PUBLIC * LANDS



PRIVATE \$ PROFITS

HOW THE U.S. GOVERNMENT IS GIVING AWAY AMERICA'S SHARED NATURAL RESOURCES

TO THE WEALTHIEST COMPANIES IN THE WORLD



INTRODUCTION

America's publicly owned lands and offshore waters are being sold at bargain prices for private fossil fuel extraction — making the world's wealthiest companies even richer while driving the world's climate deeper into crisis.

Rainforest Action Network has compiled the top federal leaseholders in each of three fossil fuel arenas: coal mining, onshore oil and gas drilling, and offshore oil and gas drilling. Dubbed here as the "Filthy 15" energy corporations, these fossil fuel companies generate millions in profit each year off of our shared national resources while damaging our environmental legacy for generations to come.

Some of the wealthiest energy companies — ExxonMobil, Royal Dutch Shell, and Arch Coal — are exploiting and degrading millions of acres of America's public lands and offshore waters, causing serious harm to the health of communities and sending massive carbon pollution into the atmosphere through increasingly extreme extraction methods. Mining, drilling, and fracking coal, oil, and gas on publicly owned lands already accounts for roughly 25% of climate change emissions from the United States (U.S.).

The federal government enables this destruction at a tremendous cost to the U.S. taxpayer by selling off our national forests, grasslands, deserts, oceans, and sacred heritage sites for pennies on the dollar. The antiquated and opaque federal fossil fuel leasing program, administered by the U.S. Department of the Interior, transfers vast amounts of public wealth into private hands by auctioning off public lands and offshore waters for corporate profit.

President Obama can immediately and unilaterally stop the bankrolling of wealthy energy corporations, prevent environmental destruction, preserve the heritage of Indigenous sacred sites, and slow the disastrous effects of climate change by ending the outdated practice of fossil fuel leasing on public lands and offshore waters.



KEY TAKEAWAYS

- within the global carbon budget and avoid dangerous warming, a majority of all proven coal, oil, and gas reserves must stay in the ground, and fossil fuel combustion must end by mid-to-late-century.
- America's public lands and waters are being given away to some of the wealthiest energy companies in the world for as low as \$2 an acre. These companies have long track records of corruption, violation of Indigenous sacred sites, severe health impacts on communities, environmental destruction, evading payments, and jeopardizing the future of our climate.
- If President Obama wants to establish a truly lasting climate legacy, he can and should issue an executive order to stop leasing for fossil fuels on our public lands and offshore waters.

THE CENTRAL ROLE OF AMERICA'S PUBLIC LANDS IN ADDRESSING THE CLIMATE CHANGE CRISIS

Climate change is not a problem for the future. It is a critical international issue that is affecting each of us right now.

California's drought may affect food production for the entire nation, wildfires are ravaging communities throughout the western U.S., and severe floods are inundating major metropolitan areas across the country.

In 2009, heads of state from 42 nations, including the U.S., came together to sign the Copenhagen Accord. This international agreement stressed the critical need to move quickly to address the impacts of climate change.

"We agree that deep cuts in global emissions are required according to science, and as documented by the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report with a view to reduce global emissions so as to hold the increase in global temperature below **two degrees Celsius**, and take action to meet this objective consistent with science and on the basis of equity." ¹

To stay below a two degree temperature rise and meet emissions reduction goals by 2020, the U.S. and international leaders have to take bold actions. To avoid catastrophic levels of warming, the world must keep the vast majority of its **remaining fossil fuels in the ground**. ²

It is time for countries to start committing to make particular fossil fuel reserves off-limits. Here in the U.S., one category of fossil fuels is a clear first priority: coal, oil, and gas extracted from public lands. Over the past decade, the burning of fossil fuels from federally leased public lands and offshore waters has resulted in nearly a quarter of all U.S. energy-related emissions, and nearly four percent of global emissions. ³

The science is clear: we must stop extracting and burning the remainder of America's publicly owned coal, oil, and gas to maintain a two degree global temperature rise.



