

The Energy Logjam

**Removing Regulatory Obstacles to Fuel the Economy:
Vital Statistics on America's Most Promising Sector**

By

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“More crude oil is moving around the U.S. on trucks, barges and trains than at any point since the government began keeping records in 1981.”

— Russell Gold,
Wall Street Journal

“Production of shale gas has exploded five-fold in just four years. And that’s just a taste of what could happen if imagination, technology, and capital are unleashed.”

— James K. Glassman,
Forbes.com



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“The surge in domestic oil and gas employment and output has come during a period of expanding federal, state, and local regulations and restrictions on drilling activities.”

Introduction:

4% Growth and Energy

The U.S. economy grows too slowly. In the past, America grew at an average rate of 3% or 4%. These days, though, we accept a 1% or 2% annual rate as the new normal. If America grew faster, employment would be stronger, and the nation's long-term fiscal challenges would be easier to reduce.

At the George W. Bush Presidential Center, we created the 4% Growth Project to study ways to show citizens how America can increase growth. The Bush Institute's goal is to remind Americans that stronger growth is possible and to focus on the tools and policies necessary to sustain such growth again. One way to reduce America's growth gap is to improve tax policy. That is what the Bush Center found at three national tax events it hosted: one in Dallas, one in New York, and one, in partnership with the Illinois Policy Institute, in Chicago. Another way to increase U.S. growth is by altering immigration policy and encouraging citizenship. These are both areas Bush Center scholars have highlighted at conferences with the Dallas Federal Reserve and at the Bush Center.

Yet another way to increase American growth is through energy, the 4% Growth Project's 2013 focus. Energy is the U.S. economy's most promising sector. This sector needs good regulation. But energy currently is overregulated, so much so that the rules choke America's energy potential. If America's energy resources could be tapped more easily, without the hindrance of counterproductive regulation, the U.S. could move closer to the 4% annual level. This handbook aims to lay out the possibilities of energy, the obstacles to those possibilities, and some solutions that can take the country closer to stronger growth.

The Energy Turnaround

Just 15 years ago, the conventional wisdom was that America would soon run out of crude oil and natural gas. "Peak Oil" theorists posited that even the Middle East would run dry because all the oil and gas fields that could be discovered already had been. But the experts and pundits predicting the demise of fossil fuels missed the story: that technology and market forces determine the availability of any resource, including oil and gas. In the U.S., the combination of horizontal drilling and hydraulic fracturing has

The 29% increase in U.S. oil production and the 20% increase in natural gas production have occurred without any new subsidies or any new tax preferences.

unlocked huge amounts of oil and gas from shale and other tight formations located more than a mile underground. At the same time, advanced seismic and drilling technologies have enabled American companies to produce oil and gas from reservoirs more than three miles below the floor of the Gulf of Mexico. These same technologies are now being used around the world to reveal new oil

and gas fields, both onshore and offshore.

As a result, Americans find themselves in a situation they never expected. The U.S. currently ranks first in the world in coal and natural gas production, first in nuclear power, and first in renewables, which are energy sources that are continuously replenished by sources such as sun, rain, or geothermal heat. America ranks third in crude-oil production. Within a few years, America is likely to pass Russia and Saudi Arabia to regain its crown as the planet's no. 1 oil producer.

It is worth noting that this newfound abundance of oil and natural gas has been developed with private capital, not government assistance. While renewable energy projects exploiting wind and solar power have received more than \$150 billion in direct subsidies since 2009, the 29% increase in U.S. oil production and the 20% increase in natural gas production have occurred without any new subsidies nor any new tax preferences.¹

Lately, in a difficult economic period, energy has been a bright spot. Energy extraction has been one of the few fast-growing, high-wage industries in America since the Great Recession of 2007-2009. Nationwide, fewer workers are on business payrolls today than at the end of 2007. However, this has not been the case with the energy industry. In fact, payroll employment in oil and gas extraction is about 25% higher today than it was five years ago.² Even more

1 Bernard L. Weinstein, "Keystone Key to Energy Independence," editorial, *The Hill*, February 14, 2013, <http://thehill.com/blogs/congress-blog/energy-a-environment/283179-keystone-key-to-energy-independence>. And: *Energy Production Data, report* (U.S. Energy Information Administration, 2013), accessed August 18, 2013, <http://www.eia.gov/naturalgas/data.cfm>.

2 *Employment, Hours, and Earnings from the Current Employment Statistics Survey (National)*, report (Bureau of Labor Statistics, U.S. Department of Labor), accessed August 16, 2013, http://data.bls.gov/timeseries/CES1021100001?data_tool=Xgtable.

remarkable is that the surge in domestic oil-and-gas employment and output has come during a period of expanding federal, state, and local government regulations and restrictions on drilling activities.

Lately, in a difficult economic period, energy has been a bright spot.

Current Regulations Impede Greater Growth

Energy could help America's economy even more. But the flow is blocked, as in a logjam on a river, by an obstacle: perverse regulation. Some regulation is always necessary. But in the U.S. energy is overregulated. Dating back to the New Deal and before, America has always regulated energy more than other areas of the private sector. Not only rules themselves, but also the arbitrary fashion in which they are written or applied constrains America's growth. In this book, we consider all rules, including export rules, as forms of regulation, for that is their effect. A short list of some of the regulatory challenges and effects impeding growth follows.

Limits to Access

The U.S. Department of the Interior has estimated that about 88 billion barrels of recoverable oil and 400 trillion cubic feet of natural gas lie under the continental shelves off the east and west coasts of the U.S. and in the eastern Gulf of Mexico.³

Lately, in a difficult economic period, energy has been a bright spot.

Yet nearly all of these areas are off-limits to drilling until at least 2017. At the same time, new drilling is prohibited on more than 50% of federally owned lands. And even where drilling is allowed on federal lands, regulatory red tape has increased the average time to process a permit to more than 300 days in 2012, from 218 days in 2006.⁴ Not surprisingly, most

3 *Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation's Outer Continental Shelf, 2011*, report (Bureau of Ocean Energy Management, U.S. Department of the Interior, 2011), pg. 1, http://www.boem.gov/uploadedFiles/2011_National_Assessment_Factsheet.pdf.

4 Marc Humphries, *U.S. Crude Oil and Natural Gas Production in Federal and Non-Federal Areas*, report no. R42432, vol. 7-5700 (Congressional Research Service, March 7, 2013), pg. 8, <http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/20130228CRSreport.pdf>.

new production is occurring on non-federal lands.

Rulings against Deepwater Drilling

Deepwater drilling can cause disaster. That is what happened at the Deepwater Horizon blowout in the Macondo Prospect in April 2010. But the reaction that followed has been to create an overly cumbersome and confusing regulatory regime. That regime, while well intentioned, creates a complex system of oversight for offshore activity that regulators to this day struggle to implement in a transparent and predictable fashion. As a result, oil production in the Gulf today is one-third lower than was forecast by the Energy Information Administration in 2010.⁵

Limits on Hydraulic Fracturing

Last year, the Environmental Protection Agency issued 588 pages of new regulations to control alleged “air pollution” from natural gas wells. The EPA’s concern is

EPA’s imposition of additional monitoring and reporting requirements will simply drive up the cost of gas production with no significant health or environmental benefits.

that when fracking fluids are withdrawn from gas wells, some volatile organic compounds, or VOCs, such as benzene, rise to the surface.⁶ But responsible drilling companies across the nation already use tech-

nologies developed in the North Texas Barnett Shale to capture the vast majority of these gases. With its regulations, the EPA has created an extra problem: jurisdictional confusion and redundancy. The federal rules duplicate state regulations already in place. Now companies must bow to two masters. EPA’s imposition of additional monitoring and reporting requirements will simply drive up the cost of gas production with no significant health or environmental benefits.

5 *Annual Energy Outlook 2010 with Projections to 2035, report no. DOE/EIA-0383(2010)* (U.S. Energy Information Administration, April 2010), pg. 75, [http://www.eia.gov/oiaf/aeo/pdf/0383\(2010\).pdf](http://www.eia.gov/oiaf/aeo/pdf/0383(2010).pdf); and, *Gulf of Mexico Fact Sheet, report* (U.S. Energy Information Administration, July 1, 2013), http://www.eia.gov/special/gulf_of_mexico/data.cfm.

