DIRTY FUELS, CLEAN FUTURES

A Call for a **National Climate Action Plan** that Keeps Dirty Fuels in the Ground

SIERRA CLUB
FOUNDED 1892

ACKNOWLEDGEMENTS

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The Sierra Club is America's largest and most influential grassroots environmental organization, with more than 2.4 million members and supporters nationwide. In addition to creating opportunities for people of all ages, levels, and locations to have meaningful outdoor experiences, the Sierra Club works to safeguard the health of our communities, protect wildlife, and preserve our remaining wild places through grassroots activism, public education, lobbying, and litigation.

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APRIL 2014

Last year, President Obama outlined his plan to address climate disruption and achieve his stated goal of reducing carbon pollution to about 17 percent of its 2005 level by the end of this decade. Already, through administrative actions and by doubling down on clean energy, his administration has done more than any other. New fuel economy standards will double the efficiency of our cars and trucks, and the energy efficiency of our appliances and buildings also will dramatically improve. Stimulus spending has helped to boost clean, renewable energy, and the president has directed the Environmental Protection Agency to set standards to curb toxic emissions and carbon pollution from coal plants.

Unfortunately, though, the administration has also continued to pursue a reckless "all-of-the-above" energy strategy that could undermine its real progress on cutting carbon pollution by expanding fossil fuel production on our public lands. Developing these coal, oil, gas, oil shale, and tar sands resources would release hundreds of billions of tons of carbon into the atmosphere and negate carbon-reducing actions. This report examines many of these large potential climate disrupters and the impacts they would have.

The world's best climate scientists have made it clear: To have even a two-thirds chance of keeping global temperature rise to less than 3.6 degrees Fahrenheit, we cannot exceed more than 469 billion additional tons of carbon dioxide pollution. To achieve that, the Obama administration (and future leaders) will need to complement policies that reduce fossil fuel consumption (and promote clean energy) with similar measures that limit dirty fuel extraction on U.S. public lands. It would be a mistake to see this sacrifice as self-denial. In fact, committing to a future powered by clean, renewable energy will mean a healthier America with cleaner air and water, pristine coasts, and protected natural areas. As fossil fuels leave the picture, ours will be a wealthier, more just, and more productive nation.

It's for all these reasons that we urge President Obama to reject these dirty fossil fuel projects and maintain our national momentum toward a 100 percent clean-energy future.

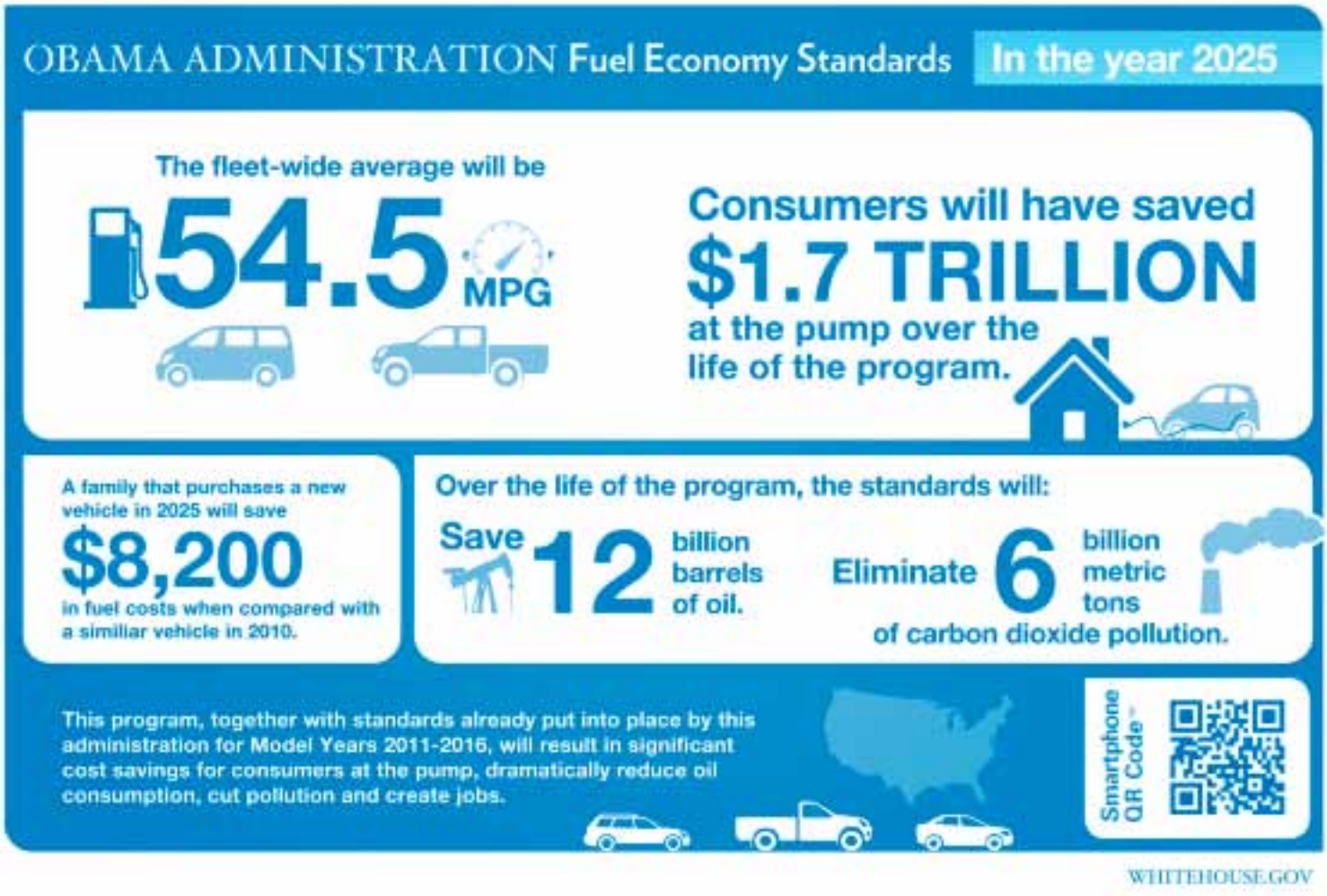
PHOTO COURTESY OF THE EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

EXECUTIVE SUMMARY

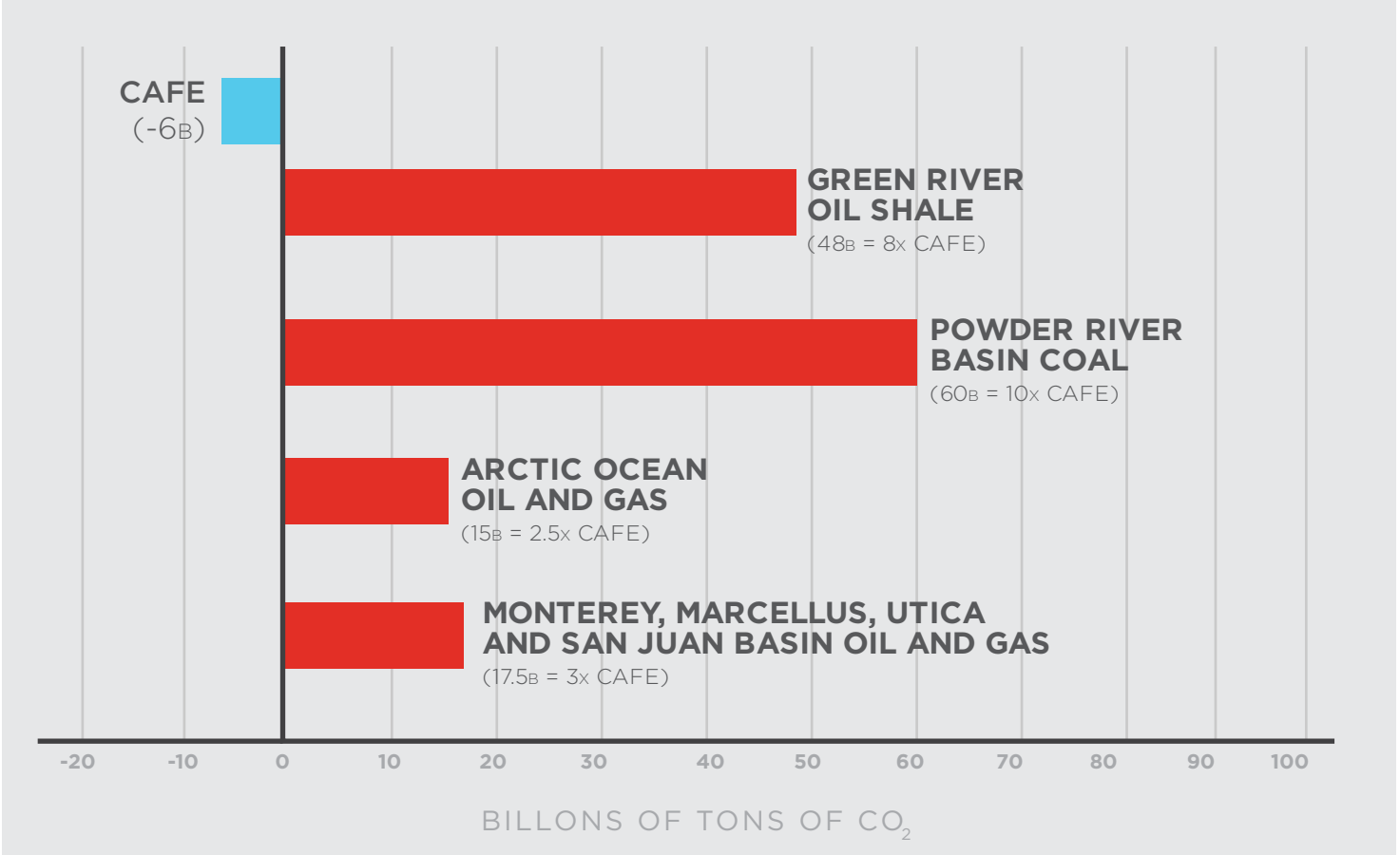
Our world faces an unprecedented environmental, social, and economic challenge. Top scientists agree that climate disruption is primarily due to the release of billions of tons of carbon dioxide and methane from fossil fuels. World leaders in 2008 set a target of no more than a 2-degree Celsius rise in global temperatures as the upper limit to avoid climate catastrophe. Scientific modeling asserts that such an upper limit in global temperatures by 2 degrees Celsius (3.6 degrees Fahrenheit) will result in catastrophic events, including significant sea level rise, superstorms, drought, and extinctions.

At current annual global emission rates of 31 billion tons of carbon dioxide worldwide, burning of oil, gas, and coal that release another 500-600 billion tons of carbon dioxide into the air would push us past this 2-degree Celsius tipping point[1] in 15 years, by 2030. Worldwide, burning existing reserves of oil, gas and coal would release 2.8 trillion tons of new carbon dioxide[2] into the air.

Last June, President Obama announced a historic national Climate Action Plan[3] that builds on the administration's successes to date: increase fuel economy of cars and light trucks (Corporate Average Fuel Economy CAFE standards) to conserve 12 billion barrels of oil and keep 6 billion tons of carbon dioxide—more than the total amount of carbon dioxide emitted by the United States in 2010—from being emitted over the next 12 years;[4] double the amount of



CAFE COMPARED TO FOUR CLIMATE DISRUPTERS



wind and solar powered electricity generation; and raise energy efficiency standards for appliances. Currently, the administration is leading an effort to set historic carbon pollution standards for dirty power plants and also increase mileage efficiency for heavy trucks. The result is that for the first time in 20 years, domestic carbon dioxide emissions are decreasing, and the United States is no longer the top carbon dioxide emitter in the world. Clearly, President Obama is doing more than any other president in reducing our nation's carbon emissions.