THE LEADERSHIP GAP

IN THE OBAMA ADMINISTRATION

The current administration has pledged to cut U.S. climate pollution by 26-28% below 2005 levels by 2025. ⁴ Aiming to establish a climate legacy, President Obama has recently made a series of commitments to work toward these goals. ⁵ However, these climate change efforts fall short without addressing the extraction and emission of fossil fuels — coal, oil, and gas — on federally managed lands.

The Obama administration's recent actions are in direct opposition to earlier pollution reduction pledges. By approving Royal Dutch Shell's drilling in the Arctic ⁶ and allowing the Bureau of Land Management to grant a massive coal development plan in Wyoming and Montana's Powder River Basin, ⁷ the administration is opening up vast new carbon reserves for

extraction. The Powder River Basin plan alone could lead to 28 coal leases involving more than 100,000 acres of public land and over ten billion tons of coal mined, exported, and burned over the next two decades. 8 Industrial development in the Arctic waters and Powder River Basin would be disastrous for our climate future.

According to the Center for American Progress, "massive exports of federal coal undermine the carbon-pollution reductions the Obama administration is achieving at home through improved vehicle efficiency and curbed emissions from U.S. power plants, while subsidizing other countries to burn coal owned by American taxpayers." 9



CASE STUDY: POWDER RIVER BASIN, CARBON BOMB

The Powder River Basin in Wyoming and Montana has the largest coal reserves in the U.S. and accounts for 13% of U.S. greenhouse gas emissions. For decades, the U.S. Department of the Interior's Bureau of Land Management, which oversees the overwhelming majority of the coal reserves in the Powder River Basin, has incentivized maximum production of coal in the region without regard for pollution costs. ¹⁰

Significant exports of Powder River Basin coal would have uniquely large climate impacts. Powder River Basin coal would be the seventh-largest emitter of CO2 among all the world's nations. Because the sales price — as opposed to the social cost — of Powder River Basin coal is so low, it will substantially lower the market-clearing price for coal in China and India. Increasing exports of Powder River Basin coal would result in a fresh source of carbon pollution at a new order of magnitude.

NORTH ANTELOPE MINE, POWDER RIVER BASIN, WYOMING. PHOTO: ECOFLIGHT

THE PUBLIC LANDS BOONDOGGLE

American taxpayers own nearly 650 million acres of land — almost 30% of the land area of the U.S. — which are managed by the federal government and held in trust for the American people. Federally owned and managed public lands include National Parks, National Forests, and National Wildlife Refuges, including the iconic parks Yellowstone, Yosemite, and the Grand Canyon. These are lands that are held for all Americans. ¹¹ Many public lands are adjacent to and overlap with Native American lands.

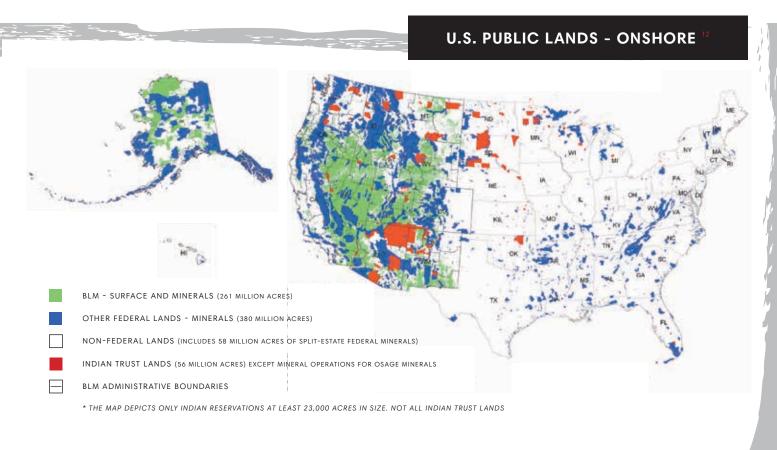
Federally owned and operated public lands are distributed across the U.S., with the highest concentration in the western states. 'Public lands' is an inclusive term that refers to forests, deserts, prairies, and bodies of water — including oceans, rivers, streams, and lakes. Over 90% of this land is administered by four agencies: the Forest Service, the Bureau of Land Management, the Fish and Wildlife Service, and the National Park Service. The Forest Service is a part of the Department of Agriculture; the others are under the Department of the Interior. Offshore leases

