



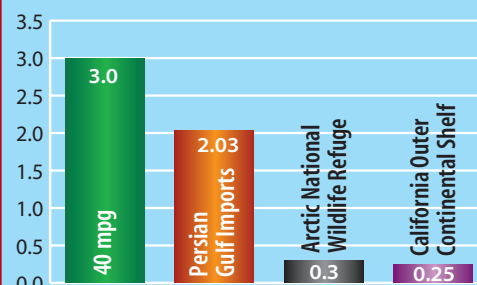
THE BIGGEST SINGLE STEP

The United States Can Take to Curb Global Warming and Save Oil is to Raise the Fuel Economy of Our Cars and Light Trucks.

By making our cars, pickup trucks, and SUVs go farther on a gallon of gas, Americans can save billions of dollars, curb global warming pollution, and slash our dependence on oil — making our nation safer and more secure. In 1975, Congress enacted Corporate Average Fuel Economy (CAFE) standards, doubling the fuel economy of new vehicles. By enacting these standards, the US saves approximately 3 million barrels of oil per day, making it the most successful energy-saving measure ever adopted. However, despite breakthroughs in gas-saving technology, the government has allowed fuel economy standards to stagnate and auto companies have hawked inefficient SUVs and other trucks for nearly 20 years. As a result, the fuel economy of today's new vehicles has fallen to the lowest level in over two decades. It doesn't have to be this way. By using innovative and cost-effective technology to increase our fuel economy, we can protect the environment, create jobs, and make America safer and more secure.

Cars and light trucks account for 40% of U.S. oil consumption and emit 20% of the nation's carbon dioxide (CO₂) pollution, the heat-trapping gas that causes global warming. Because each gallon of gasoline burned pumps 28 pounds of CO₂ into the atmosphere, the average car emits about 63 tons of CO₂ over its lifetime — and the average SUV or pickup emits around 82 tons. In comparison: America's automobiles produce more global warming pollution than all the vehicles, power plants, and factories in Great Britain combined.

Improved CAFE can save three million barrels of oil per day—more than Persian Gulf imports, and potential Arctic National Wildlife Refuge and California Continental Shelf production combined.



If all of the vehicles in the U.S. averaged 40 miles per gallon (mpg) we would save over 3 million barrels of oil each day; that is more oil than the United States currently imports from the Persian Gulf and could ever extract from the Arctic National Wildlife Refuge, combined. Getting 40 mpg would cut global warming pollution by 600 million tons a year and save consumers more than \$45 billion each year at the gas pump. The U.S. is the world's largest global warming polluter — we must take the lead in reducing this pollution.

Innovative Technology CAN HELP FREE US FROM OUR DANGEROUS OIL DEPENDENCE

MODERN TECHNOLOGY IS THE KEY TO INCREASING FUEL ECONOMY AND SAVING OIL. Between 1975 and the late 1980s, better engines, transmissions, materials, and aerodynamics accounted for 86% of fuel economy improvements. Existing fuel-saving technology can raise fuel economy even further. In 2002, the National Academies of Sciences found that with current technology we could “significantly reduce fuel consumption within 15 years.”

The technology exists to make all new vehicles — from cars to SUVs to pickup trucks — go farther on a gallon of gas. These fuel-saving technologies are on the road today in some vehicles, but should be in all. A 2003 study by the Union of Concerned Scientists titled “Building a Better SUV” analyzed the fuel economy benefits of many of these technologies.

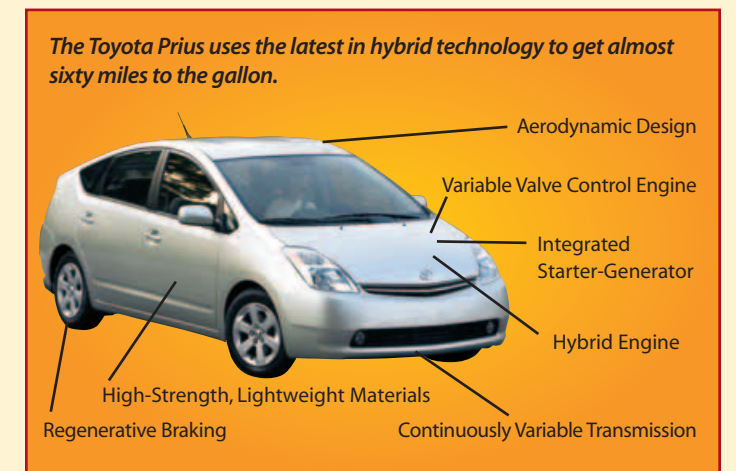
- **Advanced Ignitions:** By replacing a conventional starter-motor and alternator with an Integrated Starter Generator (ISG), a gas engine can switch off when the vehicle is stopped and idling. Vehicles burn as much as 15 percent of their gas while sitting in traffic. The ISG restarts the motor when you put your foot on the gas, just like tapping a computer mouse to awaken a sleeping computer, and saves added fuel by doing it more efficiently than a standard starter. **Fuel Economy Improvement: 15-25%**
- **High Strength, Lightweight Materials:** Strong, lightweight steel, aluminum, and plastics can all play a role in helping vehicles shed weight while enhancing safety. **Fuel Economy Improvement: 25-30%**