However, even as the administration is reducing domestic greenhouse gas emissions, it is also advancing an "all-of-the-above" energy strategy that promotes greater domestic fossil fuel production, exporting these climate disrupting fuels abroad, and opening up millions of acres of our nation's most treasured lands and waters to dirty fuel extraction. Currently, almost a quarter of our country's annual carbon dioxide emissions originate from federally managed oil, gas, and coal production.[5]

This report highlights major new climate disrupters that have the potential to release billions of tons of new carbon dioxide into the air, negating the administration's progress to reduce carbon pollution from vehicles and power plants. With record high atmospheric carbon concentrations and the growing threat of extreme heat, drought, wildfires, and superstorms, America's energy policies must reduce our dependence on fossil fuels, which are at the foundation of our climate crisis.

President Obama can take pragmatic actions to keep dirty fuels in the ground and put our country on a new path to a clean-energy future. Over the remainder of his time in office, he has an opportunity to: require all federal resource management agencies to fully disclose potential carbon pollution; not allow any oil shale and tar sands extraction; reform coal mining on federal lands; put oil drilling in the Arctic Ocean off limits; not issue any new oil and gas leases that require fracking until impacts on water, air and climate are averted and; stop massive plans to export coal and liquified gas to other countries.

Keeping these dirty fuels in the ground puts our country on a path where our economy is powered by energy that is clean, safe, secure, and sustainable.

DISCLOSING CARBON POLLUTION FROM FEDERAL ACTIONS

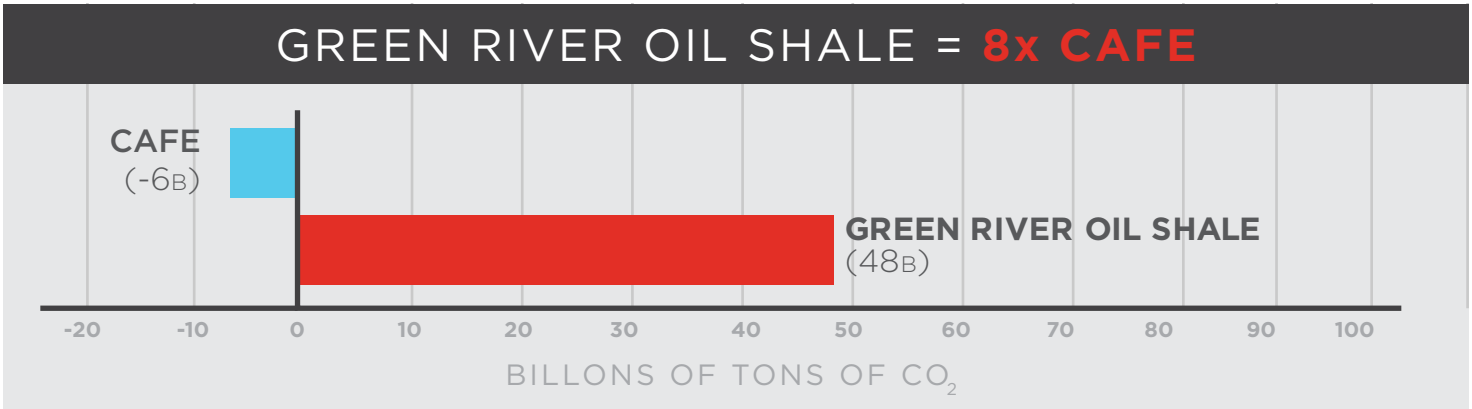
In the first year of the Obama administration, the president issued a historic executive order, E.O. 13514,[6] that requires agencies to "measure, report, and reduce their greenhouse gas emissions from direct and indirect activities." In order to implement that executive order, the White House's Council on Environmental Quality (CEQ) has developed guidance, *The Federal Greenhouse Gas Accounting and Reporting Guidance*,[7] that requires federal agencies to inventory and disclose greenhouse gases. However, calculating and disclosing potential carbon emissions from fossil fuel leasing on federal lands is voluntary, leaving a major loophole that allows oil, gas, and coal companies to avoid climate-impact analyses.

Yet the federal government already has all of the tools and data to do such carbon dioxide assessments. The Sierra Club utilized publicly available data and formulas provided by the U.S. Environmental Protection Agency (EPA), U.S. Energy Information Agency (EIA), U.S. Geological Survey (USGS) and Intergovernmental Panel on Climate Change (IPCC) to calculate potential carbon dioxide emissions of a number of proposed climate disrupter projects.

Throughout this report all references to "tons" refers to "metric tons." Our calculations account for carbon dioxide during the production, processing, and full combustion of coal, oil, and natural gas. Overall, our estimates from this partial life cycle analysis are conservative, and are based on technically recoverable or economically recoverable figures provided by government agencies. This report compares the potential carbon pollution that would be generated by these climate disrupters with the Obama administration's calculations that 6 billion tons of carbon dioxide emissions would be averted by 2025 as a result of the new fuel efficiency standards for light vehicles (CAFE standards).[8] This report only calculates carbon dioxide, and does not consider methane, ozone or other climate disrupting gases.

BIG CLIMATE DISRUPTERS

1. OIL SHALE AND TAR SANDS IN THE GREEN RIVER FORMATION



Spread across the three states of Wyoming, Colorado, and Utah, the Green River Formation supports a variety of waterfowl, eagles, owls, elk, mule deer, bear, and pronghorn antelope. It includes special places such as Dinosaur National Monument, Canyonlands National Park, tribal cultural sites, and the Pony Express National Historic Trail. The Yampa, Green, White, and Colorado Rivers provide world-class rafting, fishing, wildlife viewing, and water for over 36 million people.

The Green River Formation is a fossil-fuel-rich-remnant of a prehistoric sea. Currently drilled for oil and gas, this formation is also the focus of speculative efforts to develop oil shale and tar sands. Oil shale rock can be mined and then heated to a high temperature to release oil that is then

STEAMBOAT ROCK ON THE GREEN RIVER

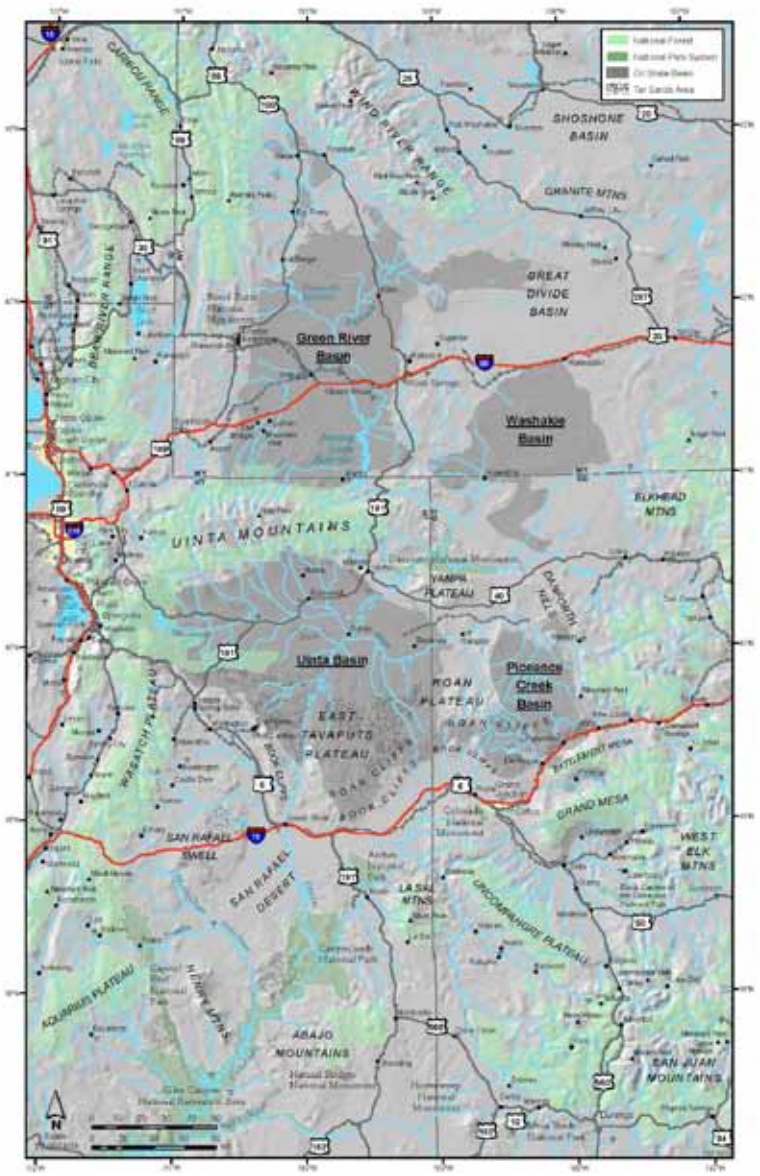
collected and refined. It is a highly energy- and water-intensive process that generates 50 to 75 percent more carbon emissions than conventional oil.[10] The entire Green River Formation is estimated by the U.S. Geological Survey to contain between 800 billion and 1.44 trillion barrels of oil from technically recoverable oil shale resources.[11] Developing just **ten percent** of this oil shale would equate to 48 billion tons of carbon dioxide pollution, 8 times more than what CAFE standards would prevent from being emitted. A Government Accountability Office study estimates that, on average, five barrels of water are required to produce one barrel of oil from oil shale.[12] This means that large scale development of oil shale on federal lands could require almost as much water annually as Denver, Salt Lake City, and Albuquerque use each year.

Oil shale development has a long history of hype. In 1912 President Howard Taft established the Office of Naval and Petroleum Oil Shale Reserves, and set aside federal lands for oil shale development. Despite the establishment of the Naval Oil Shale Reserves and the opening of other lands for development, oil shale never moved beyond research. Interest once again peaked during the Bush-Cheney administration following Congress' passage of the Energy Policy of Act of 2005 (Energy Act).[13] Among other provisions, the Energy Act sought to jump-start oil shale and tar sands development by initiating a federal research and commercial leasing program, and proposing to open up two million acres of Bureau of Land Management (BLM) lands in Utah, Colorado, and Wyoming to oil shale and tar sands extraction.

In 2008 the Sierra Club, along with other partners, sued the BLM to stop a proposal to open more than 2 million acres of public lands to oil shale and tar sands development. The result is that last year, the Obama administration released a BLM plan that reduced the federal land available in Colorado, Utah, and Wyoming to 677,000 acres for oil shale leasing and 140,000 acres for tar sands leasing.[14] The BLM plan does not disclose potential carbon dioxide emissions from oil shale and tar sands development, and fails to adequately analyze potential impacts to threatened and endangered species[15] or make a sufficiently strong attempt to reduce overall environmental impacts. Due to the high potential for negative impacts to climate, wildlife, and water supply, the BLM must withdraw all plans to allow any oil shale and tar sands development on federal lands.