are administered by the Bureau of Ocean Energy Management, also under the Department of the Interior. ¹³

The U.S. Forest Service, Bureau of Land Management, Fish and Wildlife Service, and State Fish and Game Departments are examples of public trustee agencies. Trustees are charged with managing the public property assigned to them in order to provide the benefits required by owners and beneficiaries.

The Department of the Interior and the agencies within its jurisdiction oversee public lands and waters, and offer fossil fuels on public lands for development by private and publicly-traded corporations for private profit.

Energy companies can gain access to federally held fossil fuels at a reduced rate — lower than fuels on private or state-held lands. ¹⁴ Energy companies with annual revenues of billions of dollars pay nominal fees to public lands agencies through lease bids, rent, and royalties. Corporations can lease public land for



 ${\bf SOURCE:}\ U.S.\ DEPARTMENT\ OF\ THE\ INTERIOR\ AND\ BUREAU\ OF\ LAND\ MANAGEMENT\ (NOTE:\ MAPS\ NOT\ PICTURED\ TO\ SCALE)$

oil and gas drilling for as little as two dollars per acre. 15

The federal fossil fuel leasing program provides lands and waters cheaper than fair market value. An investigation by the U.S. Government Accountability Office showed that the Bureau of Land Management had no consistent system for assessing fair market value amongst its field offices, with different offices using different thresholds. ¹⁶ However, the Bureau of Land Management offices consistently offered leases below fair market value.

According to a 2012 report issued by the Institute for Energy Economics and Financial Analysis, "taxpayers missed out on an estimated \$28.9 billion in revenues over 30 years due to the failure of the federal Bureau of Land Management to get fair market value for U.S.-owned coal mined in the Powder River Basin." ¹⁷

The Government Accountability Office's investigation also revealed the lack of transparency and competition in the leasing process. Most coal leases between 1990 and 2013 had a single bidder and were leased the first time offered. ¹⁸

The federal coal leasing program has had several moratoriums in the past. ¹⁹The Department of the Interior, Bureau of Land Management, and Mineral and Management Service have been plagued with scandal, opaqueness, criticism from the public, congressional investigations, and reports from the Government Accountability Office. After many years of requests for program reform from the public and Congress, in the summer of 2015 the federal coal leasing program was opened up for public input for the first time in 30 years.

Royalty rates in 2015 — if they are actually paid by the energy company — are the same as they were in 1920. This outdated program does not meet the environmental or financial needs of our modern era. Energy companies have exploited a broken governmental system and the environment to benefit their bottom line.