6 *Oil and Natural Gas Air Pollution Standards, report* (United States Environmental Protection Agency), accessed August 5, 2013, <http://www.epa.gov/airquality/oilandgas/actions.html>.

Plugging the Keystone XL Pipeline

North America needs an energy delivery infrastructure that transports crude oil from the Canadian Province of Alberta and the Bakken Shale in North Dakota to refineries along the Gulf Coast. But right now, the pipeline does not have regulatory approval. Though opponents of the pipeline claim their concern is with a possible spill that could contaminate groundwater, their ultimate goal is to stymie oil production in the Canadian oil sands as well as the Bakken.

Concern over possible accidents is legitimate. However, the answer isn't to stop building pipelines but rather to build newer and safer ones, such as the proposed Keystone XL.

The U.S. is the world's largest producer of natural gas, but exports are negligible because of regulation.

Rules that Limit Natural Gas and Oil Exports

The U.S. is the world's top producer of natural gas, and within a few years, it could pass Saudi Arabia and Russia to become the top producer of oil. However, exports of oil have been essentially banned since the early 1970s, and gas exports are negligible due to regulatory restrictions.

Limits on Power Plants

Every 1% increase in economic output requires a 0.3% increase in energy use.⁷ Therefore, any combination of policies that increases the price of electricity or reduces the reliability of energy sources hurts economic growth. New Environmental Protection Agency regulations run the risk of undermining the availability of electric power in the U.S., placing grid reliability in jeopardy with potentially catastrophic economic impacts. Coal-fired plants cannot be replaced overnight by natural gas plants, and they

7 Bernard L. Weinstein, *Proposed EPA Power-Sector Air Rules: Weakening Economic Recovery and Putting America's Most Competitive Manufacturing Industries at Risk*, Maguire Energy Institute in the Cox School of Business at Southern Methodist University, September 2011, Executive Summary, http://pressdocs.cox.smu.edu/maguire/SMU_Utility_MACT_Report.pdf.

certainly cannot quickly be replaced by alternative energy facilities. It takes a considerable amount of time to install pipeline and other infrastructure necessary even to begin the conversion of an old plant or construction of a new one.

Scare Tactics on Nuclear Energy

Though the U.S. has 104 nuclear plants operating in 31 states, no new facilities have been ordered since the 1970s. Those plants currently generate about one-fifth of the nation's electricity while emitting no greenhouse gases.⁸ Nuclear power could do more, but exaggerated fears of nuclear disaster have caused regulators and lawmakers to hesitate before permitting more construction.

The Ethanol "Blend Wall"

The Renewable Fuels Standard, commonly known as the "ethanol mandate," is an ill-conceived policy that has resulted in serious resource misallocations and higher gasoline prices for drivers. The mandate requires that refiners blend an increasingly larger quantity of ethanol with gasoline every year. In 2013, refiners and importers are required to blend 13.8 billion gallons, and in 2014 the mandate is supposed to rise to 14.4 billion gallons, though the EPA is considering postponing this increase.⁹ Gasoline consumption has been falling for the past eight years and is expected to decline further in the years ahead because of improved fuel economy.¹⁰ The problem is that refiners are up against a "blend wall" as the mandate forces them to purchase more ethanol than they can safely put into gasoline.

Regulations force refiners to purchase more ethanol than they can safely put into gasoline.

To be sure, there are other regulatory barriers that threaten the growth potential of the energy industry. One area where future regulation appears likely is in

8 *Before the Subcommittee on Agriculture, Energy and Trade of the House Committee on Small Business*, 113th Cong., 16 (July 18, 2013) (testimony of Bernard L. Weinstein, Ph.D.) http://smallbusiness.house.gov/uploadedfiles/7-18-2013_weinstein_testimony.pdf.

9 *Renewable Fuels: Regulations and Standards*, report (United States Environmental Protection Agency), accessed August 1, 2013, <http://www.gpo.gov/fdsys/pkg/FR-2013-08-15/pdf/2013-19557.pdf>.

10 *Annual Energy Outlook 2013*, report no. DOE/EIA-0383 (U.S. Energy Information Administration, April 2013), pg. 5, [http://www.eia.gov/forecasts/aeo/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf).

the area of carbon emissions. The Bush Institute will return to this issue, and others that fall outside the scope of this handbook, in its future research on energy regulation and growth.

The Solution Is before Our Eyes

Addressing America's energy challenges means asking first: What works? Next we can ask: how can this success replicate itself? Oil and gas extraction has been one of the few industries recording strong output and employment growth in

recent years. What can other areas learn from oil and gas?

America is a country of multiple jurisdictions: local, state, and federal. This

system of competitive federalism allows us to watch natural experiments. States with sounder rules have produced more jobs and experienced faster economic growth than states with more restrictive laws. The "states first" regulatory movement posits that states should set law on energy, not Washington. Only states know, for example, their own individual regulatory needs: fracking in North Dakota is different from fracking in Pennsylvania.¹¹ As the charts in this book will show, North Dakotans have fared much better than citizens of those states that have too many rules. Likewise, international comparison teaches us that nations with better regulation can grow faster than America has in the past.

At the Bush Institute energy conference in September 2013, our scholars will illuminate the costs to growth from energy regulation and explore policy options, including energy initiatives that can help boost the nation's economic growth rate, create new jobs, and reduce unemployment. America does not currently have a sound, comprehensive energy strategy. Instead, it has de facto policies by fiat and regulation that retard, rather than facilitate, expansion of energy resources.

It's time to pursue policies and regulations that permit the U.S. to take full advantage of its opportunities.

¹¹ United States Senator John Hoeven for North Dakota, Press Office, "Senator Hoeven Presses for a States-First Approach to Energy Regulation," news release, May 23, 2013, <http://www.hoeven.senate.gov/public/index.cfm/2013/5/senator-hoeven-presses-for-a-states-first-approach-to-energy-legislation>.

The Possibility



Real GDP growth has been slow for a long time...

Over the past decade, only one year has recorded a growth rate above the 65-year average.

Gross domestic product, or GDP, is a measure of the market value of a nation's output of goods and services. In assessing the health of the economy, it is the rate of change in GDP that is most telling.

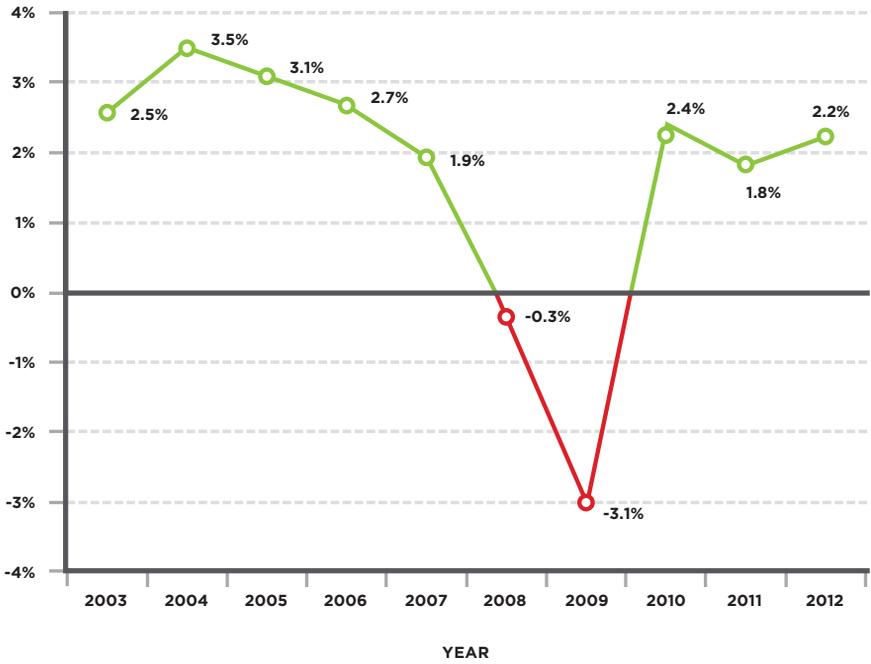
Since 1947, real economic growth in the U.S. has averaged 3.2%. But over the past decade, only one year has recorded a growth rate above the 65-year average.¹²

Between 2008 and 2012, America grew a mere 0.6% a year. Admittedly, this period encompasses the worst of the "Great Recession." But unlike after previous downturns, the economy has not rebounded sharply. No single party can be blamed for this. Growth is a bipartisan problem.

