

America Over a Barrel

Solving Our Oil Vulnerability



U.S. Senator Jeff Merkley

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Table of Contents

I.	America's Oil Vulnerability.....	1
a.	National Security Risks.....	1
b.	Economic and Environmental Risks.....	1
II.	Strength Through a Clean Energy Economy.....	2
III.	A Roadmap to Oil Independence.....	3
a.	Make American Vehicles More Energy Efficient.....	3
b.	Increase Travel Options and Improve Infrastructure.....	6
c.	Develop Alternative Transportation Fuels.....	7
d.	Reduce the Use of Oil to Heat Buildings.....	8
IV.	The Results.....	9
V.	The Next Steps.....	10

America's Oil Vulnerability

There is near-universal agreement that breaking the United States off of oil should be one of our nation's top priorities. And yet gas prices remain around \$3 per gallon, oil continues to gush into the Gulf of Mexico, and we are still dangerously dependent on foreign oil imported from the Middle East. We face a choice between vulnerability and strength. So far we've made energy choices that have exposed us to unnecessary risks, but it's time for that to change.

National Security Risks

Of all the oil used in America each day, 57 percent is imported, and 70 percent of these imports come from outside North America. In total, the United States sends \$1 billion a day overseas to fuel our oil habit.

The four countries outside of North America that export the most oil to the United States are Saudi Arabia, Venezuela, Nigeria, and Iraq. These are nations that too often do not share our interests and are too unstable to safely make up such a large portion of our energy supply. Rather than sending a billion-dollar check to foreign nations every day, we should be spending that money on American energy solutions that put people to work here at home.

Economic and Environmental Risks

The oil spill in the Gulf of Mexico has demonstrated the devastation that oil drilling can cause and the folly of thinking that domestic drilling offers a viable path to energy independence.

This ongoing disaster has put the livelihoods of thousands of Americans, major portions of a region's economy, and critical natural resources at risk.

The cleanup is costing \$6 million each day, and the projected total cost of cleanup and damages is \$37 billion. Based on past oil spills, it is highly likely some oil will remain in the Gulf for decades to come.

Additionally, the United States transportation sector – the circulatory system of our economy – depends on oil for 95 percent of its energy. As long as America is dependent on foreign oil, both our security and our economy are in jeopardy.

THE REAL COST OF OFF-SHORE DRILLING

\$37 Billion

Projected total cost of clean-up and damages according to Credit Suisse.

\$6 Million

The minimum amount the clean-up is costing each day.

Strength through a Clean Energy Economy

The United States needs a comprehensive and diversified strategy to reduce our dependence on oil outright, with a goal of eliminating the need for any oil imported from outside of North America.

Some might say that this objective is too difficult to achieve, but in fact we have the technology to reach this goal within 20 years.

The Energy Information Administration projects that in 2030, the United States will have net imports of 8.36 million barrels per day. Based on today's breakdown of imports, 6.16 million barrels per day would come from outside of North America.

With a serious commitment, we can reasonably expect to reduce oil consumption by 8.32 million barrels per day. This savings could more than replace the amount of oil we import from non-North American nations.

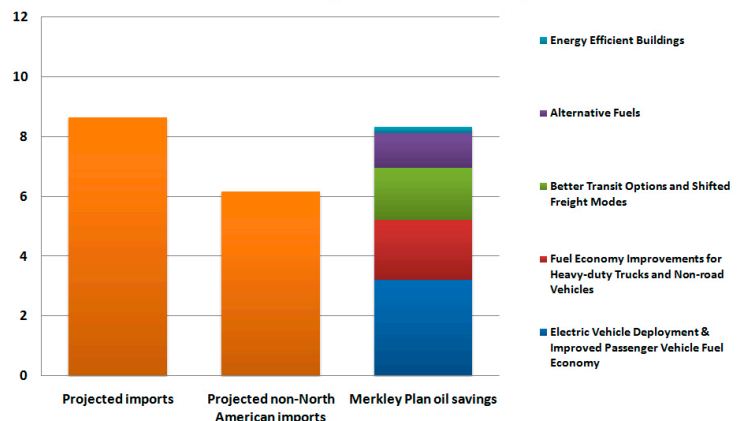
Senator Merkley has a plan to reduce oil consumption by making progress on four fronts: improvement in vehicle efficiency, an increase in transportation options, development of next-generation biofuels, and investment in energy-efficient building renovations.