A PUSH TO MAKE OIL SHALE AND TAR SANDS COMMERCIALLY VIABLE

Time is of the essence. Companies with oil shale and tar sands leases on state land in Utah are aggressively pursuing projects to show that oil shale extraction is commercially viable. These companies include Enefit American Oil, Red Leaf Resources, and TomCo. Utah regulators are approving oil shale mining permits with few protections for water, air, and wildlife. Red Leaf Resources has state permits to develop a prototype oil shale project. This project involves strip mining oil shale rock, heating it in large pits to extract oil,[16] and transporting the hot oil mix in heated trucks



CREDIT: U.S. BUREAU OF LAND MANAGEMENT

to a new refinery. The Sierra Club, along with allies, has challenged[17] the issuance of a state water permit to Red Leaf Resources on the grounds that doing so would pollute the groundwater. Early this year, TomCo, a British company, also applied for state permits to use Red Leaf Resource technology. The State of Utah and the BLM are considering a large-scale land swap that would convert federal lands into state lands in order to facilitate quicker development of tar sands and oil shale. If such oil shale projects become commercially viable, the door will be wide open for other companies that currently hold oil shale leases to develop hundreds of thousands of acres of federal and state lands in Colorado, Utah, and Wyoming.

WHAT THE OBAMA ADMINISTRATION CAN DO

Withdraw all federal lands from consideration for oil shale and tar sands development. Such energy and water-intensive fossil fuel production makes no sense in the increasingly drought-stricken West.

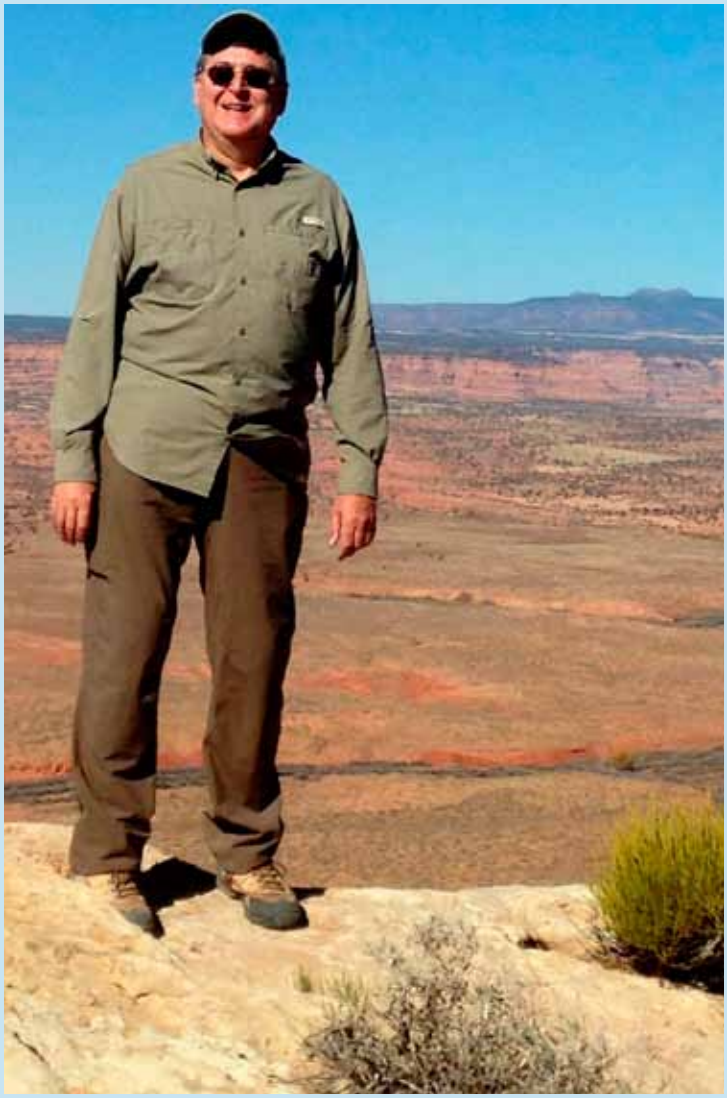
The BLM should not collaborate with the state of Utah to trade federal lands away that facilitate oil shale and tar sands development without any federal safeguards.[18]

EESTI ENERGIA OIL SHALE PLANT IN ESTONIA

COMPANY PROFILE

Enefit American Oil

Enefit American Oil currently holds oil shale leases on private, state, and federal lands in Utah.[19] The company is currently developing oil shale extraction technology in order to expand its international operations by mining and refining oil shale here in the United States. Enefit's parent company is Eesti Energia, an Estonian energy company that produces electricity from burning oil shale in much the same way that utilities burn coal. This process relies on intensive strip mining and generates mountains of oil shale waste. A 2005 study states that "Processes of oil shale mining, combustion in power plants, and thermal processing in chemical plants generate solid waste."[20] Piles of oil shale waste have self-ignited in Estonia. European countries have raised a number of concerns about Eesti Energia's global carbon emissions. In fact, in 2011 CEO Sandor Live publicly asserted that "The risk concerning the price of carbon dioxide is relatively high for Eesti Energia because our production involves the emission of lots of carbon dioxide."[21]



MARC THOMAS

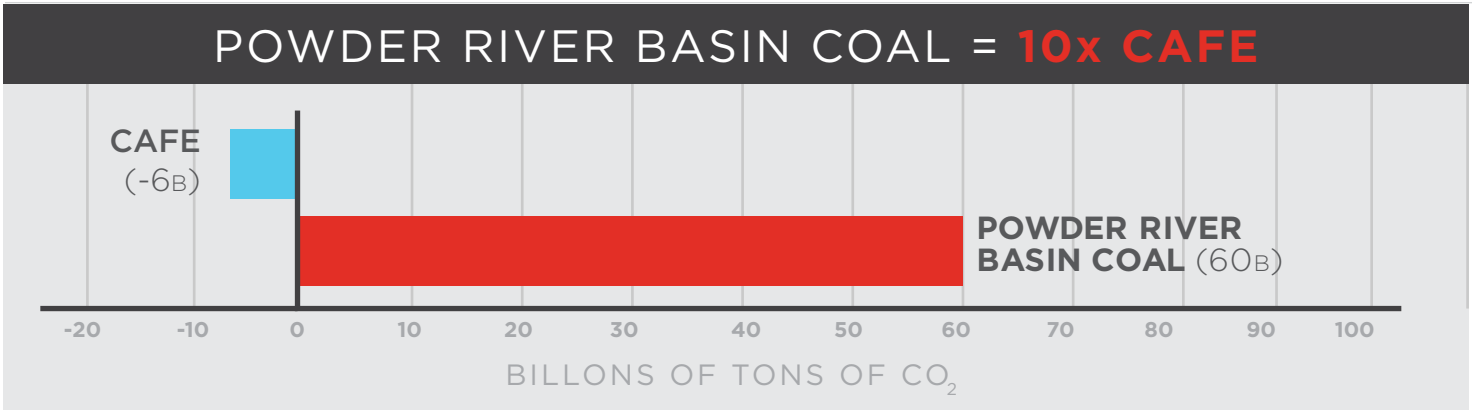
ACTIVIST PROFILE

Marc Thomas and Deb Walters

Marc Thomas and Deb Walters are longtime activists with the Glen Canyon Group of the Utah Chapter of the Sierra Club in Moab, next to Arches and Canyonlands National Parks. They and their spouses moved to this part of Utah after retiring, with the desire to live in a place with clean air and clean water, surrounded by Utah's wild lands which provide a myriad of outdoor opportunities. Deb and her husband Dick are horseback riders and Marc and his wife Judi are avid hikers. They are organizing fellow Moab residents to prevent the expansion of U.S. Highway 40 to accommodate a huge increase in trucks carrying dirty fuels to market, stop a proposed new road through pristine red rock country, and halt a proposed 135-mile heated pipeline that would transport heated oil sludge to Salt Lake City refineries. The two are mobilizing the public to get involved in the current county land use planning process, and marshalling local support for a Greater Canyonlands National Monument that would protect the area from development of the largest known tar sands deposit in the nation. Marc and Deb are determined to preserve a future for eastern Utah that includes federal protections of the vast, beautiful red rock country that is a world-class destination for rafters, bikers, hikers, and photographers.

DEB WALTERS

2. COAL IN THE POWDER RIVER BASIN



Burning coal to generate electricity is the single largest source of carbon pollution in the United States.[22] The Powder River Basin, located in Wyoming and Montana, holds the largest minable coal reserves in the continental U.S. Encompassing 14 million acres of public lands and mineral estates, the Powder River Basin generates 370 million short tons of coal each year, with the 16 strip mines in the region producing 42 percent of the nation's coal. A 2013 United States Geological Survey (USGS) assessment[23] calculates 25 billion short tons of economically recoverable coal, from a total of 162 billion potentially recoverable coal resources. This equates to 60 billion metric tons of carbon dioxide[24] that could potentially be released, equaling over 10 times more than savings from CAFE standards. Keeping that carbon in the ground is essential to reducing the severity of climate disruption and protecting the security of our health, water, and food, now and for future generations.

These massive strip mines on federal lands in the Powder River Basin make the federal government the biggest originating source of carbon pollution in the electricity sector.[25] This coal fuels more than 230 power plants in 35 states, linking Powder River Basin coal to 13 percent of U.S. greenhouse gas emissions and making it a prime contributor to climate disruption.

Yet the major role federal coal plays in worsening climate disruption is largely ignored by the federal government's lax and faulty leasing practices in the Powder River Basin, overseen by the BLM. Despite overwhelming scientific agreement that we must swiftly cut carbon pollution, the BLM insists that it should not have to consider climate-disrupting pollution as it leases coal.

At the same time, the leasing practices routinely allow the coal industry to pay below market price for hundreds of millions of tons in a single lease—with billions of tons leased in some years.[26] The federal government has continued to lease coal into a long-term soft market for the resource.

As the domestic demand for coal declined in 2013, so did industry's willingness to make "fair market value" bids for federal coal, and there were no successful Powder River Basin lease sales for the year. In August, the Maysdorf II North tract containing 148.6 million short tons of coal failed to attract a single bid—for the first time in Wyoming's history—even from the company that proposed the tract. The following month, the BLM rejected a bid by Kiewit of 21 cents per ton for the Hay Creek II coal tract in Wyoming, and any new lease sale would be delayed until 2015. The Maysdorf II South federal coal tract, originally scheduled to be offered in the fourth quarter of 2013, has been delayed indefinitely by the industry due to weak market conditions.

Such uncertain market conditions are the result of citizens stepping up to stop the harm caused by mining, transporting, and burning federal coal. In hundreds of communities across America people have taken action to close down coal-fired power plants. To date, 154 coal plants have been retired or announced for retirement since 2010. Domestic demand for federal coal will continue to decline, making the government's insistence on granting new leases illogical.

As domestic demand for coal declines, coal companies are looking to export America's coal to other countries. Proposals to vastly expand ports in the Pacific Northwest that would give companies super-sized profits by selling coal to Asia have run into a solid wall of public opposition,

and three of six proposed export terminals have been stopped. Trains hauling Powder River Basin coal in uncovered rail cars lose hundreds of pounds of coal dust *per car* that settles into rivers and lakes every year. Citizen lawsuits have put coal companies and railroads on notice that they must stop this pollution.

