

# Energy Facts



## Reducing Imported Oil with Comprehensive Climate and Energy Legislation

For far too long our dependence on oil has undermined our economy and national security. We spend a billion dollars a day to import more than three billion barrels of oil each year, much of which comes from dangerous or unstable parts of the world.<sup>1</sup> Comprehensive climate and energy legislation can sharply reduce our dependence on imported oil—by more than half of what we import today—as we reduce the pollution that threatens our health and environment.

We can make strides toward energy independence by accelerating the transition to advanced, fuel-efficient and electric-powered cars and trucks and by increasing domestic oil production from existing oil fields through a process called carbon dioxide-enhanced oil recovery (CO<sub>2</sub>-EOR). Only a comprehensive approach that combines limits on carbon pollution with investment incentives to build a cleaner, low-carbon energy economy will reduce our dependence on imported oil and preserve and expand the jobs we need to make America more secure.

### Reducing Oil Consumption with Advanced Vehicles

More fuel-efficient cars and trucks, including plug-in hybrids and fully electric models, will significantly reduce our oil consumption and dramatically reduce how much Americans pay at the pump.

The Obama Administration is in the process of finalizing new efficiency and greenhouse gas tailpipe standards for new vehicles that will reach nearly 35 miles per gallon by 2016. Additional improvements can further decrease the nation's reliance on oil, as shown in a recent analysis by

the EPA of the potential for reducing emissions and fuel consumption in the transportation sector. With incentives for manufacturing and buying advanced gasoline, hybrid, and electric vehicles, average fuel efficiency for new cars could reach 70 miles per gallon by 2030. This would save American families and businesses up to \$95 billion per year by reducing imported oil by more than 2 million barrels per day, and reduce tailpipe emissions by 29 percent.<sup>2</sup>

Comprehensive climate and energy legislation can ensure we meet or exceed our fuel-efficiency goals by helping to retool America's auto manufacturing plants to make 21st-century cars and trucks, preserving and creating jobs in this vital manufacturing sector.

### Increasing Domestic Oil Production from Existing Oil Fields

CO<sub>2</sub>-EOR has been a common practice in the United States for more than 35 years, relying primarily on carbon dioxide found in a few natural geologic reservoirs in the Southwest and Mississippi. Today, more than 50 million tons of CO<sub>2</sub> is used per year to produce 250,000 barrels of oil per day—roughly 5 percent of U.S. oil production. Assessments of CO<sub>2</sub>-EOR potential

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March 2010

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## CO<sub>2</sub>-EOR Is Already Proven Successful

The use of carbon dioxide for commercial EOR began in the United States in the early 1970s. There are currently about 120 registered CO<sub>2</sub>-EOR operations worldwide, with almost 85 percent in the United States and Canada. Some 44 million tons of newly purchased carbon dioxide annually are injected in mature oil reservoirs. To date, no documented environmental impacts from these injections have been reported. The impacts of CO<sub>2</sub>-EOR should be evaluated on a site-by-site basis to ensure that the location is appropriate, taking into account infrastructure or transportation impacts and subsurface conditions. Additional steps, such as careful field characterization combined with appropriate monitoring, operational, and reporting procedures, can ensure permanent sequestration of the carbon dioxide in the oil fields. As with any other oil-extraction process, responsible operations and effective environmental regulations are essential to minimize the risk of air or water pollution and harmful surface disturbance.

in the major U.S. oil basins prepared by Advanced Resources International (ARI) for the U.S. Department of Energy indicate that between 35 and 55 billion barrels of oil in the lower 48 states are economical to recover at today's oil prices. To fully recover this volume of "stranded" oil would require between 9 and 12 billion tons of carbon dioxide over several decades.