Similar proposals have been made over the years and we have made some progress, only to lose ground when the nation's focus turned elsewhere or the political winds shifted. To implement a real reduction in oil dependence, the Merkley plan goes a step further by proposing that Congress set a national oil independence goal and charge the President with establishing a National Energy Security Council to assist in guiding a comprehensive effort to maximize oil independence over the next 20 years.

DOMESTIC DRILLING COMES UP SHORT

- America has less than 2 percent of the world's oil reserves, yet we consume 23 percent of the world's oil.
- Even if we opened up all offshore resources to drilling it would only be enough to lower the price of gas by 3 cents in 2030.

2030 Projected Oil Imports and Merkley Plan Savings



A Roadmap to Oil Independence

Make American Vehicles More Energy Efficient

A. Create an Aggressive Electric Vehicle Deployment Program

Electric vehicles offer the most promising opportunity for a major reduction in oil consumption. To promote electric vehicle use, Senator Merkley, along with Senators Dorgan and Alexander, has introduced the Electric Vehicle Deployment Act. The bill will provide aggressive incentives for the purchase of vehicles and the installation of infrastructure in a number of deployment communities across the country. This strategy offers an opportunity to “learn by doing” as different communities figure out the best strategies for building charging infrastructure and maximizing the capacity of our current electrical grid.

This model would set up a “race to the top” where communities would compete to develop the best approaches to encourage adoption of electric vehicles. More electric vehicles on the roads will mean lower costs. A second phase of the program would expand the number of deployment communities while reducing the scale of the incentives, in effect ratcheting down the government incentives as the market for electric vehicles and infrastructure matures.

To aid in meeting the goals of this program, Senator Merkley is calling for an aggressive plan to use electric vehicles in the federal fleet, particularly for agencies such as the Postal Service where vehicle use is particularly well-suited to the current range limitations of electric vehicles.

B. Ramp Up Fuel Efficiency for Passenger Vehicles

New standards for gas mileage established by the Obama Administration amount to an improvement of approximately 4 percent per year to get to just over 35 mpg in 2016.

But our country can do better. China will be requiring its vehicles to achieve 42.2 mpg by 2015. In the years after the 1970s oil shocks and the establishment of corporate average fuel economy (CAFE) standards, efficiency improved by 7 percent per year. Right now, we have more technology readily available, particularly because the deployment of electric vehicles will contribute to the total efficiency of automakers’ new vehicle fleets and allow for rapid progress. With six years until the current schedule for improvements ends, establishing a new schedule now gives automakers more time to prepare than they had in response to the first CAFE standards.

The Obama Administration has already announced its intention to develop the next phase of fuel economy and greenhouse gas emissions standards for the years starting in 2017. Senator Merkley is proposing that the Administration use their existing authority to maximize oil savings as they set these standards. An improvement of 6-7 percent per year would be a challenging but reasonable goal.


C. Increase Efficiency for Delivery Vans and Large Trucks

A range of technologies are available right now to make both medium-duty vehicles, such as delivery trucks and vans, and heavy-duty-vehicles, such as long-haul freight trucks, substantially more fuel-efficient. Several of these energy-saving components are only available in new vehicles, but many, such as aerodynamic improvements and auxiliary power units, are available to retrofit existing vehicles.

In addition, manufacturers are already starting to produce hybrid heavy-duty trucks and fully electric medium-duty trucks. Electric trucks make particular sense for fleets that run delivery routes within the electric battery's range and return to a central station for overnight charging. American companies are leading the way - Navistar is producing an all-electric delivery van for FedEx and Freightliner is developing a line of hybrid trucks.