Because there are 5- to 10-year "overhangs" of current leases to production levels at those leases, the government could stop awarding leases tomorrow and the industry would still have years of coal production in front of it. Despite failed lease bids, legal challenges, and increasing public concern, BLM is in the process of approving new coal leases for an additional 5 billion tons of Powder River Basin coal. A further 10 billion tons is projected through the agency's Buffalo Resource Management Plan revision process. Fifteen billion tons of coal equates to 36 billion tons of carbon dioxide. Legal challenges to six coal lease expansion approvals in the Powder River Basin seek to make the BLM account for carbon pollution from burning the coal it leases, as well as the damage to land, water, and human health caused by coal mining and the transportation of coal.

In February 2014, the U.S. Government Accountability Office (GAO) released a highly anticipated report[27] called for by Senator Ed Markey (D-MA), to investigate whether BLM's lax bidding process on public lands allowed coal companies to shortchange U.S. taxpayers by not paying a fair market price for federal coal. Following on the heels of the June 2013 Department of Interior Inspector General Report, the GAO's Report is the second independent audit in the last year to document serious flaws in BLM's federal coal leasing program. The GAO found that BLM's current leasing practices fail to do more than supply "generic boilerplate statements" about the coal industry's plans to rake in cash by exporting federal coal. They also fail to provide the public with accessible, transparent information on coal leases, and lack independent reviews that are "critical for ensuring the integrity" of the appraisal process. According to the GAO, "BLM is unable to ensure that its results are sound" when leasing billions of tons of federal coal. The GAO results spurred Senator Markey to call for an immediate suspension of the federal coal leasing program until the BLM gets its act together.

Communities, citizen groups, and individuals across the country know we can't afford to keep burning coal for electricity at a time of rapidly increasing climate disruption. Annual economic, health, and environmental costs of using coal are $300 billion to $500 billion annually. Allowing coal companies to profit from federal coal subsidies, while the federal government ignores carbon pollution from those leases and lets taxpayers foot the bill for the harm caused by burning that coal, is bad public policy.

WHAT THE OBAMA ADMINISTRATION CAN DO

The Sierra Club and its allies urge the Obama administration to **call a "timeout" on coal leasing on all federal public lands,** until a thorough evaluation and revamping of the BLM's coal leasing program occurs. Meaningful reforms in BLM's coal leasing program include the following measures:

1. Landscape Planning and Mitigation: Identify areas that are appropriate for coal mining in a way that protects other sensitive public lands. When issuing leases, the BLM should minimize environmental impacts to climate, air, and water, and protect lands for hunting, fishing, recreation, and ranching. The BLM must disclose the full impacts of coal production, including rail expansion, port development, overseas transport, and carbon pollution from the combustion of coal.

2. Valuation and Transparency: Encourage market competition. The BLM must fully consider national and global markets when setting "fair market value" for federal coal, provide the public all information about leases, and strengthen program oversight to ensure that coal leases are benefiting taxpayers, not just the coal companies.

3. Close Royalty Loopholes: The federal coal royalty rate for surface mines is currently set at 12.5 percent, has not been raised since the 1970s, and allows coal companies to game the system. Coal companies sell federal coal to a subsidiary, pay a 12.5 percent royalty on that sale price, and then have the subsidiary sell the coal overseas for ten times the amount without paying taxpayers any royalties on the much higher sale price. The BLM should close that loophole and raise the royalty rate to 18 percent.

ARCH'S BLACK THUNDER COAL MINE

JEFF KING (IN RED CAP)

COMPANY PROFILE

Arch Coal

Arch Coal[28] is one of the top polluters in the coal industry. With a slate of underground, strip, and mountaintop-removal mines, the company operates in each of the country's major coal-producing regions. The Sierra Club and its allies are currently challenging a proposed billion-ton expansion of Arch's Black Thunder coal mine in Wyoming. The company touts Black Thunder as one of the largest single coal complexes in the world and the first to generate over a billion tons of coal. Arch is behind the proposed Otter Creek coal mine in Montana, which would open up more than one billion tons of coal—most of which the company hopes to export by the controversial proposed Tongue River Railroad. In addition to the hundreds of millions of tons of carbon dioxide emissions from burning Arch-produced coal each year, the company's underground West Elk mine in the Colorado Sunset Roadless Area is one of the top methane-producing mines in the country. Methane is a much more potent greenhouse gas than carbon dioxide.

ACTIVIST PROFILE

Jeff King

When Arch Coal company came to mine the ancestral homelands of the Northern Cheyenne people in the Otter Creek Valley, they had no idea that they would meet a mass movement of resistance. One of many who met Arch at the gates is Jeff King, a tribal member who spent several years working in the coal industry near Gillette, Wyoming. Jeff knows firsthand the danger and destruction that mining would bring to his homeland. After speaking passionately at public hearings in Lame Deer and Ashland on the proposed Otter Creek Coal mine, Jeff trekked to Washington state, along with many other Northern Cheyennes, where they again delivered the message to the Army Corps of Engineers—leave the coal in the ground.

Jeff's activism didn't stop there. He committed to being the change he wanted to see. He left his job in Gillette on principle, and set out to carve a place for himself in the renewable energy industry. Now, two years after engaging in the fight to move us beyond coal, Jeff is one of Henry Red Cloud's "Solar Warriors," fully trained in solar panel installation by the Red Cloud Renewable Energy Center, and working on a solar project for Bella Energy in Colorado.

3. OIL AND GAS IN THE ARCTIC OCEAN

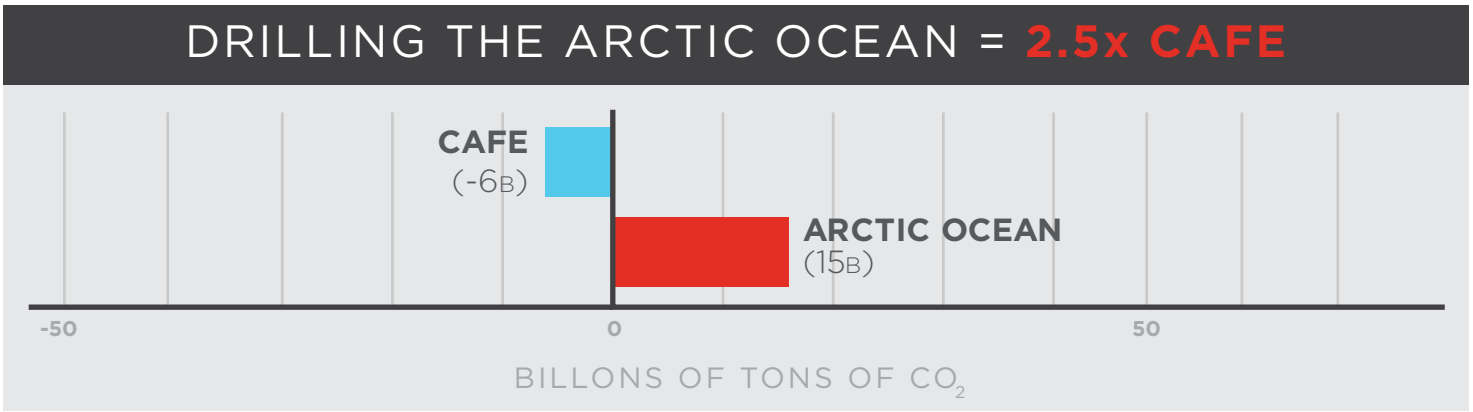


PHOTO CREDIT: STEVE KAZLOWSKI

The Beaufort and Chukchi Seas make up the Arctic Ocean north of Alaska, and they are known as America's "Polar Bear Seas" for good reason. One of the most unique marine ecosystems in the world, these waters are home to the entire U.S. population of polar bears and have consequently been designated a critical habitat. Here sea ice meets the northern edge of the continent and animals congregate in great numbers. In addition to polar bears, this bountiful zone is home to millions of migratory birds, Pacific walrus, ice seals, beluga whales, and endangered bowhead whales. It has been called the "Arctic Ring of Life." But aggressive oil and gas industry interest, led by Shell Oil, to lease these areas for exploration and development threatens this natural area and the livelihood of Alaska Native communities.

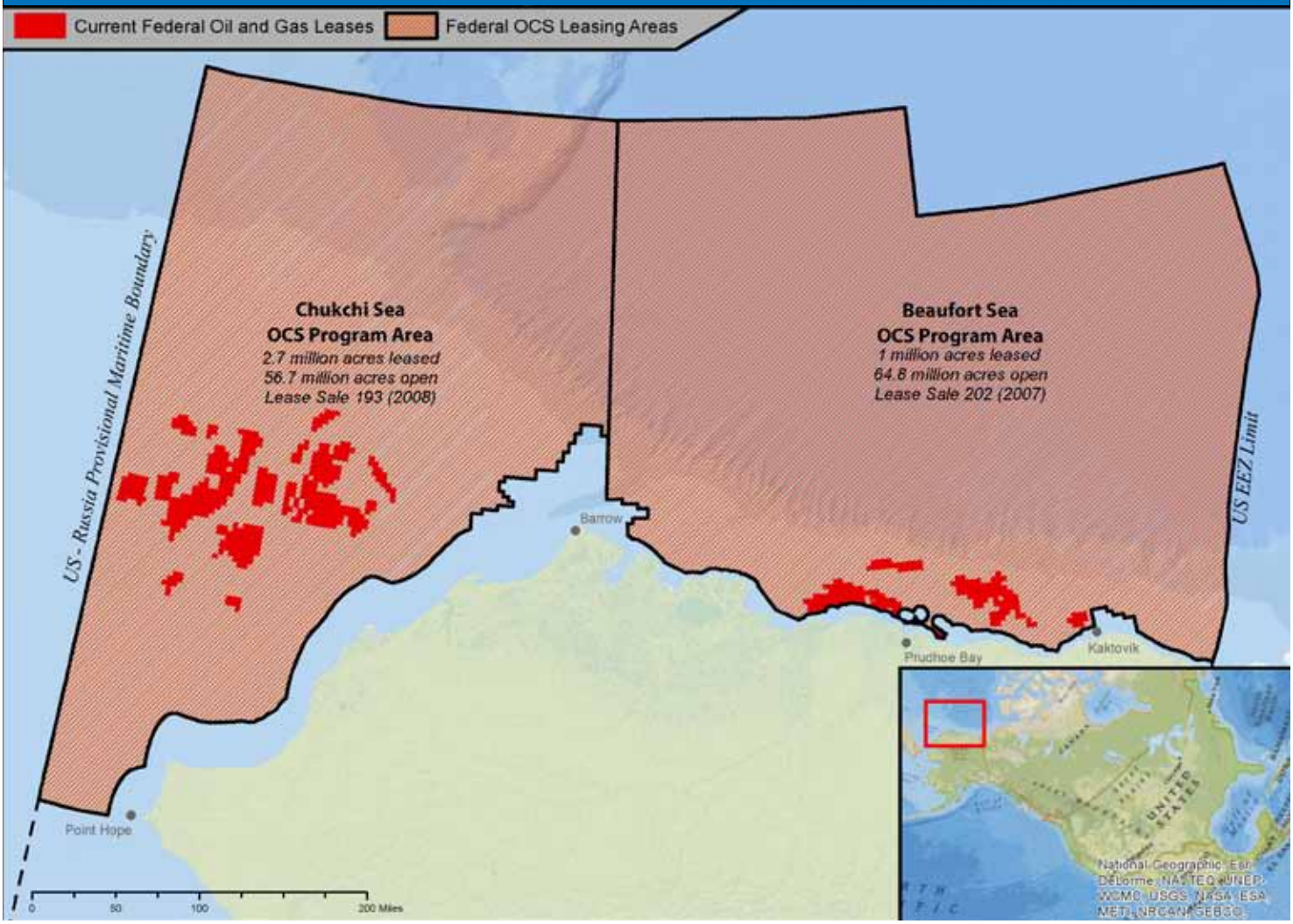
The Arctic is already paying the price for our fossil fuel addiction. Northern Alaska is warming at twice the rate of the rest of the country. The people of the Arctic are affected by climate disruption every day—by the loss of sea ice, changes in animal abundance and behavior, and the loss of important subsistence opportunities. Sea ice that provides vital habitat for polar bears is melting rapidly; summer sea ice may be gone by mid-century, and polar bears could be extinct in the wild by 2100. Any new industrial development in these waters would only compound the effects of climate disruption on wildlife and Alaska Native peoples.

