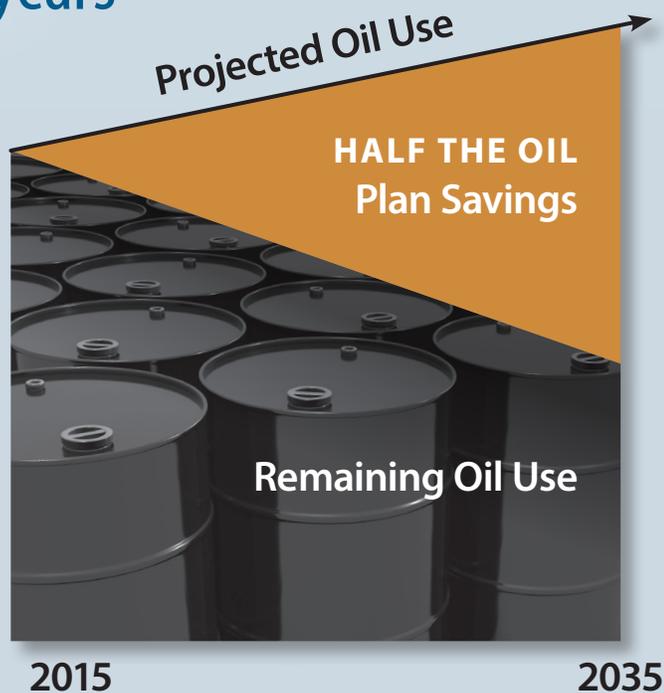


HALF THE OIL

A realistic plan to cut the United States' projected oil use in half over 20 years



The HALF THE OIL plan moves our country forward by boosting vehicles, and incorporating smarter ways of doing business and

Getting the Most Out of Every Barrel: Oil Savings through Efficiency

The HALF THE OIL plan starts by using technologies available today to improve the efficiency of our vehicles, homes, and businesses.

Passenger Vehicles: From Gas Guzzlers to Fuel Sippers

Doubling the fuel efficiency of new cars and light trucks is the single biggest step our nation can take to reduce oil use. We can get there by 2025 with existing fuel-sipping technologies such as high-efficiency engines, smarter transmissions, hybrid powertrains, and better aerodynamics.

The opportunity is so great because the cars and trucks we drive every day consume half the oil used in this country. But the benefits extend well beyond oil savings: raising the bar on fuel efficiency will reduce trips to the gas pump while maintaining the performance and



safety drivers expect. At a gas price of \$3.50 per gallon, new vehicles with doubled fuel efficiency would save drivers \$6,000 over the vehicle's lifetime (after paying for the efficiency technology).

In addition, improved vehicle designs would create more options for consumers and a more competitive and resilient auto industry offering more jobs—all while **slashing demand for oil by more than 4 million barrels per day by 2035.**

Trucks, Trains, and Planes: Getting There Greener

We can significantly reduce oil consumption from commercial vehicles like delivery trucks, transit buses, garbage trucks, and big rigs with more efficient diesel engines and transmissions, improved aerodynamics for 18-wheelers and their trailers, and hybrid technologies that can double the fuel efficiency of trucks that frequently sit in stop-and-go traffic.

Commercial vehicles consume 20 percent of the fuel used on America's highways—even though they make up only 4 percent of the vehicle fleet. Improving their fuel efficiency could **save about 1 million barrels of oil each day by 2035.**



Efficiency in cars and light trucks:
4.2 million barrels per day (mbd)

Commercial vehicles: 0.9 mbd

Planes, trains, and ships: 0.6 mbd

Buildings, homes, and industry: 2.1 mbd



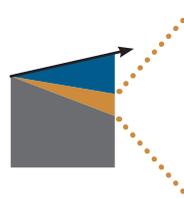
And what about the planes, trains, and ships that move people and goods across the country? Applying similar efficiency strategies to freight and non-road transportation would not only provide cleaner, more cost-effective travel and transport, but also **cut our demand for oil by more than 0.5 million barrels each day by 2035.**

Smarter Ways of Doing Business and Staying Warm

By retrofitting buildings to use less energy, applying available technologies to make boilers more efficient, and finding substitutes for oil to heat our homes and manufacture goods, we can **reduce our oil consumption by around 2 million barrels per day by 2035.** These improvements are essential because we pump one-quarter of our oil into our factories, homes, and offices to make goods, power industry, and provide heat.

fuel efficiency, producing better biofuels, investing in electric getting around in our everyday lives.