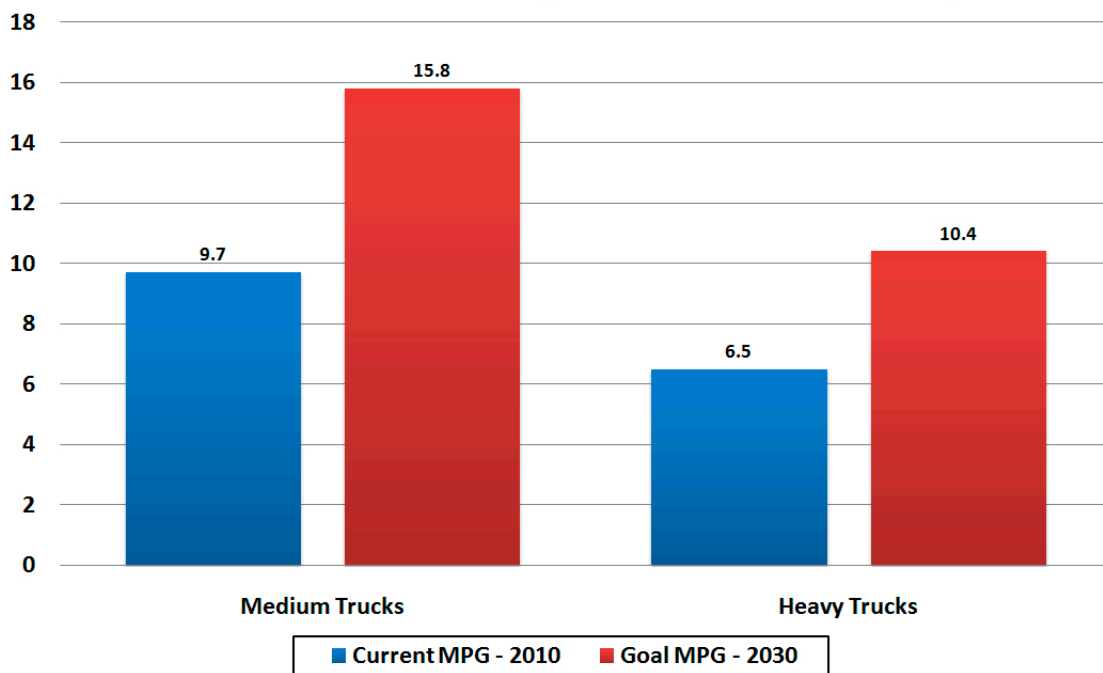
The U.S. Environmental Protection Agency has conducted an assessment of available technologies at the request of Senator John Kerry. Their analysis did not include all of the technologies currently available (specifically, all-electric trucks) and was constrained to technologies that pay for themselves (in costs savings on fuel) over the lifetime of the vehicle.

**OIL CONSUMPTION SAVINGS:
ROAD VEHICLE EFFICIENCY**



According to the EPA, 400,000 barrels of oil per day can be saved by putting these measures into use.

Medium and Heavy Truck Fuel Efficiency



Even with these restrictions, the study concluded that medium-duty trucks could reach 15.8 miles per gallon (mpg) by 2030, from 9.7 mpg today, and heavy-duty trucks could reach 10.4 mpg, from 6.5 mpg today.

Senator Merkley is calling the Obama Administration to set fuel economy standards to meet at least these targets, and proposing that Congress should continue to fund incentive programs such as the Diesel Emissions Reduction Act to aid truck owners and operators in retrofitting their trucks to reduce fuel consumption.


D. Improve Efficiency for Non-road Transportation

Just as with more traditional vehicles, an array of technologies is available to improve the fuel efficiency of non-road vehicles. Airplanes can be built with more efficient engines and lighter frames. There are also operational improvements to bring our air traffic control system into the 21st-century and allow for more efficient movement of planes that can reduce fuel consumption.

Trains have a similar array of options including technological improvements for train engines and cars and operational improvements for rail systems. In addition, a shift toward hybrid engines and electrified major rail routes can significantly reduce the consumption of diesel fuel.

Ships can be better designed, engine technologies can be improved, and operations changes, such as lower speeds and optimized routes, can be implemented. Measures to reduce oil consumption in non-road engines range from improved engines in bulldozers to increased use of electric lawnmowers.

**OIL CONSUMPTION SAVINGS:
NON-ROAD VEHICLE EFFICIENCY**



According to the EPA, 1.6 million barrels per day can be saved by 2030 by making changes to non-road vehicles.

Senator Merkley is proposing that the Obama Administration set fuel economy standards for non-road vehicles to achieve maximum practical oil savings in this sector.

Increase Travel Options and Improve Infrastructure

A. True Transportation Options for Families and Communities

Too many families live in neighborhoods where they have little choice but to drive in order to get to work and run errands. We already have transportation planning requirements that govern states' and metro areas' use of hundreds of billions of dollars in transportation infrastructure. There are several changes we can make to our long-term infrastructure plans to help state and local governments meet oil savings goals.

Requiring planning to focus on moving people rather than cars and providing communities with a greater voice in how their infrastructure is planned will give more people better and cheaper options for getting around. These options include bus rapid transit, light rail, streetcars, and streets that are safer and more comfortable for biking and walking.