SELLING OUR HERITAGE AND OUR FUTURE ... FOR PENNIES ON THE DOLLAR

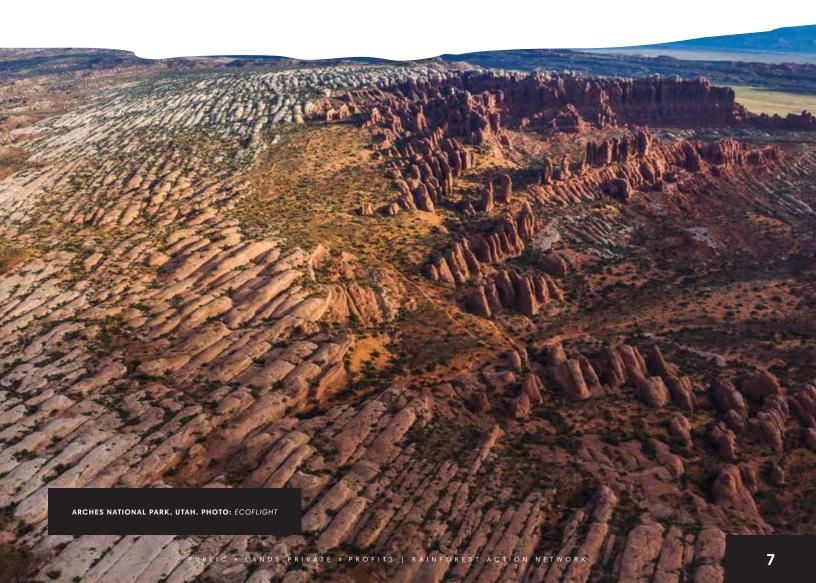
President Obama and the Department of the Interior are giving away our public lands — and our future — to dirty energy companies. Fossil fuel production on public lands and waters ravages our communities and wild places with air and water pollution, wildlife habitat destruction, human health impacts, and climate change-causing emissions.

In addition to the problems within the federal fossil fuel leasing program, it is not clear what agency, company, or entity would be responsible for the immense and inevitable environmental cleanup of abandoned industrial projects on public lands.

Larger threats loom when the gas boom busts or when coal finally dies out. The U.S. government is currently "examining whether struggling U.S. coal companies still qualify for an exemption that allows them to avoid having to fully insure against billion-dollar mine cleanup costs." ²⁰ A recent exclusive investigation by Reuters on the insurance of cleanup costs revealed that, "If pushed to bankruptcy, those coal companies (Peabody Energy, Arch Coal, Cloud Peak and Alpha Natural Resources) could leave behind more than \$2 billion in cleanup liabilities and no clear custodian to cover the costs, other than state or federal agencies, according to industry officials." ²¹

Will these same companies be responsible for the cleanup of closed oil and gas wells and abandoned coal mines, or will that responsibility be passed along to the people?

The coal leasing and oil and gas leasing programs are fundamentally flawed and should be ended — permanently.



THE FILTHY FIFTEEN

TOP CORPORATE LEASEHOLDERS ON PUBLIC LANDS

Rainforest Action Network compiled the top federal leaseholders in coal mining, onshore oil and gas drilling, and offshore oil and gas drilling. Several companies have holdings in more than one sector, but have a primary holding in one type of fossil fuel on public lands. This "Filthy 15" group of companies reveals the stark reality in which fossil fuel companies are directly benefiting off of our shared national resources, generating millions in profit each year at the taxpayer's expense, while damaging our health and environmental legacy for generations to come.

CHART OF FILTHY 15

	COMPANY	OFFSHORE OIL & GAS FEDERAL LEASES (ACRES)
	MARKET STATE OF THE STATE OF TH	THE WAR
A	ALPHA NATURAL RESOURCES, INC.	0
A	ANADARKO PETROLEUM CORPORATION	1,140,100
A	APACHE CORPORATION	1,319,260
A	ARCH COAL, INC.	0
В	BP P.L.C.	2,413,116
	CHEVRON CORPORATION	2,489,915
	CLOUD PEAK ENERGY, INC.	0
	CONOCOPHILLIPS	2,277,433
E	NCANA CORPORATION	0
E	EXXON MOBIL CORPORATION	1,527,336
٨	MAGNUM PRODUCING, LP	0
F	PEABODY ENERGY CORPORATION	0
R	ROYAL DUTCH SHELL PLC	3,980,534
V	WESTMORELAND COAL COMPANY	0
Y	ATES PETROLEUM CORPORATION	0

THESE 15 COMPANIES CONTROL 36% OF LEASED FEDERAL LAND.

ROYAL DUTCH SHELL ALONE LEASES 7% OF THE US PUBLIC LANDS AND WATERS.





