ARI recently assessed the potential of using carbon dioxide captured from power plants and industrial sources that would become available as a result of climate legislation—such as the American Clean Energy and Security Act (ACES) which passed the House of Representatives last year—that includes a cap on carbon emissions and significant incentives for deploying carbon capture and storage (CCS) technology.<sup>3</sup> The study concludes that using and sequestering this captured carbon dioxide through enhanced oil recovery could produce more than 3 million barrels per day by 2030.

Producing more oil from existing domestic oil fields with CO<sub>2</sub>-EOR has advantages beyond displacing imported oil. It will create thousands of jobs building the infrastructure for sequestering large volumes of carbon pollution and, where appropriate, extend the productive life of existing domestic oil fields. In addition, CO<sub>2</sub>-EOR in fields that have already been drilled can avoid many of the additional environmental impacts associated with new oil exploration and production in undisturbed and protected areas.

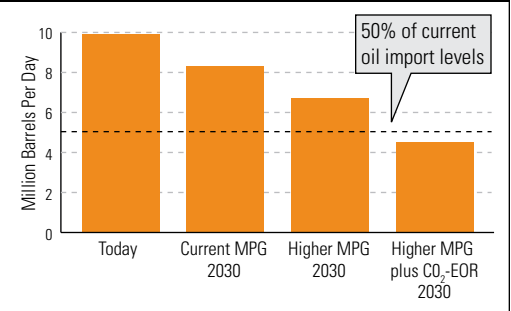
## Securing America with Comprehensive Climate and Energy Legislation

Legislative proposals before Congress look to address critical technology, jobs, and pollution issues associated with the energy use, sources, and choices that power our economy. However, only an integrated approach that combines limits on carbon emissions and effective incentives for manufacturing and installing advance technologies can create the long-term market conditions that will enable the clean energy economy to grow to scale.

The combined potential for improving fuel efficiency, deploying CCS technology, and

enhancing oil recovery underscores the sharp difference between so called "energy only" legislation and comprehensive legislation that includes limits—a "cap"—on carbon pollution. By 2030, the combined economic and climate benefits of these measures would cut oil imports from today's level by 55 percent, save the U.S. economy a total of \$1.2 trillion, and reduce carbon

## Projected Reductions of Imported Oil Achievable Through Higher Fuel Efficiency and CO<sub>2</sub>-Enhanced Oil Recovery



emissions by more than 750 million tons per year.<sup>4</sup>

Without an overall limit on carbon emissions or mandatory emissions standards, very few electric utilities or industrial plants will invest in realizing the potential for carbon capture and storage and enhanced oil recovery. Enacting comprehensive climate legislation will also create additional revenue—generated through the sale of emission allowances—that can be used to help retool domestic auto manufacturing plants to make and sell advanced gasoline, hybrid, and electric cars and trucks to meet and exceed fuel-economy requirements, all of which would create jobs for American workers.

As significant as recent steps to improve fuel efficiency are, the U.S. economy will remain dependent on imported oil to meet the majority of its needs unless decisive action is taken. Comprehensive clean energy and climate legislation that creates both investment incentives and a market to reward low-carbon technologies can help end our dependence on imported oil and improve our national and economic security.



<sup>1</sup> Rebecca Lefton and Daniel Weiss, "Oil Dependence Is a Dangerous Habit," Center for American Progress, January 13, 2010.

<sup>2</sup> Environmental Protection Agency, Analysis of the Transportation Sector: Greenhouse Gas and Oil Reduction Scenarios, February 10, 2010.

<sup>3</sup> Advanced Resources International, U.S. Oil Production from Accelerated Deployment of Carbon Capture and Storage, March 2010, [www.adv-res.com/pdf/ARI%20CCS-CO2-EOR%20whitepaper%20FINAL%203-10-10.pdf](http://www.adv-res.com/pdf/ARI%20CCS-CO2-EOR%20whitepaper%20FINAL%203-10-10.pdf).

<sup>4</sup> Each incremental barrel of oil saved or produced relative to EIA's Annual Energy Outlook 2009 is assumed to displace 0.75 barrels of imported oil and 0.25 barrels of domestic oil.