With the current climate disruption in the Arctic, dangerous offshore drilling will only worsen the damage. There is no proven way to clean up an oil spill in this unique area. The extreme, icy conditions of the Arctic Ocean, coupled with the remoteness of the region and the lack of oil spill quick-response capacity makes drilling too risky. Our last wild frontiers need to be permanently protected, not opened to drilling that only deepens our addiction to oil.

The Arctic Ocean oil deposits, estimated at 23.6 billion barrels of technically recoverable oil[29] and 104 trillion cubic feet of natural gas, are a huge potential source of new carbon emissions that could generate as much as 15 billion tons of new carbon dioxide pollution, 2.5 times more than savings from CAFE standards. Oil and gas companies such as Shell Oil, British Petroleum, and ConocoPhillips have had a long history of risky plans to drill in the Arctic Ocean.

PHOTO CREDIT: USFWS

OIL AND GAS LEASING IN ALASKA'S ARCTIC OCEAN



Alaska's Arctic Ocean has been under constant pressure in recent years as a rapidly warming climate continues to melt the sea ice that for millennia has supported Arctic wildlife such as polar bears, Pacific walrus, seals, and whales, and Alaska Native cultures.

WHAT THE OBAMA ADMINISTRATION CAN DO

In early February, Shell Oil announced it will not attempt to drill in the Arctic Ocean in the summer of 2014. But the threat of drilling remains. **The Obama administration must not allow current Arctic leases to be developed on the Outer Continental Shelf (OCS)**, based on recent findings that the industry does not have adequate safety and environmental protections in place to protect the Arctic Ocean from industrial disasters.

It's clear that we can't make the needed progress in fighting the climate crisis and drill in the Arctic Ocean at the same time. An effective climate strategy requires the administration to **cancel any upcoming oil and gas lease sales, tentatively proposed for 2016 and 2017**. It's time for America to look beyond offshore oil and start taking advantage of available clean energy and smart transportation alternatives.

PHOTO CREDIT: USFWS

SHELL'S KULLUK DRILLING RIG GROUNDED NEAR KODIAK, AK.

MAE HANK

COMPANY PROFILE

Shell Oil

Since 2007, Shell Oil has been pushing risky exploration and drilling proposals for the Beaufort and Chukchi seas. Under these plans, Shell's drill ship and an armada of support vessels and aircraft would patrol these stormy seas, emit tons of pollutants into the air, and generate noise that harms endangered bowhead whales and other marine mammals. An oil spill would devastate this sensitive ecosystem and Alaska Native coastal communities. Public pressure held Shell out of the Arctic Ocean for years. Then in 2012, the company received authorization to drill in the Beaufort and Chukchi seas. That summer was a disaster for Shell. Shell grounded one of its drilling vessels and was cited for multiple pollution and safety violations. The company was also unable to gain approval for its oil spill containment plans and was not allowed to move forward on drilling in either sea. In January 2014, Shell once again announced it was seeking approvals to drill in the Chukchi Sea, but later that same month, a federal judge ruled that the Obama administration failed to conduct an adequate environmental impact assessment before selling leases in the Arctic Ocean for oil and gas exploration. Now Shell has announced that it will not drill in the summer 2014 due to high cost and uncertainty, but may pursue new drilling and lease purchases in the near future, unless President Obama takes action to stop it.

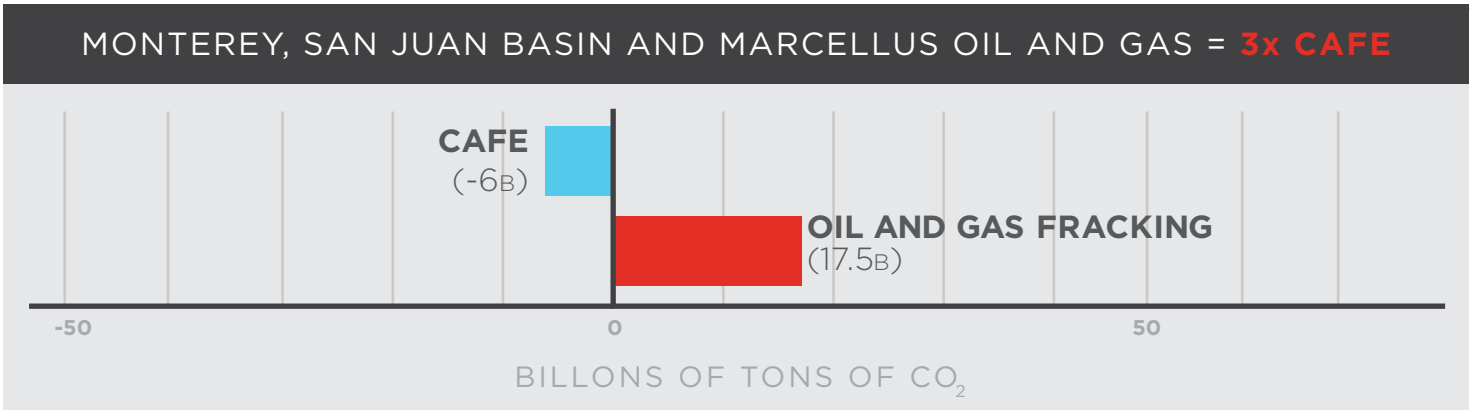
ACTIVIST PROFILE

Mae Hank

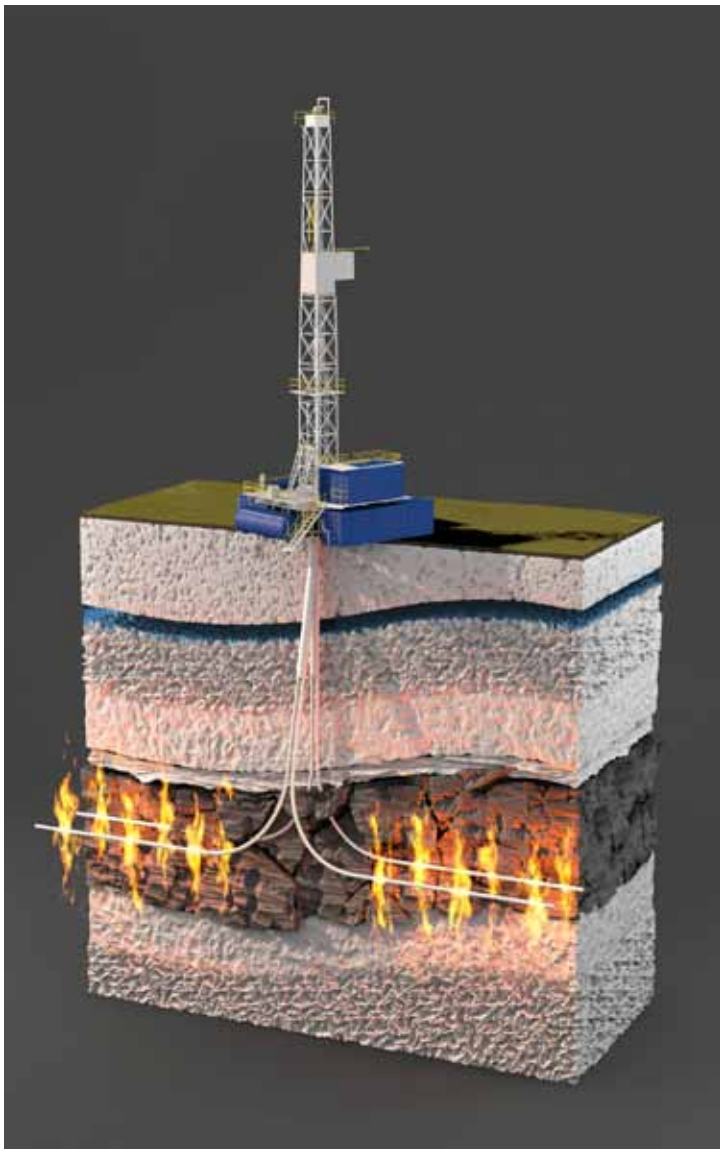
The people of the Arctic have always had a special connection to the land, water, and wildlife. Mae Hank is an Inupiat Eskimo from Tikigaq, Alaska—known to us as Point Hope—on the northwest coast of Alaska. Point Hope is the oldest continually occupied community in Alaska, and it enjoys an abundance of subsistence resources, including fish, marine mammals, birds, and caribou. Today, with the added pressure of climate disruption, Point Hope struggles with increased urgency against erosion and social stresses on traditional culture and public health. Offshore drilling threatens the Inupiat and their rights to continue to live as they have for thousands of years.

Mae, a mother with 16 grandchildren, has been an active and vocal opponent of offshore development for over 36 years. Her primary desire is to ensure that the Inupiat can continue to live their traditional way of life by securing a clean and pure ocean to ensure the whaling culture can continue to thrive. Traditional foods are the livelihood of these Arctic communities and they link past traditions from ancestors to future generations. Protecting the Arctic Ocean from destructive offshore drilling also protects the people of the Arctic. Communities and cities across the country need to embrace renewable energy options, so we can cut our dependence on fossil fuels and protect the people and cultures affected by destructive oil development.

4. OIL AND GAS FRACKING, COAST TO COAST



Our nation is experiencing a rush of oil and gas drilling, brought about by the use of hydraulic fracturing (fracking). Fracking involves pumping billions of gallons of a toxic mix of water, sand, and chemicals deep underground to release oil and gas trapped inside. Fracking is creating severe environmental and health impacts for communities across the country.