ONSHORE OIL & GAS FEDERAL LEASES (ACRES) COAL PRODUCTION ON FEDERAL LANDS
(ESTIMATED TONS)

2014 REVENUE (USD)

bp

0	36,484,000	\$4,300,000,000 22
783,724	1,700,000 23	\$18,470,000,000 24
69,380	0	\$13,851,000,000 25
19,633	117,100,000	\$2,937,119,000 26
480,896	0	\$358,678,000,000 27
361,967	O ²⁸	\$211,970,000,000 ²⁹
0	85,800,000	\$1,324,000,000 30
637,018	0	\$55,517,000,000 31
763,212	0	\$8,019,000,000 32
930,365	0	\$411,939,000,000 33
808,150	0	? 34
0	147,360,000	\$679,200,000 35
174,861	0	\$431,344,000,000 36
0	13,749,000	\$1,115,992,000 37
850,527	0	? 38

DANGEROUS CORPORATE CULTURE

The corporate culture of the top leaseholders of public lands and waters shows a track record of corruption, violation of Indigenous sacred sites, environmental destruction, and evading the already low fees paid to the U.S. government and us — the people.

DRILLING IN INDIGENOUS SACRED SITES

Two of the top leaseholders on public lands, Encana Corporation and Devon Energy Corporation, ³⁹ own leases at Indigenous sacred sites. Encana is actively leasing land for oil and gas drilling in the Greater Chaco Region in northern New Mexico, adjacent to the Navajo Nation.

Chaco Culture is a network of archaeological sites throughout the region. This designated UNESCO World Heritage site includes Chaco Culture National Historical Park, the associated sites at the Aztec Ruins National Monument, and five additional protected archaeological areas. The Chacoan society reached its height between about 1020 and 1110. These sites were a focus for ceremonies, trade, and political activity. They are

remarkable for their monumental public and ceremonial buildings and distinctive multi-story "great houses." ⁴⁰ This region is especially important to the historical and living culture of the Navajo Nation.

Devon Energy holds oil and gas leases in Badger-Two Medicine,

41 the land between Montana's Glacier National Park and the
Bob Marshall Wilderness Complex. 42 This area is informally
known as the "backbone of the world" and is sacred to the Pikuni
(Blackfeet) people. Badger-Two Medicine has been formally
determined as eligible for listing on the National Register of
Historic Places. With the formal eligibility determination, it is
considered a historic property and is formally defined as a
Traditional Cultural Property or District. 43



