles.

"One of the Department of Energy's most successful Clean Coal Technology projects."
U.S. Dept. of Energy statement on clean coal-to-methanol project.

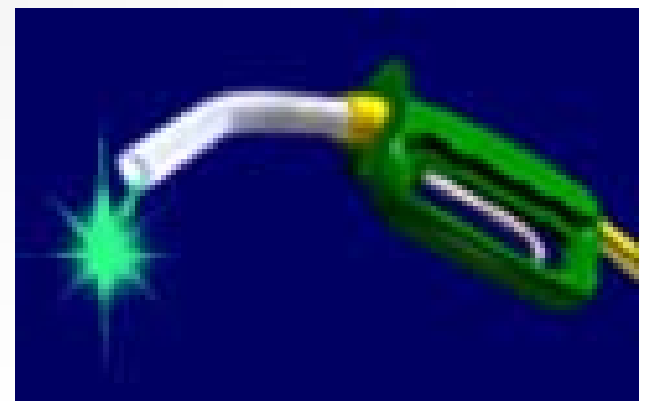


***Liquid Phase Methanol (LPMEOH) - Clean
Coal to Fuel at under 50 cents a gallon***





It's time to stop wasting our waste.



**Electricity is a domestically
generated transportation fuel!**

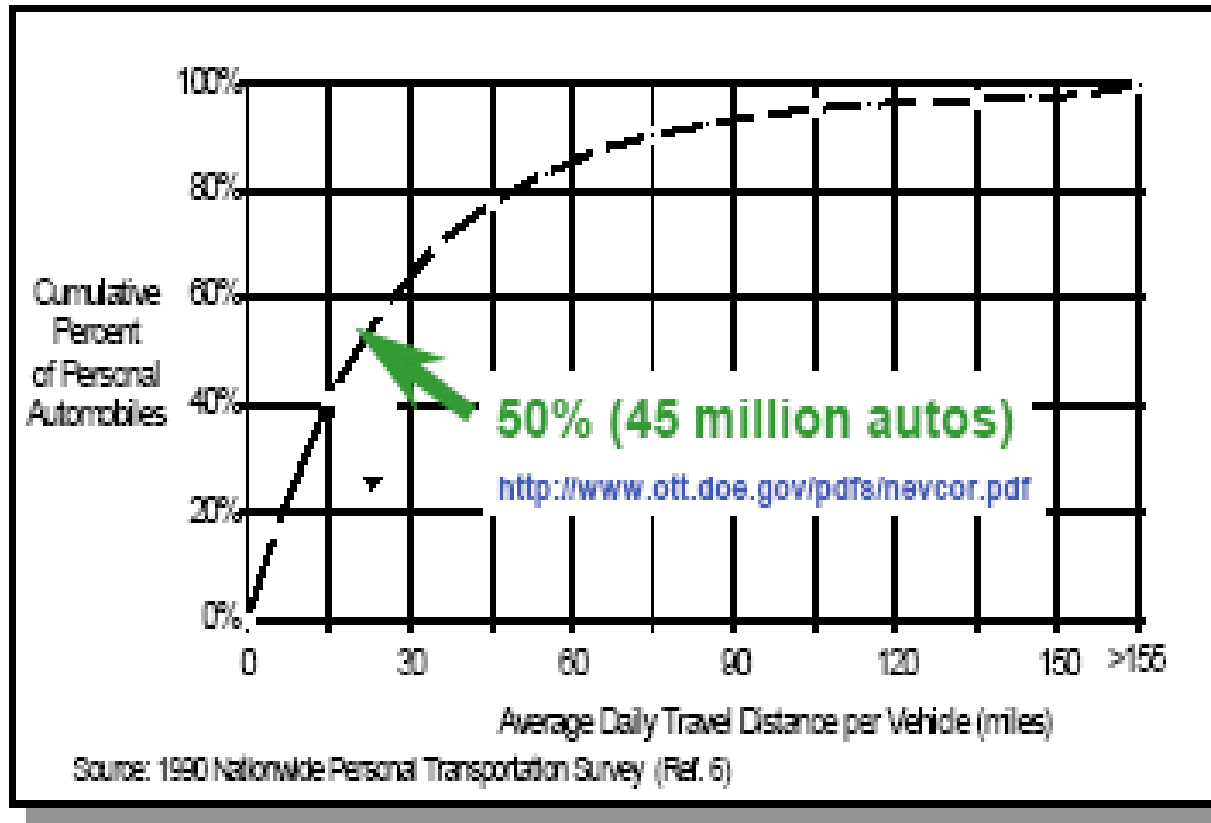


Plug-in Hybrid Electric Vehicles (PHEV)

- Think of them as electric vehicles with an auxiliary fuel tank, or “souped-up hybrids.”
- All electric range for a portion of the daily driving cycle.
- Night time charging means significantly lower fuel cost.
- When the charge is used up, the car automatically keeps running on the fuel in the fuel tank.
- Performance equal to that of current vehicles.