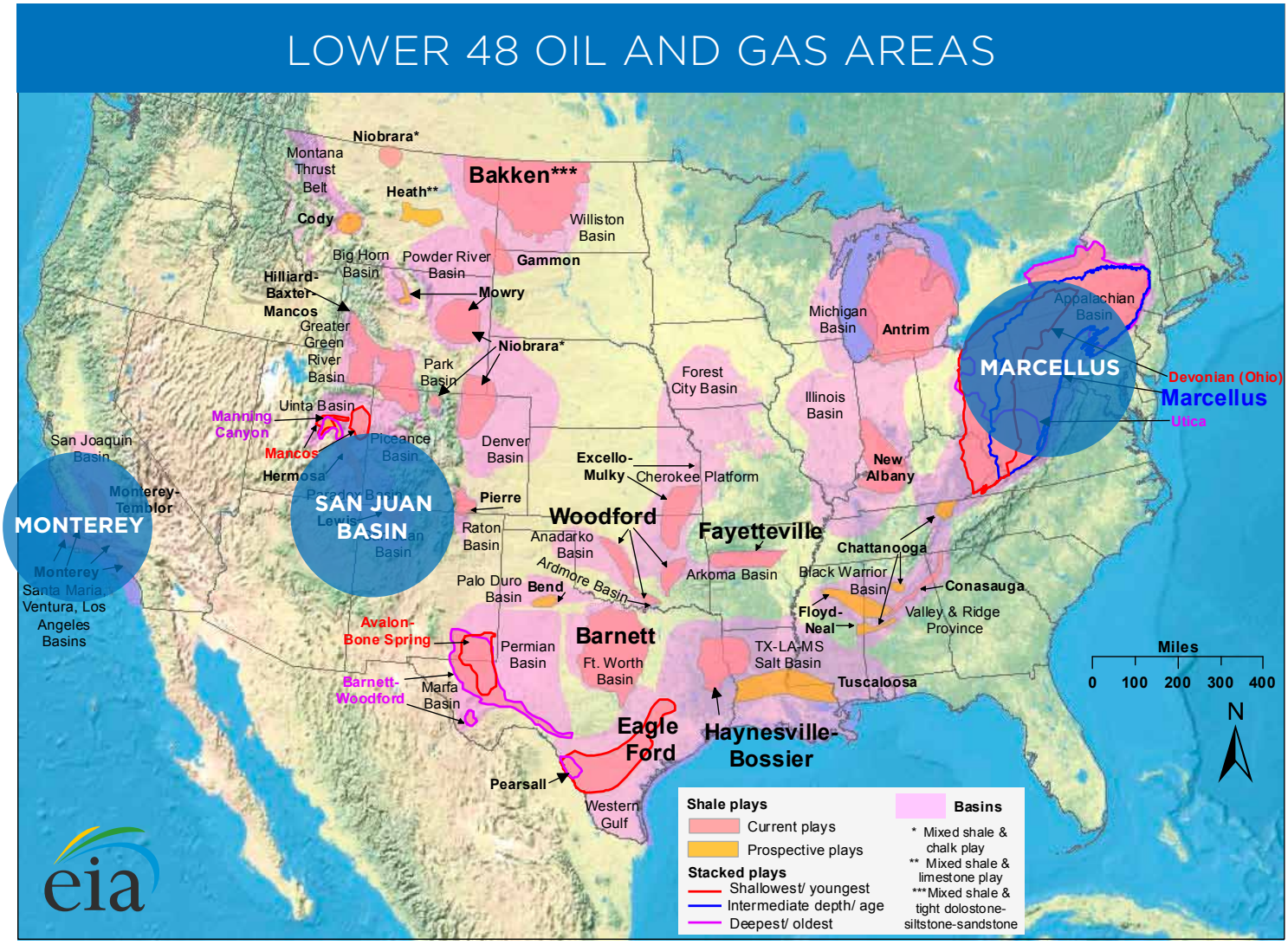
Fracking pollutes the air. Associated heavy truck traffic, diesel generators, gas venting, gas flaring, and leakage of toxic volatile air pollutants are pushing locales into dangerous air quality crises. Oil and gas fields in the Barnett Shale area of Texas produced more smog during the summer of 2009 than all the motor vehicles in Dallas-Fort Worth. In rural Sublette County in Wyoming, over 27,000 gas wells are responsible for higher levels of smog than Houston and Los Angeles, and the American Lung Association gave the county an "F" for air quality.

Fracking poisons water. Fracking requires that millions of gallons of water, mixed with toxic chemicals, be pumped underground. Fracking can cause this injected fluid, as well as hazardous chemicals naturally occurring underground, to contaminate aquifers that provide fresh drinking water for millions of Americans. After fracking, ten to twenty percent of the toxic water mix is returned to the surface. Because this wastewater is difficult to treat, it is frequently disposed of by injection into other wells for "permanent" storage. These underground injection sites—like fracking itself—are increasingly linked to earthquakes in Texas, Arkansas, Ohio, and Oklahoma.

Fracking destroys pristine wild lands. Fracking technology is driving a wave of new proposals to drill thousands of new oil and gas wells on public and private lands. Areas that were once not economically viable for oil and gas development are now being targeted for drilling. In a number of cases, subsurface mineral rights that have been unclaimed for years are now being activated, resulting in new oil and gas rigs popping up in people's backyards, and next to many of America's iconic special places.

Fracking is the driving force for a dirty energy boom that is releasing billions of tons of new climate-disrupting carbon pollution into the air. In the past six years, fracking for natural gas has increased eightfold.

Unfortunately, the Obama administration is bullish on increasing fracking and domestic natural gas production. According to the 2014 Annual Energy Outlook, produced by the U.S. Energy Information Agency (EIA) and the U.S.

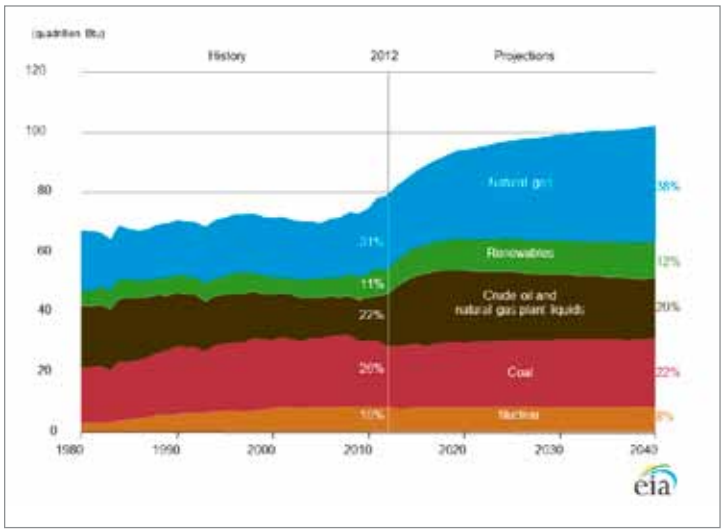


SOURCE: ENERGY INFORMATION ADMINISTRATION BASED ON DATE FROM VARIOUS PUBLISHED STUDIES,

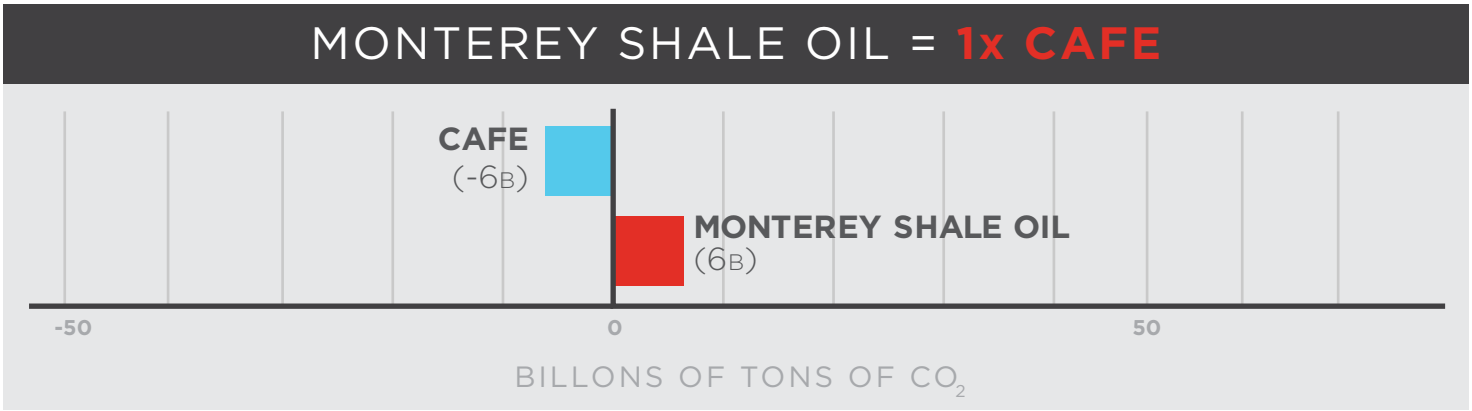
Department of Energy (DOE), oil and gas production is the second largest greenhouse-gas contributor, next to coal, and is projected to grow significantly. The EIA report projects that annual natural gas production will increase 56 percent by 2040 to 37.6 trillion cubic feet, equating to over 2 billion tons of carbon dioxide, nearly a third of the nation's total carbon dioxide emissions. A continued reliance on fracked oil and gas depresses the market for clean energy and harms public health and the environment.

The absence of federal leadership is forcing state and local leaders across the country to step up and address the dangers of fracking to their communities. Fracking moratoria and bans are in place for the state of New York, and in a number of communities and counties in Colorado, Pennsylvania and Texas. Momentum behind local bans and a statewide moratorium is building quickly in California. Public outcry forced the governor of Ohio to back away from opening state parks to fracking. Seminole Indians are fighting plans to frack and store toxic waste in the middle of precious Florida panther habitat right next to the Everglades. Numerous health studies now link proximity of living near a fracked oil and gas well to low birth weight in children, birth defects, and greater risk for cancer.

The mad rush to drill as quickly as possible and wherever possible is causing serious harm—to people's health, to their communities, and to our climate. It's time to demand clean, renewable energy and not more of the same.



THE MONTEREY SHALE OIL



The Monterey Shale Formation covers 1,700 square miles in Central and Southern California, containing both publicly and privately held shale oil deposits, also known as "tight oil." Due to aggressive fracking[31] and acidization[32] technologies, California could soon resemble a giant pincushion, poked full with oil wells that would unlock and release billions of tons of new carbon emissions into our atmosphere, setting back a decade-long effort to reduce California's carbon pollution. The Monterey Shale is estimated to hold up to 15 billion barrels of technically recoverable oil,[33] which would create more than 6 billion tons of carbon dioxide emissions that would otherwise be saved by CAFE standards.

For years, California regulators denied that fracking was taking place—until an investigative report[34] released in early 2012 revealed that hundreds of wells have been drilled with virtually no oversight or regulation. It also recently came to light that fracking is occurring offshore,[35] possibly discharging pollutants into the Pacific Ocean. Existing and proposed regulations do little to effectively protect public health and the environment from fracking and acidization practices in California. Californians are pushing for a statewide moratorium on all fracking and well-stimulation drilling. A moratorium would allow time to assess potential impacts to the environment, water supplies, and public health *before* fracking and well stimulation expands. It would also give California time to expand clean-energy alternatives in order to achieve the state's ambitious climate change reduction goals.

Last year, a federal judge issued a landmark decision affirming that the BLM violated the law when it did not consider the environmental impacts of fracking and well stimulation when it issued new oil leases in Monterey County.[36] The BLM has halted all federal oil and gas leasing in California to assess fracking's effects. This legal victory sets an important precedent for challenges to oil and gas leasing on the 759 million acres of minerals administered by the BLM across the nation.