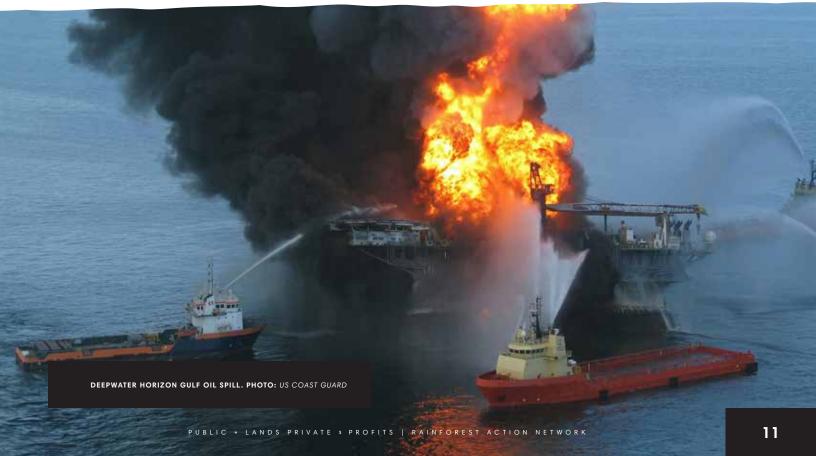
ENVIRONMENTAL DISASTERS

In addition to the greenhouse gases and toxic chemicals these companies routinely emit, twelve of the Filthy 15 leaseholders — Alpha Natural Resources, ⁴⁴ Anadarko, ⁴⁵ Apache, ⁴⁶ Arch, ⁴⁷ BP, ⁴⁸ Chevron, ⁴⁹ Cloud Peak, ⁵⁰ ConocoPhillips, ⁵¹ Encana, ⁵² Exxon, ⁵³ Peabody Energy, ⁵⁴ and Shell ⁵⁵ — have been responsible for major environmental disasters that resulted in multi-million dollar settlements. These disasters include offshore oil spills, explosions, pipeline ruptures, household water contamination, abandoned mines, and Clean Air and Clean Water Act violations. The Deepwater Horizon drilling rig explosion and Macondo oil well rupture on April 20, 2010 in the Gulf of Mexico killed eleven workers and caused the largest offshore environmental disaster in U.S. history, polluting large parts of the Gulf, killing marine wildlife, and harming businesses and fisheries to this day. ⁵⁶

BP was the main lessee, while Anadarko was a co-lessee on the Macondo well that erupted as part of the Deepwater Horizon explosion in the Gulf of Mexico in 2010. The Obama Administration and the Secretary of the Interior placed a six month moratorium on offshore drilling in the Gulf after the disaster. ⁵⁷ Anadarko and BP are still in negotiations on final settlements for the cleanup costs.

While the cleanup costs and rehabilitation of the Gulf Coast are ongoing, both Anadarko and BP hold active offshore drilling leases in the Gulf of Mexico.





EVADING, SKIMPING AND SKIRTING ROYALTIES

Energy companies make enormous profits from extraction on public lands — but the royalties they are charged by the government are typically minimal. Even so, these companies frequently fail to pay these very low fees. In 2011, Anadarko settled for over \$17 million to the U.S. Department of Justice for underpayment of royalties on public lands. ⁵⁸ In 2013, Yates Petroleum paid \$416,000 to settle allegations of underreporting on federal leases in Wyoming. ⁵⁹

Coal companies Arch, Cloud Peak, and Peabody are the subjects of an ongoing investigation by the U.S. Department of

the Interior into whether mining and trading companies failed to pay royalties on coal mined on federal lands and exported to Asia. ⁶⁰

By exploiting a regulatory loophole, coal companies have been able to maximize profits from sales of Powder River Basin coal when it is exported to foreign buyers. A Reuters investigation estimated that in 2011 the loophole allowed companies to pocket at least an additional \$40 million on coal exports from Wyoming and Montana alone. 61



PASSING THE BUCK ON CLEANUP COSTS

Coal giant Alpha Natural Resources declared Chapter 11 bankruptcy in August 2015. 62 Alpha was not the only company that took a hit: Arch and Peabody posted record second quarter losses a week earlier. 63 The deteriorating conditions of the coal market show a sector that may not make it back to its former market strength. In a recent report, Energy Darwinism II: Why a Low Carbon Future Doesn't Have to Cost the Earth, the banking giant Citigroup declared the coal industry's survival "dependent on government intervention." However, Citigroup claimed that government intervention does not seem likely given the "political backdrop regarding CO2 emissions." 64

According to the Reuters investigation on bonds and insurance for cleanup costs, Alpha's recent bankruptcy has "regulators in West Virginia examining whether a leading mining company, Alpha Natural Resources, still qualifies to leave \$262 million in cleanup insurance uncovered." 65

As the coal industry continues to collapse, and mines and assets are sold, liabilities from contamination and environmental cleanup will persist. Will private companies shift their cleanup costs to the U.S. public agencies? How will the issue of federal lands play out in the ongoing drop in the coal market? Will the U.S public shoulder the costs of these once lucrative companies?