Senator Merkley is calling for local, regional, and national planning efforts to be accompanied by targeting transportation investment in plans and projects that will offer the greatest reductions in oil consumption.

Senator Merkley also supports continued investment in high-speed rail to address long-distance travel and give people better options for getting between cities than driving or flying.

B. True Transportation Options for Businesses

A truck can move a ton of freight 155 miles on a gallon of fuel. A train can move that same ton of freight 413 miles by rail, and a barge can move it 576 miles by waterway. Many businesses would prefer to move goods by these more efficient methods, but a lack of freight rail capacity has led many businesses instead to shift more freight movement onto trucks.

Senator Merkley is proposing an initial goal of shifting 10 percent of freight movement onto rail and marine shipping and developing a comprehensive plan for enhancing access to these transportation modes and determining if more than 10 percent could be shifted.

OIL CONSUMPTION SAVINGS: TRAVEL OPTIONS AND INFRASTRUCTURE



The combination of these three travel efficiency strategies is estimated to save 1.75 million barrels per day by 2030.

To do this, Congress should establish a freight mobility program that invests in projects to add rail and marine shipping capacity, offers incentives for private investments in shipping capacity, and otherwise encourages shifting from truck to rail and barge.

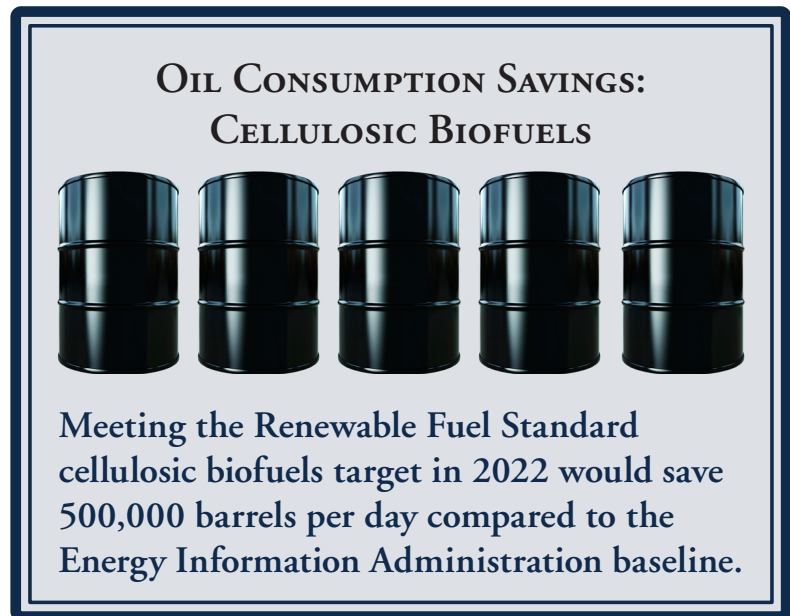
C. Smart Traffic Management

In addition to providing better access to multiple transportation modes, Senator Merkley is calling for a whole set of other strategies that make it easier for people and companies to be less dependent on driving and to get the benefits of making that choice. Examples include increased use of telecommuting, smart commuter planning programs that help people find rideshares, and pay-as-you-drive-insurance.

Develop Alternative Transportation Fuels

A. Invest in Next-generation Biofuels

The Renewable Fuels Standard (RFS) passed in the 2007 Energy Independence and Security Act sets a target of using 36 billion gallons of renewable fuels, including 16 billion gallons of cellulosic biofuels, by 2022. Because corn ethanol currently relies on substantial fossil fuel inputs, it's particularly important to focus on developing advanced biofuels. These fuels offer benefits for rural communities similar to ethanol, particularly by creating value for agricultural waste and by creating jobs in natural resource management. In many forested areas of the country, second-growth forests have grown back unnaturally dense. Ecological restoration thinning projects improve forest health and create material that can be used for energy.