¹² *National Economic Accounts*, report (Bureau of Economic Analysis, U.S. Department of Commerce), accessed July 15, 2013, <http://www.bea.gov/national/index.htm>.

U.S. Real GDP Growth 2003 – 2012 (Averaged 0.6% Since 2008)

GROWTH



Source: Bureau of Economic Analysis

Joblessness is especially troubling...

When part-time workers and those who have stopped looking for work are included, the unemployment rate is 15%.

In 2007, just before the onset of the Great Recession, the nation's unemployment rate averaged 4.6%. By 2010, the average rate had jumped to 9.6%.

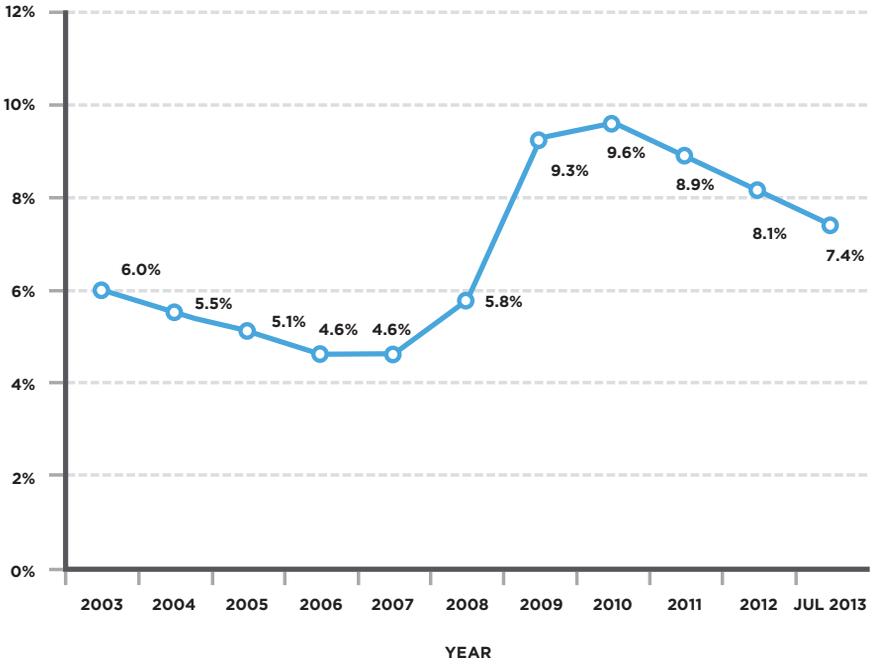
Though the economy has been growing, albeit slowly, for more than three years, the unemployment rate remains stubbornly high at 7.4% as of July 2013.¹³ In previous recovery periods, the unemployment rate dropped much more quickly.

Including part-time workers and those who have stopped looking for work pushes the true unemployment rate closer to 15%. With extended unemployment benefits expiring for many Americans currently out of work, the number of food stamp recipients is at an all-time high, while many long-term unemployed workers have been forced onto welfare rolls. Joblessness is a challenge for both parties.

¹³ *Labor Force Statistics from the Current Population Survey*, report (Bureau of Labor Statistics, U.S. Department of Labor), accessed July 15, 2013, <http://www.bls.gov/cps/>.

U.S. Average Unemployment Rate 2003 - July 2013

UNEMPLOYMENT RATE



Source: Bureau of Labor Statistics

But one spot shines especially brightly: energy.

Despite regulatory obstacles, the energy sector has seen employment growth over 25%.

In the sluggish post-Great Recession economic recovery, the energy sector has been one of the few bright spots, with employment growing by over 25%.¹⁴

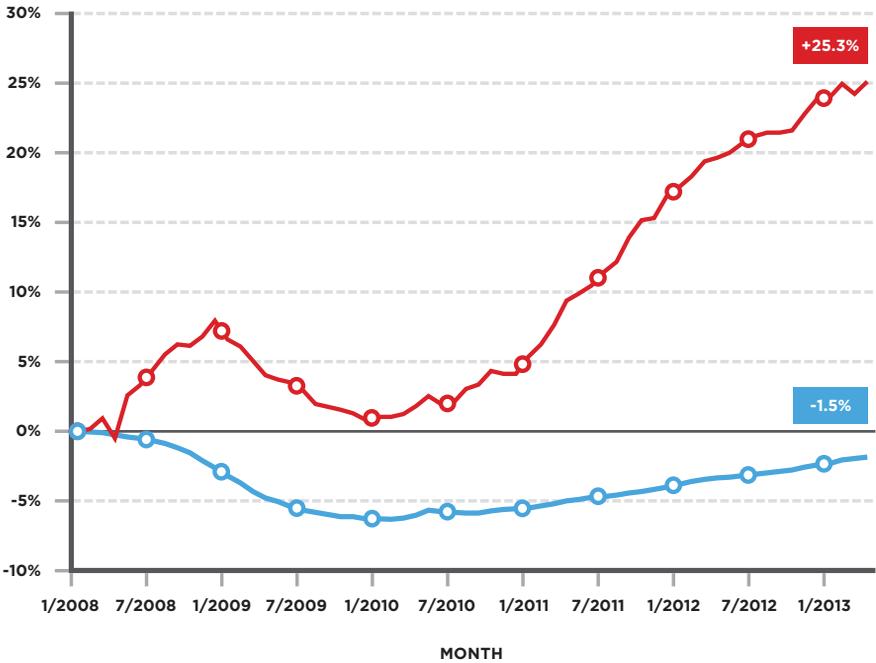
This energy renaissance has emerged in spite of growing legislative and regulatory obstacles that limit the country's ability to produce oil and gas.

¹⁴ *Employment, Hours, and Earnings from the Current Employment Statistics Survey (National)*, report (Bureau of Labor Statistics, U.S. Department of Labor), accessed August 16, 2013, http://data.bls.gov/timeseries/CES1021100001?data_tool=Xgtable.

Percent Change in U.S. Employment January 2008 - July 2013

- Total Nonfarm Payroll Employees (in thousands)
- Oil and Gas Extraction Employees (in thousands)

PERCENT



Source: Bureau of Labor Statistics

Natural gas is part of the hopeful outlook.

Thanks to the shale revolution, America is the world's top producer of natural gas.

U.S. oil production is growing strongly. It also comes as a surprise to hear that America is the world's no. 1 producer of natural gas.

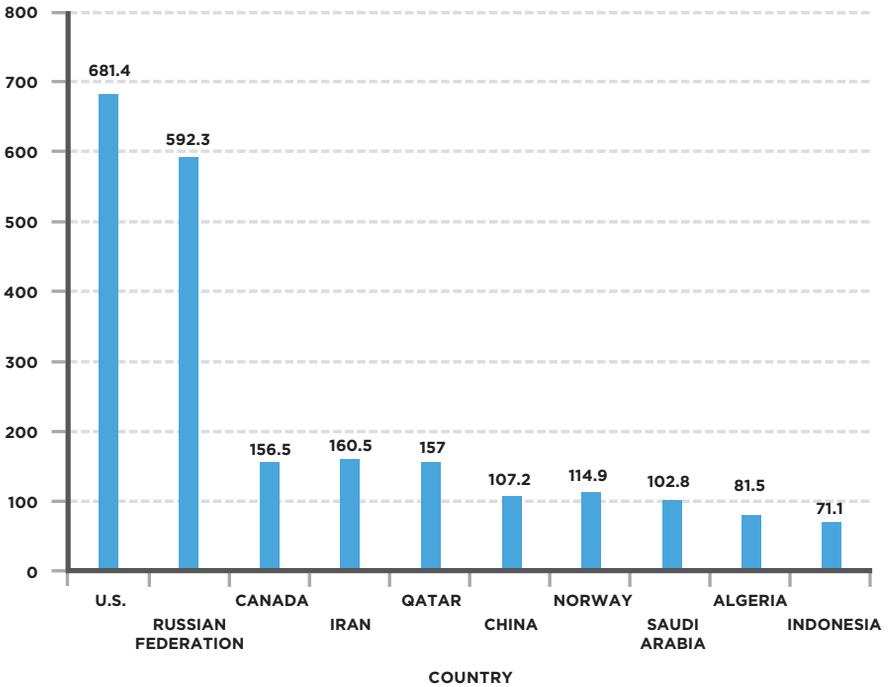
Perhaps that's because back in the 1970s, gas was in short supply, and Congress passed laws restricting its use for power generation or for fueling industrial boilers. Consequently, there was little incentive to develop new domestic gas resources, and power companies rushed to build new coal-fired plants to meet the growing demand for electricity in the 1980s. By the mid-1980s, restrictions on gas use were removed and, because of growing concerns about air pollution, natural gas became the utility and industrial fuel of preference. In part to accommodate this demand, a number of terminals were constructed for the importation of liquefied natural gas, or LNG. But just as these facilities were completed, the shale revolution began.