HOARDING PUBLIC LAND

Bids for public lands are so inexpensive that land speculators often buy the acreage to sell to energy companies. ⁶⁶ Based on this speculation, energy companies are literally sitting on undeveloped land and approved permits to drill. The industry argues they are not developing the land "because surrounding wells came up dry or because the low price of gas won't offer a

return on their investment." ⁶⁷ While leases are undeveloped, this could be an opportunity for all these oil and gas leases to be voluntarily retired. Anadarko has the most undeveloped lease holdings with 897 — twice as many as any other company. ⁶⁸



OPENING NEW RESERVES

To keep warming below two degrees Celsius and slow the effects of climate change, we cannot unlock any new fossil fuel reserves in the U.S. We already know there are about three times more fossil fuels in reserves that could be legally exploited today than are compatible with a two degree global temperature rise. ⁶⁹ Royal Dutch Shell is making a risky gamble in pursuing drilling

in the Arctic's Chukchi Sea. ⁷⁰ Despite strong public opposition, years of legal intervention, and dangerous environmental conditions, Shell continues to move forward on drilling in the Arctic with a recent approval from President Obama. ⁷¹

SHADY BUSINESS MODELS

Cloud Peak

Cloud Peak, the fourth largest leaseholder of federal lands for coal development, is fiercely fighting proposed reforms of the federal coal program — because its business model strongly depends upon using the current outdated, loophole-ridden rules to exploit taxpayers and the government. Cloud Peak's shady method is to sell its own coal cheaply within its network of thirty subsidiary companies, 72 pay royalties to the government on these low-cost transactions, and then export the coal to sell at a higher price in Asia. This way, Cloud Peak doesn't have to pay royalties on the true value of the coal that its subsidiaries receive in foreign markets. Cloud Peak also owns some of the cheapest rights to mine for federal coal, and pays Indigenous tribes even less for rights to mine on their land. 73

Cobalt International Energy and Sonangol

Cobalt International Energy and Sonangol, who jointly own several offshore federal oil and gas leases, are in hot water over corruption allegations. In 2008, Cobalt, a U.S.-based oil exploration company, entered into an exploration partnership with Sonangol, Angola's state-controlled oil company, on fifteen federal offshore oil leases in the Gulf of Mexico. ⁷⁴ In 2010, Sonangol issued Cobalt and two Angolan partner companies exploration rights to two offshore oil blocks in Angola.

Reportedly, one of these partner companies was secretly controlled by senior Angolan government officials, including the head of Sonangol. ⁷⁵ As of December 2014, Cobalt was the subject of an ongoing investigation by the U.S. Department of Justice regarding this 2010 transaction with Sonangol. ⁷⁶ As part of a separate oil exploration transaction, Cobalt and BP also paid Sonangol \$175 million for a research center that has never been built. ⁷⁷

The Church of Jesus Christ of Latter-Day Saints

The not-for-profit financial arm of the Mormon Church ⁷⁸ has owned 3,483 acres of federal coal leases at the Deer Creek Mine in Utah since the early 1960s. ⁷⁹ The Mormon Church subleases all of this federal acreage to PacifiCorp, an electric power producer owned by Berkshire Hathaway Energy.

In 2012, the net worth of the Church of Jesus Christ of Latter-day Saints was estimated at \$40 billion; ⁸⁰ as a non-profit church-affiliated corporation, however, the Mormon Church is unique among the top federal leaseholders for being tax-exempt. ⁸¹

Mormon Church leaders have also met with President Obama to voice support of public lands legislation proposed by Church member Representative Rob Bishop, which would cede federal ownership of public lands and lessen restrictions for oil and gas development. 82





ABOVE: BLACK-THUNDER-MINE, POWDER RIVER BASIN. PHOTO: ECOFLIGHT; BELOW: GREEN RIVER, UTAH. PHOTO: ECOFLIGHT; OPPOSITE: SALT LAKE TEMPLE, THE CHURCH OF LATTER-DAY SAINTS, UTAH. PHOTO: WIKIPEDIA COMMONS





OBAMA'S EXECUTIVE AUTHORITY

President Obama has the ability to stop the corporate giveaway of public lands and waters, preserve cultural heritage sites, reduce the threats of climate change and environmental disasters, and conserve wild places by issuing an executive order to end the leasing of federal lands for fossil fuel extraction.