Cleaner Fuels and a Smarter Transportation System: Oil Savings through Innovation



Electric cars: 1.3 million barrels per day (mbd)

Better biofuels: 1.7 mbd

Smarter transportation systems: 1.3 mbd

Scaling up technologies such as electric vehicles and better biofuels while investing in smarter transportation systems will give consumers and companies more choices and establish America as a world leader in transportation technology.

Advanced Vehicles: From Gallons to Kilowatt-Hours

Just as Ford's Model T revolutionized automobiles a century ago, electric vehicles can spark a revolution that lets drivers bypass the gas pump completely, dramatically cutting the oil our cars consume and the smog-forming and global warming pollution they produce.

Plug-in hybrid and battery-electric vehicles are already on the market, and fuel cell vehicles will hit the streets by 2015. With the Model E family of vehicles (www.ucususa.org/model-e), UCS engineers have demonstrated that electric technologies can be readily integrated into a wide range of new vehicles, from compact cars to SUVs. This transition will not happen overnight, but ramping up electric vehicle technology can **cut U.S. oil use about 1.3 million barrels each day by 2035**. And that's just the beginning: by mid-century, electric vehicles could nearly eliminate oil use from cars and light trucks.

Furthermore, as we continue to add wind and solar power to the electricity grid, we can recharge batteries and produce hydrogen for fuel cell vehicles with virtually no emissions.

The Right Biofuel for the Job

We can also use less oil by burning better fuels in our vehicles. The gas at your local station already contains 10 percent corn ethanol on average—but neither oil nor corn ethanol is the fuel of the future. Better cellulosic biofuels (made from waste products and environmentally friendly crops such as perennial grasses) would allow us to fuel up without putting added pressure on our food, water, or climate. The first commercial-scale cellulosic biofuel plants will start production in 2012, and companies are breaking ground on other facilities across the country.

Over the next five years, cellulosic biofuels can grow to a commercial industry producing a billion gallons each year. This would set the stage for two decades of steady growth, enabling better biofuels to surpass corn ethanol and other food-based fuels for use in our cars, trucks, planes, and ships, and **cutting oil use some 1.7 million barrels per day by 2035**.



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Expanding Transportation Options: The Choice Is Yours

We can get people and products where they need to go more efficiently by better integrating transportation options with the places we live and work. For example, improving transit and freight systems and increasing mixed-use development would ensure people have access to local businesses and the things they need every day, without having to hop in the car for each item.

GPS and mobile data networks can reduce time wasted in traffic, and smart road design can allow cars, buses, bicycles, and pedestrians to safely share the road. These smart-growth solutions would give consumers more choices for getting around and **yield oil savings of about 1.3 million barrels per day by 2035**.



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The Path to Progress

With sound science, good technology, and smart policies, the HALF THE OIL plan will save billions of dollars and provide Americans with a safer, cleaner energy future.

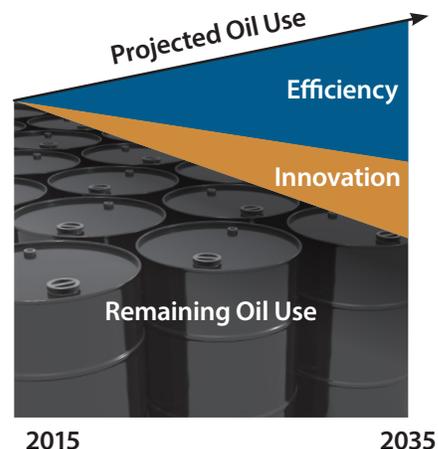
With the oil savings solutions at our fingertips, we can dramatically reduce oil consumption and position the United States as a global leader in transportation technology. But oil companies are making record profits from the status quo and will fight against the positive change our plan represents.