By combining hydraulic fracturing with horizontal drilling, natural gas could be teased out of shale formations, with the result that production declines started to reverse by the late 1990s. Still, it wasn't until 2010 that domestic output of natural gas was back to its 1973 level of about 22.5 billion cubic feet per day. Between 2010 and 2012, U.S. gas production jumped by more than 13%, pushing the U.S. ahead of Russia. After the U.S. and Russia, other countries are relatively small producers.¹⁵

¹⁵ *Statistical Review of World Energy 2013*, report (BP Plc, June 2013), <http://www.bp.com/en/global/corporate/about-bp/statistical-review-of-world-energy-2013.html>.

Top Natural Gas Producing Countries in 2012

BILLION CUBIC METRES



Source: BP Statistical Review of World Energy June 2013

Oil and gas extraction supports nearly 10 million high-paying jobs.

Jobs created in the oil and gas industry pay nearly double the national average.

Approximately 200,000 workers are employed directly in the extraction of oil and gas from conventional and nonconventional sources.¹⁶

But, according to the American Petroleum Institute, the extraction of oil and gas supports other jobs, which total nearly 9.8 million across the economy.¹⁷ Employment by pipeline companies, refineries, petrochemical plants, and oil-field equipment and service companies all depends on what happens upstream. The same is true for downstream activities like tank farms, product delivery, and gasoline stations. Law firms, engineering firms, banks, and construction companies are also involved with the oil and gas business, either directly or indirectly. The spending by workers directly or indirectly contributing to oil and gas extraction, as well as the income earned by those involved with midstream and downstream activities, in turn supports millions of jobs elsewhere in the economy, including in the retail and service sectors.

Economists at Citigroup Inc. estimate that increased domestic oil and gas production, and the economic activity that flows from it, will create up to 3.6 million new jobs by 2020 and increase real U.S. GDP by up to 0.4% per year.¹⁸ According to the U.S. Department of Labor, jobs created in the oil and gas industry paid nearly double the national average in 2011.¹⁹ Clearly, the oil and gas industry will play a crucial role if the U.S. economy is to achieve 4% annual growth.

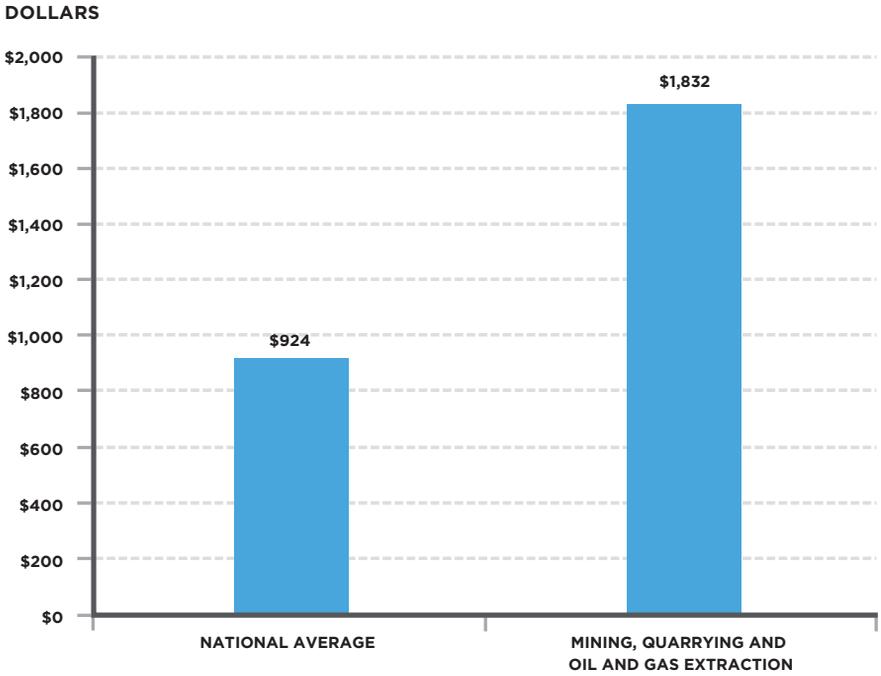
¹⁶ *Employment, Hours, and Earnings from the Current Employment Statistics Survey (National)*, report (Bureau of Labor Statistics, U.S. Department of Labor), accessed August 16, 2013, http://data.bls.gov/timeseries/CES1021100001?data_tool=Xgtable.

¹⁷ *Economic Impacts of the Oil and Natural Gas Industry on the US Economy in 2011*, publication (American Petroleum Institute, July 2013), pg. #6, http://www.api.org/-/media/Files/Policy/Jobs/Economic_Impacts_ONG_2011.pdf.

¹⁸ Edward L. Morse, *Energy 2020: North America, the New Middle East?*, report (Citigroup: Commodities Research and Strategy, March 2012), pg. 2, <https://www.citivelocity.com/citigps/ReportSeries.action?recordId=6>.

¹⁹ *Quarterly Census of Employment and Wages*, report (Bureau of Labor Statistics, U.S. Department of Labor, 2011), <http://www.bls.gov/cew/>.

Average Weekly Wages in 2011



Source: Bureau of Labor Statistics

Energy-producing states grow faster than the rest of the U.S.

Over the past five years the economies of energy-producing states have fared much better than others.

America's 50 states vary significantly in terms of their human-capital and natural-resource endowments. While no one state is ever completely immune to the vicissitudes of the business cycle, over the past five years the economies of energy-producing states have fared much better than others.

Two examples are Texas, America's no. 1 oil-producing state, and North Dakota, which passed Alaska in 2012 to become the country's second-largest oil-producing state. Between 2008 and 2012, despite the Great Recession, Texas's economy grew at an average annual rate of 2.5% in real (inflation-adjusted) terms. North Dakota's annual real GDP growth averaged 8.0% between 2008 and 2012. During this same time period, U.S. annual real GDP growth averaged an anemic 0.6%.²⁰

In both states, energy development has been the principal economic driver over the past decade. Texas, of course, is a huge state (27 million residents) with a broadly diversified economy. But the shale revolution, with all of its attendant job creation, helped insulate the state from the worst of the economic downturn. North Dakota, by contrast, is a small state with a population just over 700,000 — though it's been growing rapidly, as the Bakken Shale play has attracted many newcomers seeking jobs in the energy sector. No other state has come close to replicating North Dakota's economic growth rate in recent years.²¹

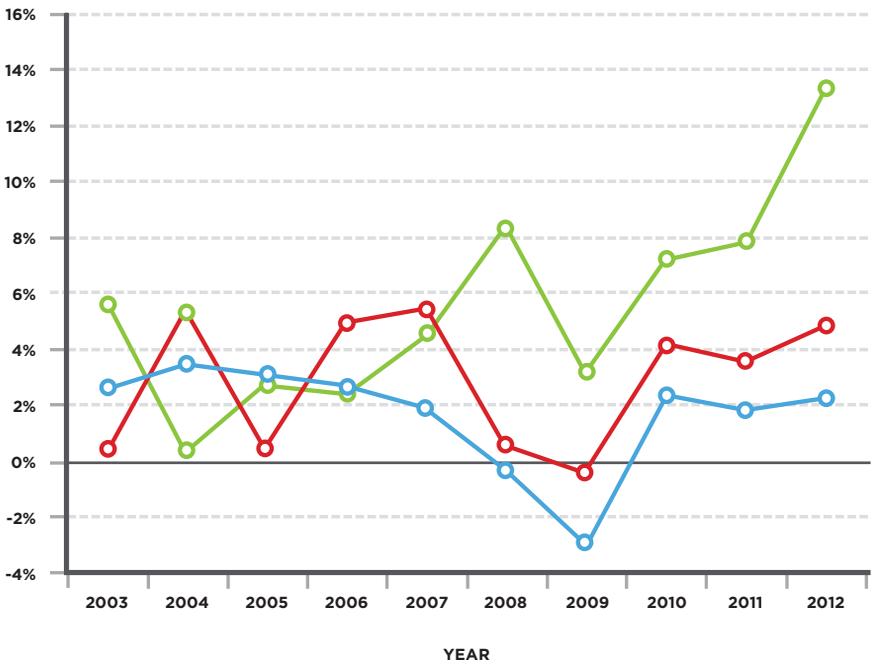
²⁰ *Regional Economic Accounts*, report (Bureau of Economic Analysis, U.S. Department of Commerce, 2013), accessed July 15, 2013, <http://www.bea.gov/regional/index.htm>.