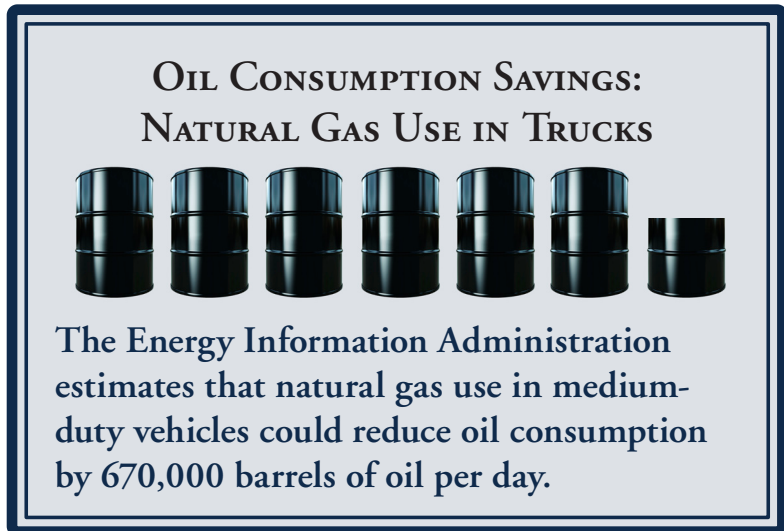


Unfortunately, the cellulosic biofuels market is not currently on pace to meet the RFS targets. To get the United States back on track, Senator Merkley is proposing loan guarantees and tax credits to stimulate the industry and increase biofuel production.

B. Increase Use of Natural Gas in Medium- and Heavy-duty Trucks

Natural gas, while still a fossil fuel that contributes to air and water pollution including carbon emissions, offers significant benefits over petroleum. In particular, with major U.S. reserves recently discovered to be more accessible than earlier estimated, the domestic supply of natural gas offers substantially greater security than oil.

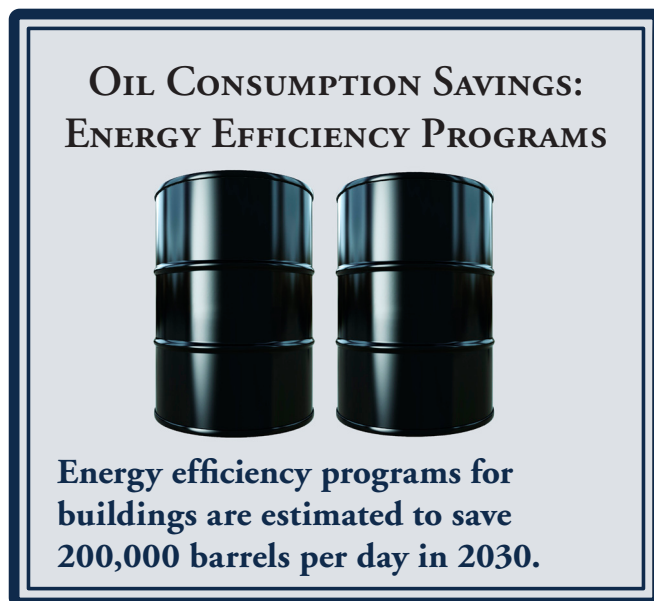
Natural gas also emits approximately 25 percent less carbon than oil.



While the build-out of fueling infrastructure could be a major barrier to widespread adoption of natural gas vehicles for passenger use, there are fewer barriers to medium- and heavy-duty vehicle use as a smaller number of fueling stations can meet a large share of the need.

Senator Merkley is calling for Congress to adopt a significant package of incentives, including tax credits, for trucks that run on natural gas as well as incentives for fueling infrastructure.

Reduce the Use of Oil to Heat Buildings



Senator Merkley has proposed two programs, Building Star and Home Star, to jump-start energy-efficiency renovations of commercial and residential buildings. These renovations can save significant amounts of oil for communities that depend on heating oil. In particular, offering financing options to building owners can eliminate the upfront cost and offer attractive repayment terms, as the savings will often exceed the costs of loan repayment. In addition, Congress should authorize grants or loans to community institutions, particularly in rural and forested areas, to use sustainable biomass boilers for heating.

Senator Merkley is calling for an energy efficiency renovations program for homes and commercial buildings - similar to Home Star and Building Star - to target renovations that reduce heating oil consumption, as well as funding for programs to replace heating oil and propane heating systems with sustainable biomass heating systems.