- **Sleeker Design:** Improving the aerodynamics cuts down on wind resistance and installing low rolling resistance tires reduces road friction. **Fuel Economy Improvement: 5%**
- **Smarter Transmissions:** A Continuously Variable Automatic Transmission (CVT) allows for an infinite number of gear ratios for the most efficient combination of engine speed and wheel speed. With a CVT, gears are replaced by continuous belts to maximize efficiency. A 2001 study by the trade publication *Automotive News* estimated a 20% fuel economy gain from a CVT.
- **High-Tech Engines:** By allowing engine intake valves to close early during low demand, variable valve timing prevents inefficient pumping. Adding lean-burn technology, which introduces more air to the combustion chamber, can provide further efficiency. Fuel economy gains also occur when engines have four valves per cylinder instead of two, individual cylinder control, and cylinder deactivation, which improves fuel economy by automatically shutting down unneeded cylinders when less power is required. *Automotive News* found that Cylinder Deactivation alone would result in as much as a 20% improvement in fuel economy.

Hybrids — Evolving to Cleaner Cars

Hybrid vehicles are already turning heads and generating excitement. Hybrid vehicles combine an efficient gasoline engine with an electric motor to get great fuel economy. The two engines work in tandem to provide power and speed. When hybrids brake, they recharge the batteries using energy that other cars just waste. This process is known as regenerative braking. And since both the gasoline engine and the regenerative braking charge the electric motor, hybrid vehicles never need to be plugged in! You just fill them up at the gas station like any other car — only not as often. Hybrid technology can help make automakers’ fleets average forty miles per gallon within the next ten years.

A hybrid exists to fit the needs of almost any driver. There are already several models of hybrids on the road today — from the two-seater Honda Insight, to the 5 passenger Honda Civic Sedan and Toyota Prius hatchback, to the Ford Escape hybrid SUV. The next few years will see a surge of hybrid vehicles into the market, giving consumers more choices and greater opportunities to reduce our dependence on oil, slash global warming



pollution, and save money at the pump. Continued advances in hybrid technology will improve fuel economy and lower vehicle costs. Additionally, hybrid technology is ready to make its appearance in the largest SUVs, vans, and pick-up trucks.

With Innovative Technology, Even SUVs Can Get Great Fuel Economy

Using existing fuel-saving technology, automakers can improve the fuel economy of any car, pickup truck or SUV. Sadly, this technology is sitting on the shelf because a loophole in the law holds SUVs, pickups and other light trucks to a weaker miles-per-gallon standard than cars. Since light trucks now account for over half of all new vehicles sold, this loophole means that billion gallons of gasoline are needlessly burned each year, emitting mil-



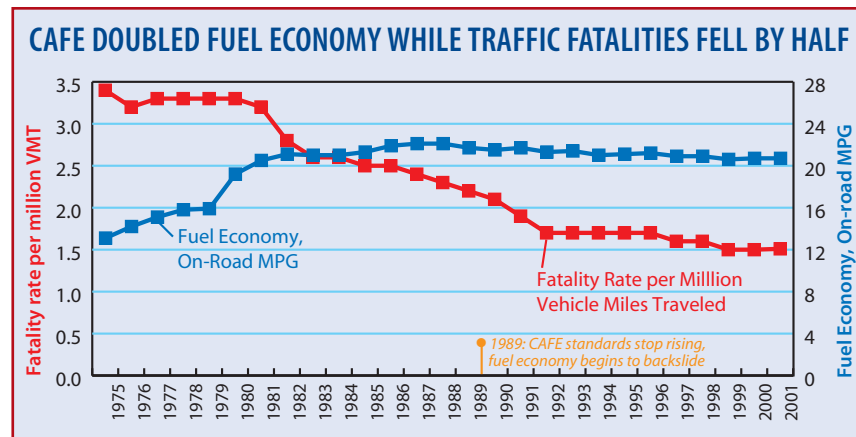
The Ford Escape Hybrid is an SUV that gets 33 miles to the gallon

lions of tons of global warming pollution into the atmosphere. But SUV owners should also be able to get great fuel economy. In 2004, Ford Motor Company unveiled the Hybrid Escape, a SUV that gets 33 mpg. Most auto manufacturers are now set to build hybrid versions of pick-up trucks and large SUVs, proving that a big vehicle doesn't have to waste a lot of gas.