²¹ *Ibid.*

Real GDP Growth, U.S. vs. Selected Energy-Producing States 2003 - 2012

- U.S.
- Texas
- North Dakota

GROWTH



Source: Bureau of Economic Analysis

And jobs have been more plentiful in energy-producing states.

Energy-producing states have below-average unemployment rates.

Unlike most other states, those involved in the production of oil and gas have recorded unemployment rates below the U.S. average since the beginning of the financial crisis and the Great Recession in 2007.

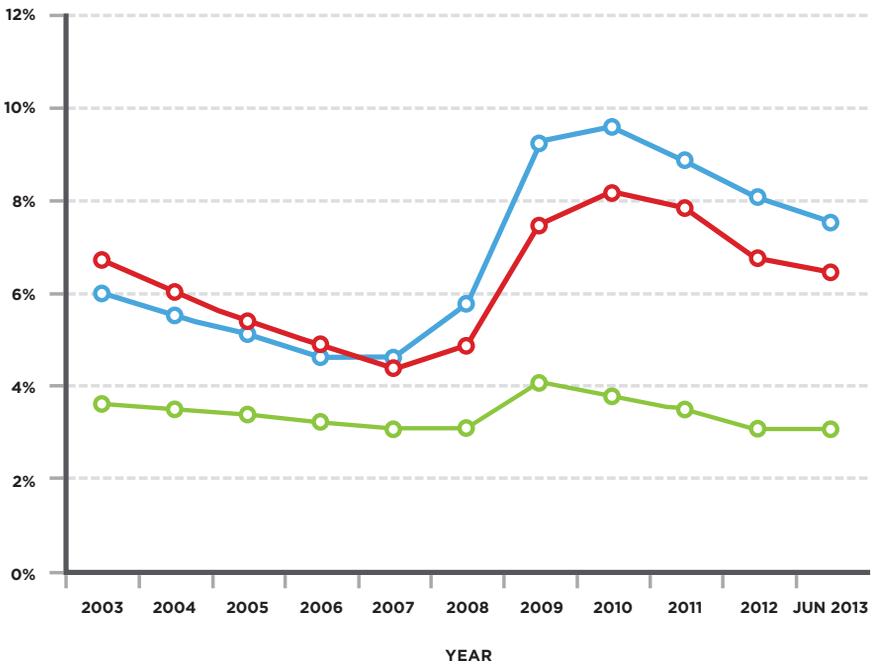
Though the unemployment rate in Texas rose between 2007 and 2010, it remained well below the U.S. average because of strength in its energy sector. That gap has been sustained during the nation's slow economic recovery. North Dakota, a state whose population is less than 3% that of Texas, has posted unemployment rates at or below 4% for the past 20 years. Because of high rates of job creation, North Dakota's unemployment rate has fallen in most months since 2009. Today, the state boasts the nation's lowest unemployment rate, at more than four percentage points lower than the U.S. average.²²

²² Ibid.

Average Unemployment Rate, U.S. vs. Selected Energy-Producing States 2003 - June 2013

- U.S.
- Texas
- North Dakota

UNEMPLOYMENT RATE



Source: Bureau of Labor Statistics

The mining sector is driving growth in those energy-producing states.

The mining sector in states like Texas is helping to propel America's economy.

Since the financial crisis, between 2008 and 2012, the U.S. economy grew 3% in real cumulative terms. In contrast, Texas real GDP grew 13.1%, Louisiana grew 6.4%, Colorado grew 5.2%, and Pennsylvania grew 2.8%.

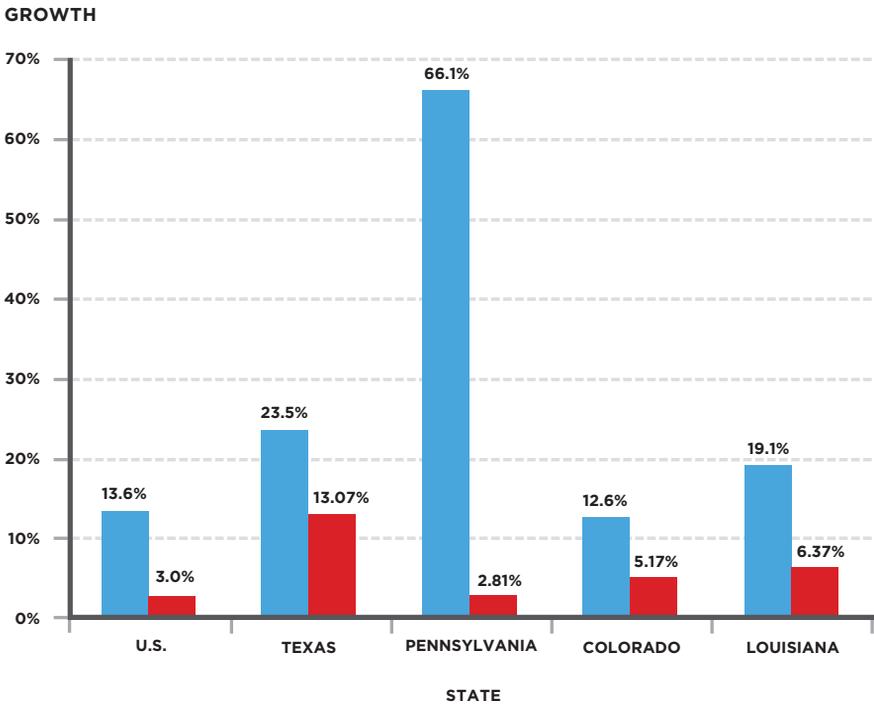
Between 2008 and 2012, the U.S. mining sector²³ grew 13.6% in real terms. In contrast, Texas's mining sector experienced 23.5% real growth, Louisiana's grew 19.1%, Colorado's grew 12.6%, and Pennsylvania's grew a staggering 66.1%.²⁴ Clearly, robust growth in the mining sector of these states is now a primary economic driver.

²³ The mining sector includes oil and gas extraction, drilling oil and gas wells, and support activities for oil and gas operations. The sector also includes coal mining; iron ore mining; gold, silver, and other metal ore mining; copper, nickel, lead, and zinc mining, stone mining and quarrying; sand, gravel, clay, and ceramic and refractory minerals mining and quarrying; other nonmetallic mineral mining and quarrying; and support activities for mining. In 2011, the oil and gas industry — which includes oil and gas extraction, drilling oil and gas wells, and support activities for oil and gas operations — comprised 79.1% of the total mining-sector gross output.

²⁴ *Regional Economic Accounts*, report (Bureau of Economic Analysis, U.S. Department of Commerce, 2013), accessed July 15, 2013, <http://www.bea.gov/regional/index.htm>.

Cumulative GDP Growth, U.S. vs. Selected Energy-Producing States 2008 – 2012

- Mining Sector Real GDP Growth
- Total Real GDP Growth, All Industries



Source: Bureau of Economic Analysis

How Regulations Slow Growth



The great problem of exports.

**U.S. oil exports
have been
essentially
banned since
the early 1970s.**

Exports offer large potential for growth.

However, oil exports have been essentially banned since the OPEC embargo in 1973-1974, and exports of gas are limited by a lack of liquefaction and transportation facilities. Today, these restrictions serve no economic or national security purposes and may actually be retarding economic growth.