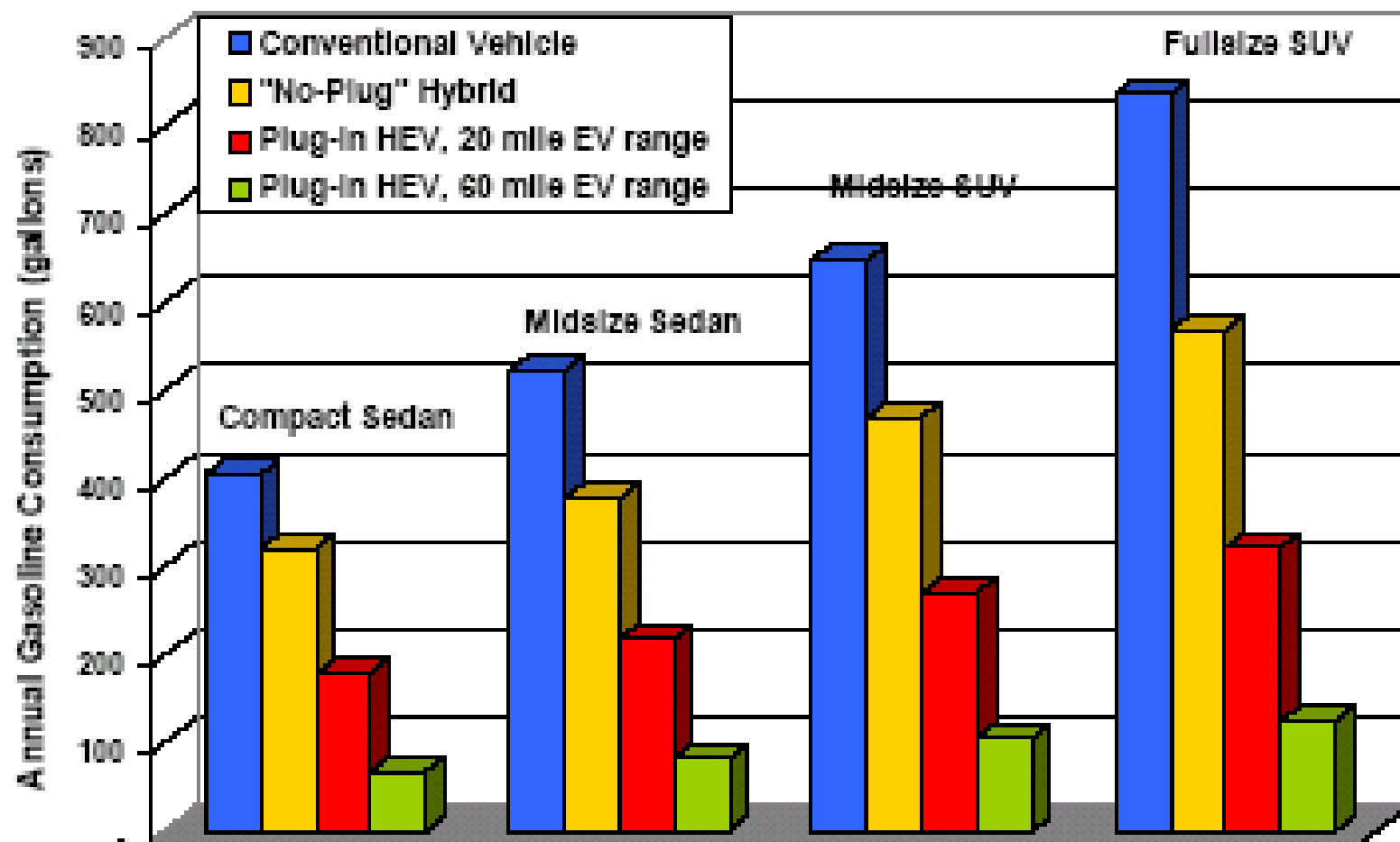


Half of all cars on the road travel a total of 20 miles per day or less



Depending on the battery size, the first 20-60 miles of driving in a PHEV would be essentially all electric

Greatly reduced annual gasoline consumption



Compare the fuel consumption of a PHEV full size SUV to that of a conventional compact sedan!

PHEV + FFV fueled with 80% alcohol and 20% gasoline = 500 miles per gallon of gasoline.

If by 2025, all cars on the road are hybrids and half are plug-in hybrid vehicles, U.S. oil imports would drop by 8 million barrels per day (mbd). Today, the U.S imports 10 mbd and it is projected to import almost 20 mbd by 2025. If all of these cars were also FFV, U.S. oil imports would drop by as much as 12 mbd.

It's time to Set America Free

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