These lands are critical not just for recreation and wildlife, but as a globally important carbon sink. Now, it is our role to redefine these lands according to the needs of a new era and make sure this birthright is not squandered for short-term profit.

The Obama administration has an opportunity to align climate change commitments with actions that could immediately remove "up to 450 billion tons of potential greenhouse gas pollution from the global pool of potential climate pollution by stopping new leasing." 83

Using his executive authority, President Obama could build a lasting climate legacy that would address the grave threats in front of us today.

PRESIDENT OBAMA IN THE OVAL OFFICE. PHOTO: PETE SOUZA / THE WHITE HOUSE

RESEARCH NOTES

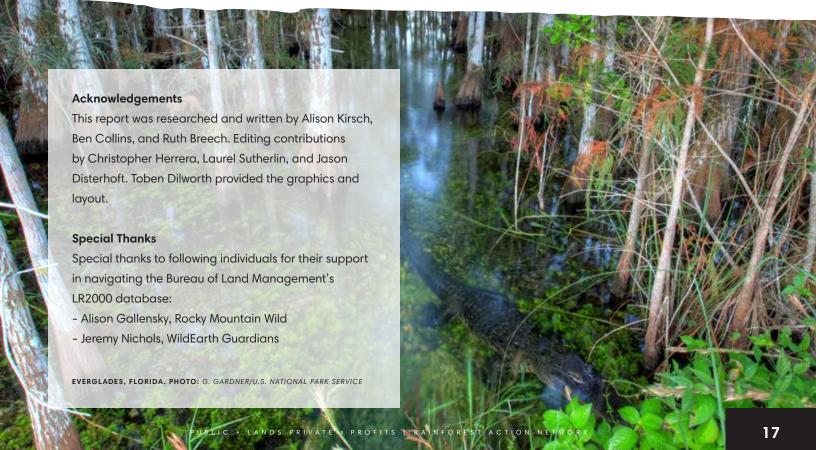
All lease data was collected from federal databases available to the general public. Information on federal land leased for coal and onshore oil and gas development was retrieved from the Bureau of Land Management's Legacy Rehost System, LR2000. Offshore leasing data comes from the Bureau of Safety and Environmental Enforcement's Leasing Information Data Center. RAN's analysis aggregates all active coal leases (a total of 285), active offshore oil and gas leases over 1,000 acres (300), and current onshore oil and gas leases over 10,000 acres (555), as of July 2015.

Federal databases are not designed to be user-friendly, so while this report attempts to provide a comprehensive picture of federal fossil fuel leasing, there are a number of caveats about the data. In assigning lease acreage to various owners, the data on coal and offshore oil and gas leases take into account all proprietors on each lease. Each proprietor is pro-rated a portion of the lease's acreage relative to its percent interest in the lease. Given the magnitude of leases for onshore oil and gas drilling (36,828 total), combined with the opaqueness of the clunky LR2000 database, RAN's analysis only considers the first-listed

proprietor in the LR2000 output for onshore oil and gas leases. The LR2000 database does not appear to have a consistent rule for who is listed first on a given lease. This methodology likely underestimates total holdings for the Filthy 15, and lessens confidence in each company's exact standing in each sector. RAN estimates the margin of this error to be small, and thus appropriate given the inaccessible nature of publicly available leasing information.

The proprietor names on the leases were traced back to their parent companies using a subscription to the Bloomberg Professional Service, and publicly available company filings to the U.S. Securities and Exchange Commission. Approximately 10% of leases analyzed could not be traced with high confidence to parent companies according to available information. Finally, RAN presents production data for coal leases, but not oil and gas leases, because of the difference in information available in annual reports.

Full sourcing can be made available upon request.



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