U.S. Energy Export Facilities Await Federal Approval



The Missed Opportunity on American Indian Lands.

If tribes had the same rights and institutions as those living outside of reservations, they could unlock the tremendous wealth of their lands.

Research by Shawn Regan and Terry L. Anderson for the Bush Center finds that American Indian reservations contain almost 30% of the nation's coal reserves west of the Mississippi, 50% of potential uranium reserves, and 20% of known oil and gas reserves. These resources are worth nearly \$1.5 trillion, or \$1.5 million per capita for American Indian reservations.²⁵

However, Regan and Anderson also find that 86% of American Indian lands with energy or mineral potential remain undeveloped, due to federal control of reservations that keeps American Indians from fully capitalizing on their natural resources. "Outside reservations, local, county, state, and federal governments provide stable property rights through law enforcement and judicial institutions conducive to economic growth," Regan and Anderson note. "Inside reservations, however, property ownership is a mosaic of private lands and trust lands. Under trust tenure, the federal government holds title to individual Indian lands and to tribal lands and oversees their use." The result? "Regulations governing Indian lands suppress energy-related economic growth by significantly limiting the number of oil and gas wells drilled on Indian lands."

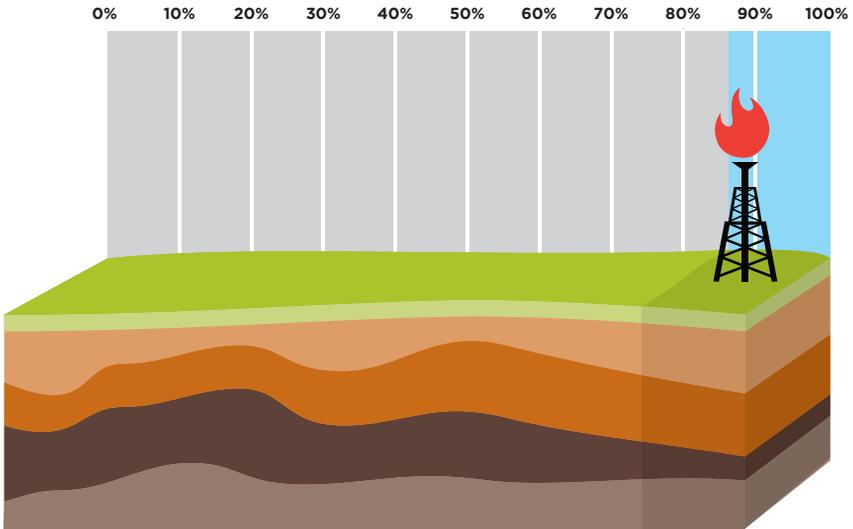
All the while, most American Indians live in poverty, with per capita income of \$16,645 and unemployment rates as high as 78% on some reservations.²⁶ In the words of Regan and Anderson, federal regulation is causing American Indians to remain "islands of poverty in a sea of prosperity."

²⁵ Shawn Regan and Terry L. Anderson, *The Energy Wealth of Indian Nations*, George W. Bush Institute, 2013.

²⁶ Cornell, Stephen, and Joseph Kalt. 2000. Where's the Glue? Institutional and Cultural Foundations of American Indian Economic Development. *Journal of Socio-Economics* 29(5): 443-70.

Vast Untapped Wealth on Reservations

American Indian reservations contain energy resources worth nearly \$1.5 trillion, yet 86% of American Indian lands with energy or mineral potential remain undeveloped because of federal control of reservations that keeps American Indians from fully capitalizing on their natural resources.



Regulatory constraints shackle exploitation of shale in some states...

New York is missing out on the positive effects of the shale boom.

Horizontal drilling, accompanied by the use of hydraulic fracturing, has allowed for the extraction of hydrocarbons from previously untouched shale-rock formations.

Though energy resources are found in most states, some are more richly endowed than others. But several of the “richest” states in terms of energy potential have adopted policies that are inimical to energy production. This is especially true in New York and California.

New York is a large state with diverse economic regions. Most of the state’s population resides in the Capital District, the Hudson Valley, and the greater New York City Metropolitan area, where the dominant industries are government, financial services, education, information technology, tourism, health care, and business services.²⁷ The “Downstate” economy is in comparatively good economic shape. But “Upstate” New York is a different story.²⁸ Virtually every county and city has been losing people and jobs for decades, and local governments and school districts are struggling to maintain services in the face of a shrinking tax base.

The southern tier of New York State is one of the “sweet spots” of the Marcellus Shale, the largest gas field in the continental United States. But the state has imposed a moratorium on hydraulic fracturing. Consequently, thousands of potential jobs and millions of dollars of new tax revenue are being forfeited.

²⁷ *Employment Projections*, report (New York State Department of Labor), April 2013, Statewide and Regional projections, <http://labor.ny.gov/stats/lproj.shtm>.

²⁸ Upstate New York is defined as the Southern Tier region, the Central New York region, the Western New York region, the Finger Lakes region, and the North Country region.

Regional Map of New York State



By lifting its ban on fracking, New York could create 69,000 jobs within 10 years.

Energy production could revitalize the economy of Upstate New York.

The state of New York has the potential to join the shale boom. Like Pennsylvania, parts of New York sit atop the gas-rich Marcellus Shale.

But, unlike in Pennsylvania, the use of hydraulic fracturing is currently prohibited statewide. A significant part of the opportunity cost of regulation is the economic benefits of the wells not drilled.

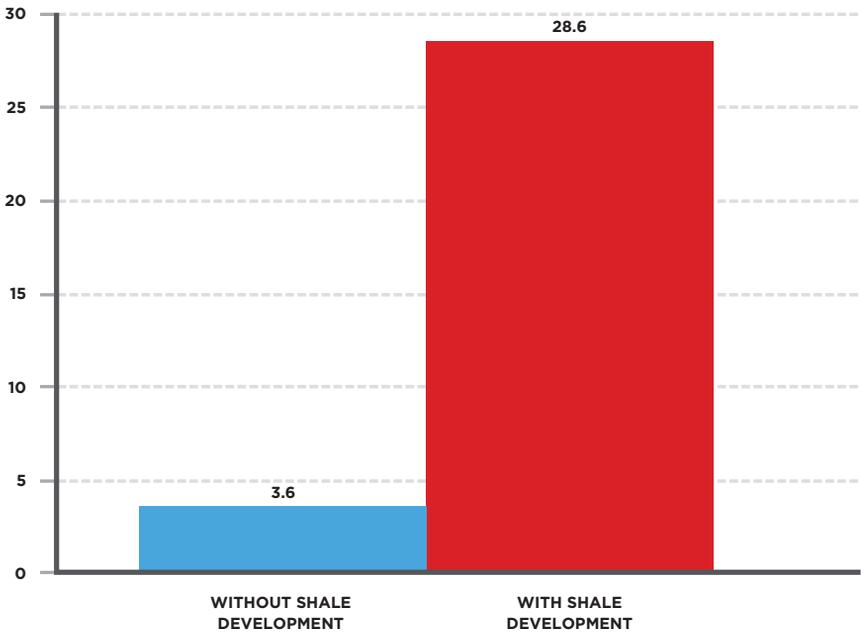
If counties in New York were to allow hydraulic fracturing, they could experience similar income growth. A Manhattan Institute study by Diana Furchtgott-Roth finds that the income of residents in the 28 New York counties located above the Marcellus Shale would expand by 15% or more over the next four years if the state's moratorium were lifted.²⁹

By lifting its ban on hydraulic fracturing, New York State could also create thousands of jobs and increase state and local tax revenue. Energy production would add a new dimension to the economy of upstate New York, which has been losing people and jobs for decades. The New York State Department of Environmental Conservation estimates that if the state of New York were to lift its moratorium on hydraulic fracturing, at least 25,000 additional jobs would be created just in well construction and operation, without considering ancillary jobs created in other industries.³⁰ According to a separate study conducted by Michael J. Orlando, drilling and producing activities could support 39,000 jobs within three years and 69,000 jobs within ten years.³¹

29 Diana Furchtgott-Roth and Andrew Gray, *The Economic Effects of Hydrofracturing on Local Economies: A Comparison of New York and Pennsylvania*, report, vol. 1, Growth and Prosperity Report (Empire Center for New York State Policy: A Project of the Manhattan Institute for Policy Research, May 2013), Executive Summary, http://www.manhattan-institute.org/html/gpr_01.htm#Ug2xVBZOixp.