WE CAN SAFELY IMPROVE OUR FUEL ECONOMY

Long-time safety advocates, such as the Center for Auto Safety, support increasing CAFE standards to 40 miles per gallon — and point out that we can do so safely. A joint study by the Union of Concerned Scientists and the Center for Auto Safety found that raising the fuel economy of new cars and light trucks to 40 mpg would benefit “consumers, the economy and the environment without sacrificing passenger safety”

In fact, the rate of traffic fatalities fell 50% during the same period fuel economy doubled due to CAFE standards. Auto manufacturers claim they can only achieve higher CAFE standards by changing their entire fleets to smaller cars. But they said the same thing in 1974 when a Ford spokesperson testified before Congress that a 27.5 mpg standard would result in a “Ford product line consisting of either all Pinto-sized vehicles or some



mix of vehicles ranging from a sub-sub-compact to perhaps a Maverick.” Obviously, they were wrong then — and they are wrong again today.

CREATING CLEAN CARS IN AMERICA CREATES JOBS AT HOME

The Union of Concerned Scientists' recent study showed that higher fuel economy in cars and light trucks will create jobs throughout the economy. UCS estimates that the auto industry alone will gain 40,000 new jobs. In addition, the money consumers save at the gas pump will be reinvested in the economy, creating an estimated additional 161,000 net new jobs nationwide.

Requiring auto companies to build cleaner cars will make automakers more competitive. The Big Three put auto industry jobs at risk by failing to use innovative technology. While Japanese and European car makers are putting lean-burn engines, continuously variable transmissions, and other fuel-efficient technologies into their cars, American automakers continue to produce inefficient designs with primitive technology. Already dozens of unionized factories in the United States produce clean car technology. We could do even more by putting American ingenuity to work to make clean, efficient, American made cars and SUVs.





MAKING A GREAT LAW EVEN BETTER

CAFE has been highly successful in cutting pollution and reducing our oil consumption, but changes in the auto market have taken advantage of weaknesses in the CAFE system. In addition to raising CAFE standards to 40 miles per gallon, the CAFE program should be updated to reflect current trends in driving and the automotive industry.

■ **Truth In Testing** — The fuel economy test administered by EPA does not reflect current driving conditions. It exaggerates the fuel economy of tested vehicles 17-20% by assuming people spend less time driving in congested cities than they actually do. By revising CAFE tests, we could more accurately measure the actual fuel economy of cars and light trucks.

■ **Close the SUV Loophole** — CAFE standards hold SUVs and light trucks to weaker standards than cars. Cars, SUVs, pickup trucks, and vans are all used to carry passengers and can all benefit from modern fuel efficient technology. By closing this loophole, the U.S. would save one million barrels of oil a day and reduce our oil dependence.

■ **Close the "Flexible Fuel Vehicle" Loophole** — To encourage the use of alternative fuels — like ethanol — automakers receive credit toward meeting CAFE standards when they build vehicles that can run on them. Unfortunately, these vehicles rarely, if ever, take advantage of their "flexible fuel" ability. According to the Department of Transportation, in 2000 less than 1 percent of the 1.2 million flexible fuel vehicles on the road actually ran on ethanol.

DRIVING US BACKWARDS

Despite having the technology to build the fuel efficient technologies we need, opponents of CAFE in the government and the auto industry are working to weaken this law. Here are a few examples of their recent efforts:

■ **Creating Perverse Incentives** — Weight-based standards categorize vehicles based on their weight and allow heavier vehicles to meet weaker standards. This system would create an incentive for automakers to add weight to their vehicles to qualify them for more relaxed standards.

Auto companies already add weight to SUVs and other trucks like the Hummer, Dodge Ram 2500, and Excursion to exempt these vehicles from CAFE standards.

■ **Manipulating the System** — Opponents of CAFE have also proposed a system that would allow auto manufacturers to trade fuel economy credits between companies. This system would undermine efforts to raise the fuel economy for the entire fleet of vehicles, and provide more opportunities for auto manufacturers to build gas-guzzlers.

THE MORE YOU GUZZLE THE MORE YOU POLLUTE

Represented below is the total tonnage of CO₂ produced by SUVs and other vehicles over a 124,000-mile lifetime

Toyota Prius
55 MPG  32

Ford Escape Hybrid
33 MPG  51

Ford Crown Victoria
21 MPG  83

Ford Excursion
13 MPG  134

TAKE ACTION

Join us in the fight to make America's vehicles go farther on a gallon of gas. Together, we can give our children a clean and healthy environment while reducing the threat of global warming and our dangerous dependence on oil so that our troops never have to risk their lives in foreign oil fields ever again.

Sign up for Sierra Club's email action alert, The Hotline at: <http://www.sierraclub.org/global-warming/e-newsletter/>



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