OIL FIELD IN CALIFORNIA

HOLLY MITCHELL

COMPANY PROFILE

Halliburton

The federal Energy Policy Act of 2005 contained a controversial provision, the "Halliburton Loophole," that exempts oil and gas fracking from many Safe Drinking Water Act (SDWA) protections.[37] This loophole greatly hampers the EPA's ability to protect drinking water supplies from being contaminated by the injection of toxic chemicals used to fracture a wells. Halliburton currently fracks 40 percent of all oil and gas wells in the nation.[38] Even though numerous state agency reports show significant impacts to our drinking water supplies from fracking chemicals, Halliburton claims that fracking fluid poses no threat to public health, even though they refuse to disclose what chemicals are in fracking fluids. A recent congressional investigation found that Halliburton injected more than 7.2 million gallons of diesel fuel into the ground in 19 different states from 2005 to 2009 without the proper approval.[39] Diesel fuel is extremely damaging to water supplies and remains the only fracking chemical still regulated under the SDWA. Early in 2014, Halliburton was ordered by the State of Pennsylvania to pay $1.8 million in fines for waste disposal violations.[40] In California, Halliburton has aggressively worked to hide from the public any information about the type and quantities of chemicals that are used in fracking fluids. The company lobbied hard in the state legislature to ensure that no provisions to disclose fracking and well stimulation chemicals were included in the recently signed bill, Pavley SB 4, and to limit such disclosure in the South Coast Air Quality Management District regulations.

ACTIVIST PROFILE

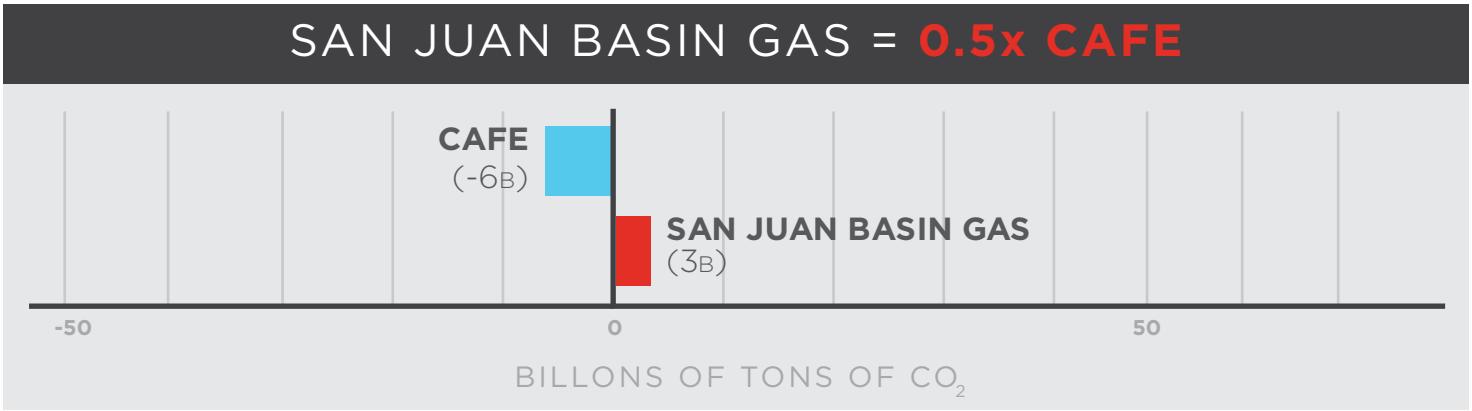
CA State Senator Holly Mitchell

California State Senator Holly J. Mitchell of Los Angeles has spent most of her career advocating for women, children, and families. So when a couple of California Assembly members suggested during a debate about fracking on the Assembly floor in May 2013 that oil fields are more important than public health, Mitchell's first response was to advocate for the families. "On behalf of the one million people who live within a 5-mile radius of the largest urban oilfield in the country, I resent the fact that you suggest that creating jobs—and there are 300 jobs in that oil field for your information—is more important than…their health and safety," she said.

Mitchell is now in the State Senate, still fighting to protect her constituents from the effects of extreme oil and gas extraction. She is currently leading an effort to impose a moratorium on fracking and well stimulation in California.[41]

"In my district vulnerable neighborhoods lie adjacent to drilling operations whose practices go largely unregulated," she said in introducing the bill. "Complaints that residents are exposed to hazardous chemicals and toxic pollutants, and which cause all kinds of health symptoms have been ignored. When industrial operations like fracking and acidization disproportionately affect minority communities, environmental justice has been breached and needs to be restored."

THE SAN JUAN BASIN GAS



In the rush to drill all across our western public lands, the oil and gas industries have set their sights on fracking the relatively unexplored San Juan Basin of northern New Mexico and southern Colorado. This area is known for its rich Native American culture and history, encompassing national treasures such as Mesa Verde National Park and Chaco Canyon National Historical Park. A USGS survey estimates that there could be as much as 50 trillion cubic feet of technically recoverable shale gas contained within the San Juan Basin,[42] equating to nearly three billion tons of carbon dioxide. The people who live in and near Farmington, New Mexico, located in the heart of the San Juan Basin, have already seen their share of air and water pollution, mainly from the two large coal-fired power plants in the region, the San Juan Generating Station and the Four Corners power plant. As those polluting power plants finally start to be retired over the next few years, we will have a chance to replace that power with renewable wind and solar energy. But the local utility company and many elected local and state leaders favor an increased dependence on fracked natural gas. In fact, companies such as Encana have begun drilling fracking wells in the Basin. Meanwhile, the state and federal agencies that regulate oil and gas production are playing catch-up, and are inadequately resourced to protect the public's interest. These agencies must put in place strong protections for groundwater and air quality, and put off limits lands that are important wildlife habitat or which contain irreplaceable cultural and historical treasures. Public outcry is mounting, and recent proposals by the BLM to offer new oil and gas leases next to Mesa Verde National Park and Chaco Canyon National Historical Park met fierce local opposition from neighboring town and county elected leaders and tribal leaders. Despite such public opposition, companies such as Encana are moving their rigs into the San Juan Basin where ethane, butane, and propane are produced alongside natural gas. These liquids are much more profitable for companies. Nine companies currently hold leases in this area, including Anadarko, Chesapeake, Devon, and Encana. Though a relatively small number of fracked wells have so far been drilled in the New Mexico portion of the San Juan Basin, numerous violations by these companies have been documented throughout the Rocky Mountain West.

CHACO CANYON NATIONAL HISTORICAL PARK

FRACKING DRILL IN EASTERN COLORADO

ROBERT TOHE

COMPANY PROFILE

Encana

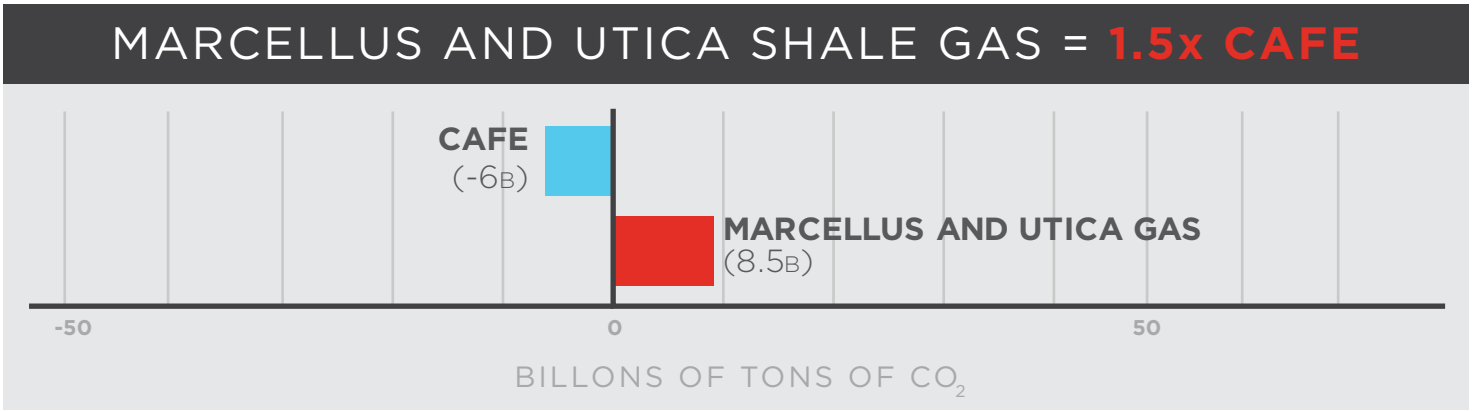
Based in Alberta, Canada, Encana is one of the largest operators in conventional and unconventional well drilling in the West. Encana expects total liquids production in 2014 to average between 70,000 and 75,000 barrels per day, and natural gas production to average between 2.6 billion and 2.8 billion cubic feet per day. Encana has a poor environmental and safety record. The company incurred the largest fine ever issued by the Colorado Oil & Gas Conservation Commission for allowing gas and other cancer-causing chemicals such as benzene to migrate into a creek on Colorado's Western Slope.[43] A fire at an Encana facility in Pinedale, Wyoming, injured five people. In 2011, the EPA determined that Encana was responsible for contaminating the aquifer below Pavillion, Wyoming. After intense pressure, the EPA withdrew it's study and handed over the investigation to the state of Wyoming,[44] whose research into the contamination will be funded by Encana.

ACTIVIST PROFILE

Robert Tohe

Robert Tohe knows what the fracking boom in the San Juan Basin will mean for New Mexicans. Robert was born in Gallup and still maintains a home near there as a member of the Navajo Nation. Robert and his extended family have seen firsthand the harsh impacts of unchecked oil and gas drilling, uranium mining, and coal mining upon the landscape of his birth nation, on water and air quality, and on the health of the people who live there. As a Sierra Club organizer, Robert plays a critical role in helping local tribes, pueblos, and other communities fight back against polluting fossil fuel extraction and work toward a clean- energy solution. Robert is well-known as an effective mentor for young activists in training. Just as Robert assisted local communities in getting Mt. Taylor in the Cibola National Forest designated as a Traditional Cultural Property, and stopping uranium mining on or near that sacred mountain, he is also committed to helping New Mexicans push back against oil and gas drilling and fracking on tribal lands and public lands throughout northwestern New Mexico.