We can make the plan a reality by working to defend hard-won clean car and fuel victories, and by enacting new policies that further reduce our need for oil. The choices we make today will define our transportation system and the fuels that power it for decades to come.

To stay on the path to progress, the United States should:

- **Build a more efficient vehicle fleet.** The federal and state policy makers who proposed stronger fuel efficiency and global warming emissions standards for cars and light trucks must now resist pressure from the oil and auto industries to weaken these historic standards. **Doubling passenger vehicles' fuel efficiency by 2025 is just a beginning—we must also nearly double the fuel efficiency of medium- and heavy-duty vehicles by 2030,** and set similar standards for planes, trains, and other non-road vehicles.

- **Unleash the full potential of electric vehicles.** Strong government support for electric vehicles is essential to develop a twenty-first-century auto industry. State and federal policies that require electric vehicle production, create incentives for early market manufacture and purchase of electric vehicles, batteries, and fuel cells, and invest in charging and fueling infrastructure can ensure that more than **40 percent of new vehicles sold by 2035 will run on electricity instead of oil.**
- **Expand better biofuel production to commercial scale.** Producing the first billion gallons of cellulosic biofuels will establish a market for these fuels as a better, cost-effective, and sustainable oil-saving solution. We can **bring cellulosic biofuels to full commercial scale—1 billion gallons a year—in the next five years** by reforming tax policies and maintaining strong clean-fuels standards at the regional and national levels. From there, the industry can grow

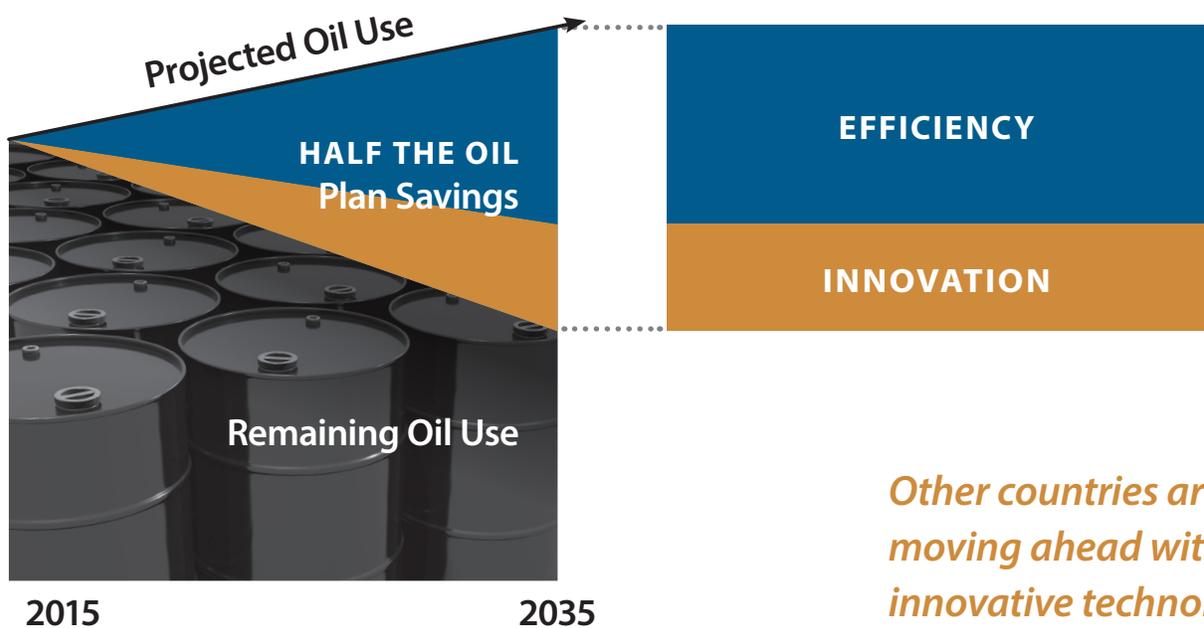


to nearly 40 billion gallons of better biofuels by 2035.