Projected Mining Sector Employment in Upstate New York with and without Shale Development, Year 2020

MINING AND LOGGING EMPLOYEES (THOUSANDS)



Sources: New York State Department of Labor and Manhattan Institute Estimates

30 *Fact Sheet: Economic Impacts of High-Volume Hydraulic Fracturing in New York State*, New York State Department of Environmental Conservation, 2011, http://www.dec.ny.gov/docs/materials_minerals_pdf/econimpact092011.pdf.

31 Michael J. Orlando (Economic Advisors, Inc. - University of Colorado - Denver), *Opportunity Costs of State Regulation: Accounting for the Economic Impact of a Shale Gas Well*, working paper (Dallas, TX: Bush Institute, July 2013), pg. 15.

By lifting its ban on fracking, New York could add \$8.3 billion in personal income.

Energy production in New York could generate \$4.5 billion of gross state product within three years.

The New York State Department of Environmental Conservation projects that if New York revokes its ban on hydraulic fracturing, at least 29,000 jobs will be created in industries that are indirectly influenced by the oil and gas industry, such as transportation.³²

This phenomenon is not unique to New York. Growth within the energy sector has wide-ranging benefits for many other industries, including legal, retail, real estate, and financial services. Additional tax revenue that results from this growth can be used to balance state budgets and fund improvements for education and infrastructure. According to a May 2013 Manhattan Institute study, if New York lifts its moratorium on hydraulic fracturing, the state could gain an additional \$8.3 billion in personal income, which in turn would lead to increased state tax revenue.³³ In a separate study, Michael J. Orlando finds that drilling and producing activities could generate \$4.5 billion of gross state product within three years and \$8.1 billion within ten years.³⁴

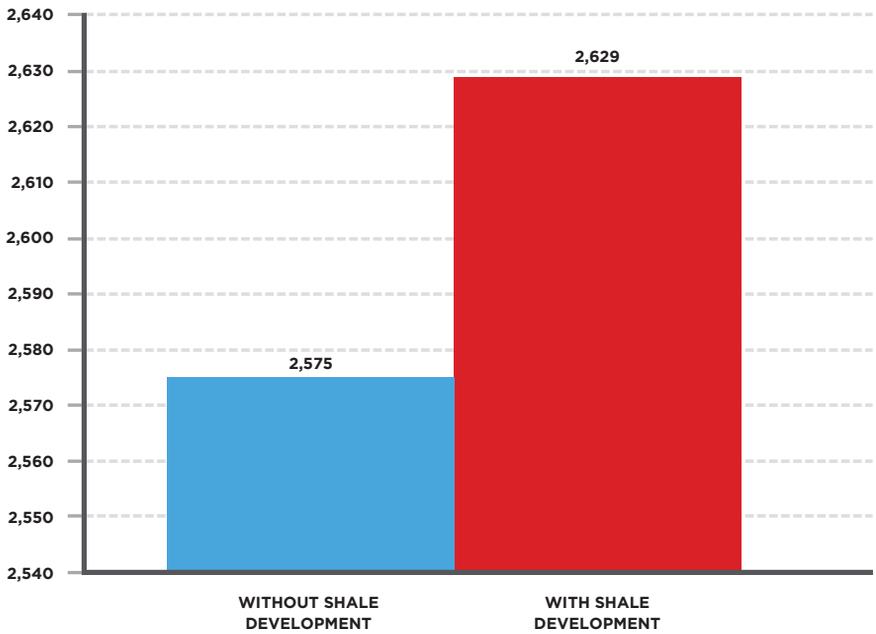
32 *Fact Sheet: Economic Impacts of High-Volume Hydraulic Fracturing in New York State*, New York State Department of Environmental Conservation, 2011, http://www.dec.ny.gov/docs/materials_minerals_pdf/econimpact092011.pdf.

33 Diana Furchtgott-Roth and Andrew Gray, *The Economic Effects of Hydrofracturing on Local Economies: A Comparison of New York and Pennsylvania*, report, vol. 1, Growth and Prosperity Report (Empire Center for New York State Policy: A Project of the Manhattan Institute for Policy Research, May 2013), pg. 7, http://www.manhattan-institute.org/html/gpr_01.htm#Ug2xVBZOixp.

34 Michael J. Orlando (Economic Advisors, Inc. - University of Colorado - Denver), *Opportunity Costs of State Regulation: Accounting for the Economic Impact of a Shale Gas Well*, working paper (Dallas, TX: Bush Institute, July 2013), pg. 15.

Projected Total Employment in Upstate New York With and Without Shale Development, Year 2020

TOTAL EMPLOYEES (THOUSANDS)



Sources: New York State Department of Labor and Manhattan Institute Estimates

California features a problem similar to New York's.

California has huge untapped potential for additional oil and gas output.

In the 1920s and 1930s, California experienced an oil boom. But since the offshore oil spill near Santa Barbara in the 1960s, little new drilling has occurred. Still, California remains the nation's third-largest oil producer.

Recent geological surveys indicate that California has huge untapped potential for additional oil and gas output, mostly in the sizable shale plays located in the central part of the state. The Monterey Shale, which runs from Los Angeles to San Francisco, contains approximately two-thirds of America's total shale oil reserves, according to some estimates. This pegs the Monterey Shale at twice the size of the Eagle Ford Shale and the Bakken Shale combined. The U.S. Energy Department estimates that the formation contains more than 15 billion barrels of oil. As a frame of reference, the United States currently consumes about 19 million barrels of oil per day.³⁵

Unfortunately, hydraulic fracturing has been roundly opposed by the state's influential environmental community as well as many state and local government officials. At the same time, California's offshore fields are currently off limits to new drilling, as is the case with the entire outer continental shelves of the Pacific and Atlantic seaboard.

³⁵ *Powering California: The Monterey Shale & California's Economic Future*, University of Southern California Global Energy Network; The Communications Institute, March 2013, <http://gen.usc.edu/assets/001/84787.pdf>.

California Shale Plays



Missing: pipeline jobs.

The Keystone XL Pipeline could deliver an additional 830,000 barrels of oil to the U.S. every day.

According to a 2012 study by the Canadian Energy Research Institute, construction of the Keystone XL Pipeline would create 20,000 shovel-ready jobs, and pipeline operations would create 179,000 American jobs by the year 2035.³⁶

The Keystone XL pipeline would also enhance America's energy security by significantly reducing imports from the Middle East and Venezuela. It is estimated that the Keystone XL pipeline would deliver an additional 830,000 barrels of oil per day to the U.S., strengthening friendly Canada's status as America's largest foreign supplier.

³⁶ *The State of American Energy*. Report (American Petroleum Institute, 2013), pg. 6, <http://www.api.org/-/media/Files/Policy/SOAE-2013/SOAE-Report-2013.pdf>. And: *Economic Impacts of Staged Development of Oil Sands Projects in Alberta (2010-2035)*, report no. Study no. 125 (Canadian Energy Research Institute, June 2011), pg. 20, http://www.ceri.ca/images/stories/2011-08_24_CERI_Study_125_Section_1.pdf.

Pipeline Construction Awaits Approval



Even before the Great Recession, regulation overall, and regulation of energy, cost us growth.

**As GDP rises,
pollution falls.**

Research by John Dawson and John Seater finds that, on average, federal regulations overall have reduced economic growth by 2% per year since 1949. The consequence of slower growth means that by 2011 GDP could have been \$54 trillion rather than \$15 trillion.³⁷

Similarly, a study conducted by Roger Meiners and Andrew Morriss finds that the total cost to the economy of compliance with all federal regulations is estimated at \$1.75 trillion in 2008, almost 12% of GDP. This amount is equivalent to almost \$15,000 per household. Direct business compliance costs for environmental regulations are estimated to have been \$183 billion in 2008, plus another \$98 billion passed on to the non-business sector.³⁸

Many environmental regulations are unnecessarily profuse, complex, and onerous. According to the EPA, the vast majority of air quality improvements stem from just a few regulations.³⁹

Meiners and Morriss find that total energy consumption in the United States was the same in 2012 as it was in 1998. Yet real per capita GDP increased about 17% over that same period, meaning that more GDP was produced using the same level of energy input. Meiners and Morriss explain, "As GDP rises, pollution falls. Energy use per dollar of real GDP has declined by more than 50% over the last 40 years, as firms produce ever more efficient manufacturing processes and products."⁴⁰

³⁷ John Dawson and John Seater, *Federal Regulation and Aggregate Economic Growth*, *Journal of Economic Growth*, 18:2, 137-177 (June 2013), <http://www4.ncsu.edu/~jjseater/regulationandgrowth.pdf>.