MARCELLUS UTICA SHALE GAS



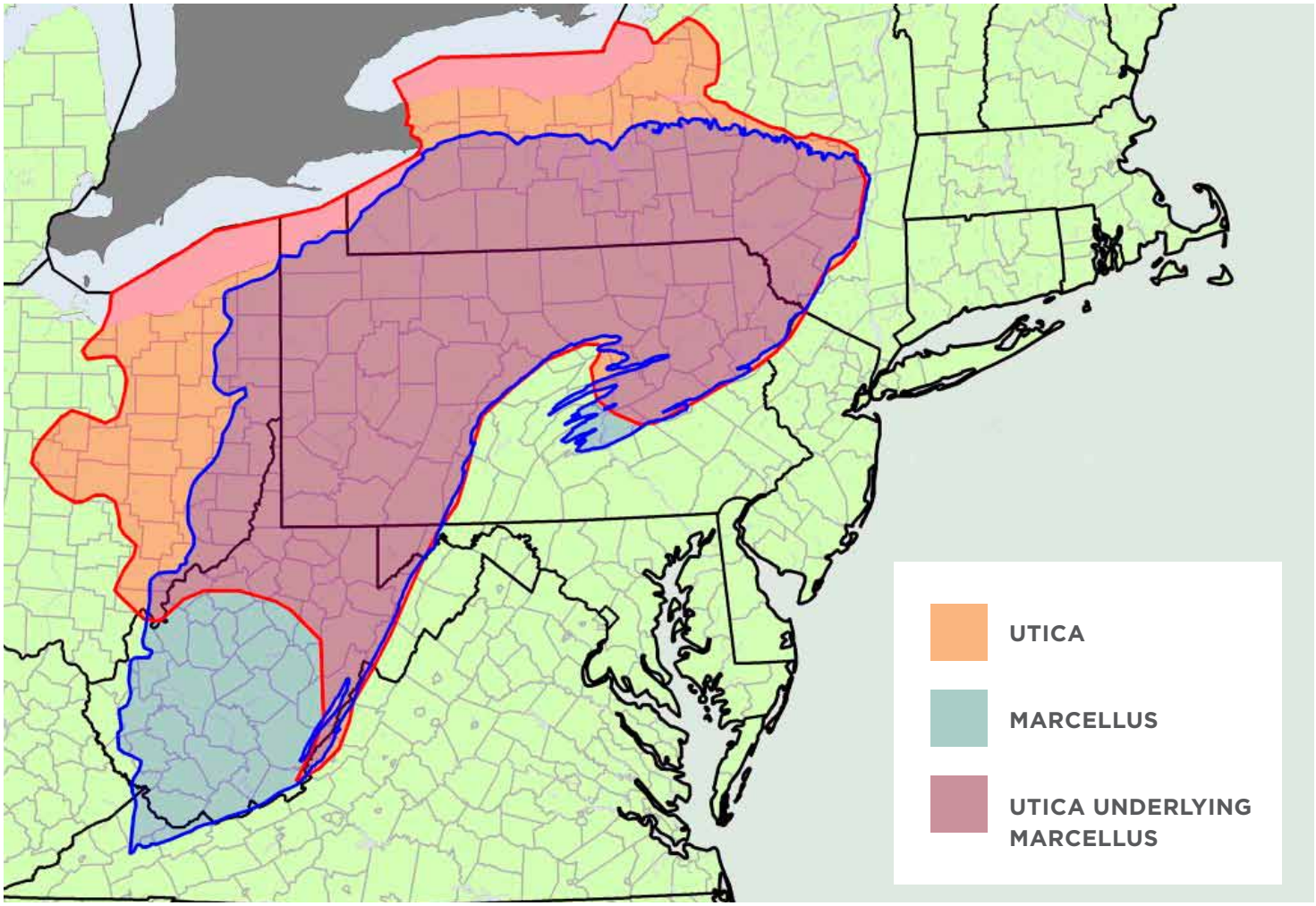
The Marcellus Shale lies below nearly 31 million acres in Pennsylvania, West Virginia, New York, Ohio, Virginia, and Maryland. The USGS estimates it contains an estimated 84 trillion cubic feet of technically recoverable gas and 3.4 billion barrels of oil.[45] This equates to six billion tons of carbon dioxide. Though the Marcellus is one of the most prolific shale basins in the world, drilling thus far has centered in Pennsylvania, West Virginia, and Ohio. In Pennsylvania alone, there are 59 drilling operators, with Chesapeake Appalachia LLC, Range Resources Appalachia LLC, and Shell Western E&P being the three largest. The Utica Shale lies a few thousand feet below the Marcellus Shale, underlying most of eastern North America. Estimates of technically recoverable oil and gas indicate that the Utica Shale could contain up to 38 trillion cubic feet of natural gas, 940 million barrels of oil, and 208 million barrels of natural gas liquids.[46] This equates to 2.5 billion tons of carbon dioxide. Though the Utica Shale has not been extensively developed due to its great depth, deep fracked wells in eastern Ohio and western Pennsylvania are now yielding large amounts of natural gas, natural gas liquids, and crude oil. Pollution from fracking in the Marcellus and Utica shale is well documented and rapidly increasing in ecologically sensitive regions and closer to population centers.

With the rapid pace of development in the Marcellus and Utica Shale, keeping fracked oil and gas in the ground will be increasingly difficult. It's essential that the Obama administration keep the following areas off limits to fracking: The Delaware River Basin, which supplies drinking water for over 15 million people; the Wayne National Forest, the only national forest in Ohio, covering 250,000 acres popular with hikers, mountain bikers, horseback riders, hunters and anglers; the George Washington National Forest, covering 1.8 million acres, which contains 230,000 acres of old-growth forest and over 2,000 miles of hiking trails and provides drinking water for 4.5 million.

In 2012 in Dimock, Pennsylvania, the EPA tested the water to determine if harmful contaminants other than methane were present in drinking water. In mid-2012, the agency completed its testing and concluded that five of 64 wells sampled had "hazardous substances, specifically arsenic, barium, or manganese, all of which are also naturally occurring substances, in…levels that could present a health concern." The EPA has since abandoned its work in Dimock, leaving many residents with no conclusive explanation for what contaminated their water. The Agency for Toxic Substances and Disease Registry (ATSDR) is continuing its review of water samples in the township, examining the risks of long-term exposure from drinking and washing.

WHAT THE OBAMA ADMINISTRATION CAN DO

Restore protections in environmental and public health laws. The oil and gas industries have been given sweeping exemptions from elements of major federal environmental laws. Fracking for oil and gas must be held to the same standards as other polluting industrial activities. These exemptions must be revoked by the administration in order to protect public health and safety. The EPA has received five critical rulemaking petitions to fix these exemptions.



THE UTICA UNDERLIES THE MARCELLUS IN MANY AREAS, COMING CLOSER TO THE SURFACE IN EASTERN OHIO (SOURCE: ENERGY INFORMATION ADMINISTRATION)

The EPA should respond to these petitions and take swift administrative action to strengthen the Toxic Substances Control Act (TSCA), Resource Conservation and Recovery Act (RCRA), Toxics Release Inventory (TRI), and minimize safety risks from fracking and shale development.

No liquid natural gas (LNG) exports. Global demand for LNG exports will increase fracking across the country to meet both domestic and foreign demand for natural gas. No LNG exports to non-free-trade countries should be approved until a complete economic and environmental public review is conducted. Additionally, the president must not allow the Trans-Pacific Partnership Trade Agreement to override environmental analyses of LNG exports.

No issuance of new leases or permits to drill utilizing fracking or other well-stimulation methods. The BLM received over one million public comments last year, urging the agency to prohibit fracking on public lands and to fully analyze the impacts of fracking on the environment and our climate prior to finalizing federal drilling rules and issuing any new leases or permits. Currently, the BLM explicitly avoids analysis of the environmental effects of hydraulic fracturing, even though 90 percent of federal wells are fracked. The recent legal ruling in California confirms that the BLM and the Forest Service cannot issue any new leases to frack on federal lands until new environmental analyses are conducted.

Reopen investigations of water contamination from fracking operations. The EPA's decision to abandon its responsibility to address serious situations in places like Dimock, Pennsylvania, Parker County, Texas, and Pavillion, Wyoming, undermines the president's commitment to protect the public from the impacts of fracking, leaving communities with contaminated drinking water and no conclusive explanation of causation. The EPA must reopen the investigations to protect the public.

CABOT NATURAL GAS WELL

VERA SCROGGINS

COMPANY PROFILE

Cabot Oil and Gas

In Pennsylvania, Cabot Oil and Gas owns 463 wells. They have incurred 449 violations and more than $4.5 million in fines.[47] Most notable of these violations are the water contamination events that occurred in Dimock, Pennsylvania. On January 1, 2009, a water well pit at a home in Dimock Township, Susquehanna County, exploded. State regulators found elevated levels of methane in numerous drinking water wells near the Cabot natural gas wells. The methane in the drinking water was a result of Cabot's failure to properly case and cement several of its gas wells, which allowed methane to seep into the drinking water wells. Although Cabot disputed this finding, the company was prohibited from fracking any new wells in the area and ordered to improve well containment practices as well as replace water supplies for affected residents.

ACTIVIST PROFILE

Vera Scroggins

Vera is a retired grandmother living in northeastern Pennsylvania, at the center of the fracking boom. She provides tours to state and local politicians, community groups, and celebrities such as Yoko Ono, Sean Lennon, and Susan Sarandon so they can see first-hand the impacts of fracking. She shows them drilling sites, pipelines, compressor stations, and truck-worn roads. She introduces them to residents who believe their well water was contaminated by fracking fluids. There are 700 gas wells in Susquehanna County; 90 percent of the county is leased, with about 25 percent already developed, and gas companies indicate a potential of 3,000 drilling locations. However, Vera's high profile comes at a great personal cost. A restraining order, sought by Cabot Oil and Gas, now prohibits her from traveling near properties owned or leased by Cabot, including more than 300 square miles in her own community. This "no-go area" prevents Vera from going to the county hospital, the local supermarket, or the recycling center. Regardless, Vera continues to expose the risks associated with the gas industry.

DELAWARE WATER GAP NATIONAL RECREATION AREA

CONCLUSION

WHAT OBAMA CAN DO TO KEEP DIRTY FUELS IN THE GROUND

Global carbon pollution must be drastically reduced in order to avoid passing the tipping point of 3.6 degrees Fahrenheit in the next 15 years. This means quickly moving away from oil, gas, and coal to embrace clean, renewable energy such as solar and wind power. President Obama's recent commitment to a national Climate Action Plan is helping to create a new clean-energy future for America by reducing domestic climate-disrupting emissions.

However, it is not enough to just embrace clean energy. The president must also reject dirty energy choices that expand our development of and reliance on oil, gas, coal, and other dirty fossil fuels — choices that undermine his national Climate Action Plan by continuing to dump billions of tons of new carbon pollution into the air. As a global leader in the effort to tackle climate disruption, the United States must not export our oil, gas, and coal to other countries to be burned. We urge the president to move the nation away from fossil fuels by taking the following actions:

1) Fully implement Obama's 2009 Executive Order E.O. 13514 to require all resource management agencies to fully consider carbon dioxide, methane, and other greenhouse gas potential emissions prior to leasing or exporting for onshore and offshore oil, gas, coal, and unconventional fuel sources such as oil shale and tar sands.

2) Stop any new leasing of federal oil, gas, and coal until potential environmental, climate, and public health impacts are fully disclosed, including:

- **Withdrawing plans to allow development of oil shale and tar sands on 800,000 acres of federal public lands in Colorado, Utah, and Wyoming.**
- **No issuance of new federal coal leases until reforms that increase royalty rates, set aside sensitive lands aside, insure public transparency, and fully assess impacts from all aspects of coal production are implemented.**
- **Withdrawing plans to offer any new offshore oil leases in the Arctic Ocean.**
- **No issuance of any new oil and gas leases on federal lands that use fracking and well stimulation techniques until impacts on water, air, and climate are averted.**

3) Close oil, gas, and coal industry exemptions from environmental and public safety laws.

4) Stop the export of coal and liquefied natural gas.

By showing leadership and taking these actions, President Obama can put the world on a path to avert climate catastrophe and create a clean-energy future that generates quality jobs, protects public health, and secures a wild lands legacy for our children's future.

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31 Hydrofracturing or fracking is the process by which a combination of publicly undisclosed toxic chemicals, water, sand and other materials are injected under high pressure deep into the ground to fracture rock and shale formations to allow access to hard-to-reach oil and gas.

32 Well stimulation is a process by which high concentrations of fluids and chemicals, including harsh acids such as hydrofluoric acid, are injected deep into the ground to dissolve rock and shale to gain access to hard-to-reach oil and gas deposits.

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