The Results

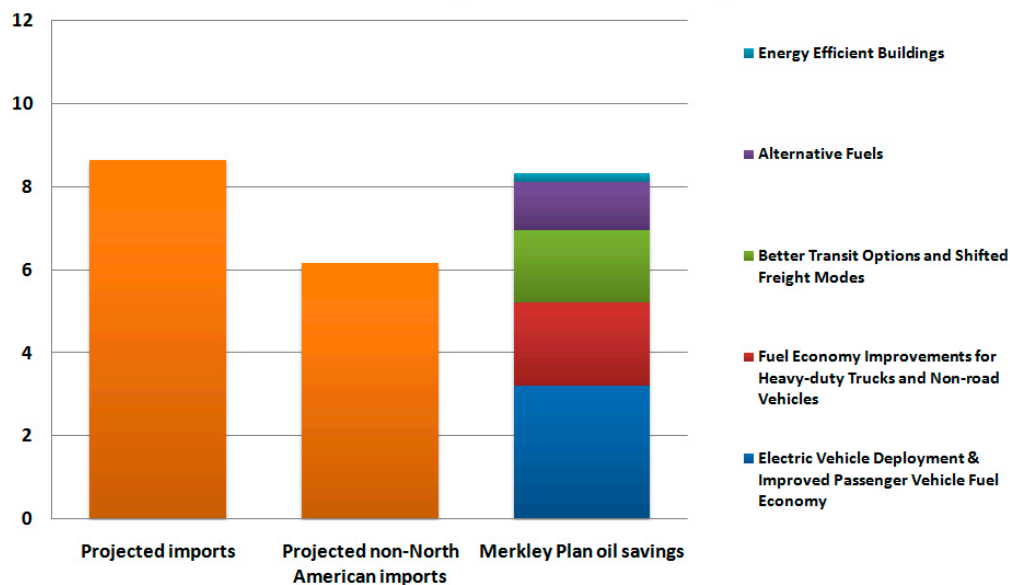
Senator Merkley's plan demonstrates how the United States can reduce oil consumption by 8.32 million barrels per day (mbd) in 2030.

SENATOR MERKLEY'S PLAN

Energy Efficient Buildings	0.2 mbd
Alternative Fuels	1.17 mbd
Better Transit Options and Shifted Freight Modes	1.75 mbd
Fuel Economy Improvements for Heavy-duty Trucks and Non-road Vehicles	2 mbd
Electric Vehicle Deployment & Improved Passenger Vehicle Fuel Economy	3.2 mbd
Total Oil Savings	8.32 mbd

The savings from Senator Merkley's plan add up to 44 percent of our total oil consumption in 2030, 96 percent of our foreign imports and 135 percent of our imports from outside North America.

2030 Projected Oil Imports and Merkley Plan Savings



The Next Steps

Implementation and Oversight

A series of policy measures established by an Act of Congress may not sufficiently reduce our dependence on foreign oil on its own.

Many of these solutions will require sustained investment over time and we cannot afford to let the back-and-forth nature of political cycles result in the nation's political leadership losing focus or allowing investment opportunities to come and go.

Because this challenge requires action on several fronts, Senator Merkley is proposing the establishment of a federal policy and administrative structure that will efficiently coordinate the many programs and authorities of the federal government toward meeting the goal, as well as a mechanism to ensure that the results are achieved, not avoided.

This proposal includes:

- Charging the President with meeting the goal of reducing oil dependence by at least 8 million barrels per day.
- Establishing a National Council on Energy Security in the Executive Office of the President, similar to the National Economic Council. This council would be made up of top national experts on energy, the economy, and the environmental implications of energy, as well as the Secretaries of Energy, Transportation, Commerce, and Defense, and the Administrator of the EPA.
 - The council would be charged with helping the President coordinate the government's work to meet the nation's goals for oil savings, carbon pollution reduction, and other energy goals.
 - The council would assess goals for oil savings, determine whether more aggressive goals can be set, and monitor progress toward the goals.
 - The council would review government programs and authorities and recommend to the President ways to better use those authorities in order to meet the goal, as well as advising the President on budget requests to Congress to help meet the goals.
 - The council would recommend policies to Congress that would better enable the country to meet the goals or that would allow for more ambitious goals.

Moving Forward

Politicians have often talked about the importance of reducing America's dependence on oil, but our oil addiction has only grown to make us more vulnerable. The problems are evident to all: we rely on a single, volatile resource to power our economy, and our national security is tied to the most unstable region of the world.

Now, after years of brushing reality aside and allowing our reliance on oil to grow, the oil spill in the Gulf of Mexico has damaged an entire region's economy and the sludge is beginning to coat our Southern shores.

America's oil vulnerability requires an American solution.

By relying on current technologies and setting reasonable goals for increased efficiency, Senator Merkley's plan is a common-sense approach to realistically reducing our oil dependence.

It is time for America meet its challenges head on, make a commitment to a stronger economy and a stronger nation, and commit – finally – to breaking the strangling grip of our oil addiction.



Oregon's Senator Jeff Merkley

merkley.senate.gov