- **Promote smarter ways of doing business and heating our homes.** Using less oil will save money at home and strengthen industries at the heart of the American economy. Many industries voluntarily move in this direction as energy prices rise, but energy efficiency standards, incentives, and funding for alternatives to oil can get them there faster. **These steps can cut oil use in industry, commercial buildings, and homes by at least 50 percent.**
- **Expand travel choices.** Policies that increase access to homes and businesses, reduce congestion, and level the playing field for public transit, biking, and walking will help people and goods move more easily. Steps like these will slash oil consumption by **cutting our daily auto and freight-truck use nearly 10 percent by 2035 and boosting the real-world fuel economy of our cars by an additional 12 percent.**

Putting this plan to work will cut our projected oil use in half in 20 years, save billions of dollars, and ease serious problems including oil spills and health threats from air pollution.

How You Can Help Turn the Plan into Reality



Other countries are moving ahead with innovative technologies that make cars and trucks more efficient, hybrids more practical, and fuels less polluting. Inaction would mean continuing to spend nearly \$2 billion a day on ever dirtier and riskier oil.

Getting to HALF THE OIL will require stronger public policies and greater investment in existing and emerging technologies. But the costs of standing still are much higher: the United States would continue to spend **nearly \$2 billion for oil each and every day**, while enduring the more frequent price spikes, oil spills, and pollution-related health problems that accompany oil companies' pursuit of ever dirtier and riskier sources of oil. Doing nothing also means

ceding U.S. leadership on energy efficiency, electric cars, better biofuels, and innovative transportation systems to those nations willing to invest in smart solutions.

Oil companies are making record profits from the status quo, so we can expect them to fight against the positive change our plan represents. But we must demand a future that works for *us*. We can meet our goal of HALF THE OIL with existing and emerging technology—if we get started today.

Implementing the HALF THE OIL plan will benefit consumers and improve national security, public health, and the environment. There is no “silver bullet” solution to oil savings, but there are practical steps we can all take to create a future with HALF THE OIL:

Urge the president and Congress to take the necessary steps that would make our plan a reality.

Join the Union of Concerned Scientists as we work toward a cleaner, safer future for all. Visit www.ucsusa.org/join to sign up today.

Make choices that reduce your own oil consumption.

Explore fuel-efficient, hybrid, or electric options for your next vehicle. Walk, bike, or take public transit. Opt for sustainably made products whenever possible.

Share the HALF THE OIL plan with your social networks, and tell your friends and relatives to:

- Join the conversation on our blog (blog.ucsusa.org)
- Follow us on
 - twitter.com/ucsusa or
 - www.facebook.com/unionofconcernedsScientists



We can cut America's projected oil consumption in half within 20 years if we work together to secure commitments from elected officials, automakers, fuel producers, and consumers.

The choice is simple: invest in solutions that save oil and money, strengthen our security and economy, and protect our environment, or ignore an historic opportunity and face the prospect of even more costly economic and environmental challenges in the decades to come.

HALF THE OIL means more money in the pockets of drivers who can choose from a wide range of fuel-efficient vehicles, including electric cars that do not rely on oil.

HALF THE OIL means a stronger American auto industry, building cleaner vehicles and expanding options for consumers.

HALF THE OIL means a more secure energy supply, as we transition to transportation fuels from American farms and electricity increasingly powered by the wind and sun.

HALF THE OIL means vital progress in the fight against toxic air pollution and global warming, as we dramatically reduce the need to burn increasingly dirty and expensive oil.



HALF THE OIL means more jobs putting efficiency and innovation to work. We must demand a transportation future that works for all of us.

Visit www.ucsusa.org/halftheoil to learn more about our oil savings plan and what you can do to be a part of the solution.

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For details on the methodology and assumptions for the HALF THE OIL plan, visit www.ucsusa.org/halftheoil.

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Union of Concerned Scientists

The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

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