³⁸ Roger E. Meiners and Andrew P. Morriss, *Energy and Economic Growth*, George W. Bush Institute, 2013.

³⁹ *Ibid.*

⁴⁰ *Ibid.*

Economic Growth and the Environment Are Complementary



And in the future some regulations may actually pose economic and environmental risks.

For every \$100 billion that the United States centrally directs to clean energy, GDP may decrease by over four-tenths of a percent.

When rationalizing clean energy initiatives, policymakers often cite the Precautionary Principle. According to this principle, the mere possibility of harm creates a social responsibility to protect the public from the harm.

However, according to research by Dino Falaschetti (2013), adhering to this principle can actually cause more harm than good. In the case of clean-energy policy, Falaschetti argues: “For every \$100 billion that the United States centrally directs to clean energy, GDP may decrease by over four-tenths of a percent.” When compounded over a generation, “this reduction approximates today’s per capita income gap between the United States and Italy.”⁴¹

Falaschetti reviews independent research that shows that the benefits of reducing society’s carbon emissions may be inconsequential due to the physics of climate variation. Directing resources to clean energy can “fuel environmental degradation by encouraging inefficiencies in the production of energy, which can cause people to consume more resources for any level of energy-use and spend more of their shrinking budgets on economic necessities rather than environmental amenities.”⁴²

41 Dino Falaschetti, *Is the Precautionary Principle Doing Harm? Economic and Environmental Risks from Clean Energy Policies*, George W. Bush Institute, July 2013, Executive Summary.

42 Ibid.

Green Energy Subsidies Threaten Growth and the Environment



New air quality regulations can impose further challenges.

EPA regulations would impose massive costs on U.S. businesses.

Proposed new air quality standards from the EPA could prove extremely costly to America's utilities and manufacturers: (1) the Cross-State Air Pollution Rule, or CSAPR, would cap key emissions crossing state lines, and (2) the Utility Maximum Achievable Control Technology Rule, or MACT, would set absolute limits on mercury and other chemical emissions.

The CSAPR was overturned by the D.C. Circuit Court of Appeals and is now under review by the U.S. Supreme Court.

Red Tape Surrounds the Energy Industry



The MACT Rule imposes its own damage.

The MACT Rule could cost power companies \$18 billion per year for the next two decades.

The Utility Maximum Achievable Control Technology Rule may prove especially costly to the economy. Indeed, EPA itself has estimated it will impose costs of about \$11 billion a year on the U.S. economy, though third-party estimates of compliance costs are considerably higher.⁴³

For example, an analysis by National Economic Research Associates (NERA) finds that complying with the proposed standards will cost power companies close to \$18 billion per year for the next 20 years.⁴⁴ Some coal-fired plants will be so expensive to retrofit to comply with the standard that they will simply be shut down. Indeed, the NERA study projects that about 48 gigawatts of coal generation may be retired by 2016, representing a 13% decline. Substituting other power-generation sources for coal could push up average retail electricity prices by about 12%, with some parts of the country recording increases as high as 24%.

In addition to CSAPR, Utility MACT, and forthcoming greenhouse gas regulations, EPA has promulgated several other rules that will affect the utility sector. Taken together, these regulations will affect about 400,000 megawatts of oil- and coal-fired power generation, almost 40% of currently available U.S. capacity.⁴⁵ Should all of the proposed implementation deadlines remain unchanged, the reliability of the entire U.S. power grid could be compromised.

⁴³ *Regulatory Impact Analysis of the Proposed Toxics Rule: Final Report*, U.S. Environmental Protection Agency, March 2011, <http://www.epa.gov/tneacas1/regdata/RIAs/ToxicsRuleRIA.pdf>.

⁴⁴ *Proposed CATR + MACT*, report (National Economic Research Associates, May 2011), http://www.americaspower.org/sites/default/files/NERA_CATR_MACT_29.pdf.

⁴⁵ Bernard L. Weinstein, Ph.D., *Proposed EPA Power-Sector Air Rules: Weakening Economic Recovery and Putting America's Most Competitive Manufacturing Industries at Risk*, Maguire Energy Institute in the Cox School of Business at Southern Methodist University, September 2011, pg. 9, http://pressdocs.cox.smu.edu/maguire/SMU_Utility_MACT_Report.pdf.

The Utilities Sector is Threatened by Regulation



The Natural Experiment of the States

A sweet spot is North Dakota...

Since the Great Recession, North Dakota has led the U.S. in employment and GDP growth.

America's federalist system means the U.S. is a country of multiple jurisdictions — city, county, state, federal, and, of course, at times international. Each jurisdiction features its own energy policy. The serendipity of federalism is that this circumstance sometimes generates natural experiments.

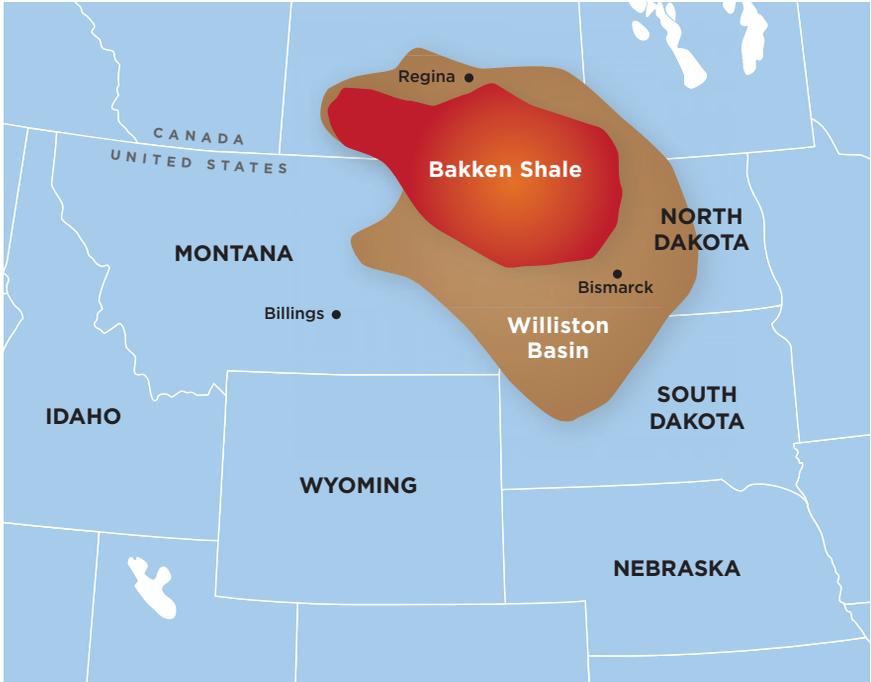
Heavy regulators can take lessons from Pennsylvania. They can also learn from North Dakota. Since the Great Recession began in 2007, North Dakota has been, by far, the best-performing state in the U.S. in terms of GDP growth and employment growth. This dramatic growth has been spurred mainly by the oil and gas industry. The western part of North Dakota sits atop one of the country's largest oil finds in history: the Bakken/Three Forks Shale formation.

According to the Energy Information Administration, producers in North Dakota's Bakken Shale increased oil output to more than 810,000 barrels per day in May 2013.⁴⁶ The Bakken/Three Forks Shale formation, located mostly in North Dakota and in parts of South Dakota and Montana, is estimated by the U.S. Geological Survey to hold 7.4 billion barrels of undiscovered and technically recoverable oil, along with 6.7 trillion cubic feet of technically recoverable natural gas.⁴⁷ The most productive areas of the Bakken contain light, sweet, high-quality crude oil that could not have been economically produced before the advancement of horizontal drilling and hydraulic fracturing.

⁴⁶ *North Dakota Field Production of Crude Oil*, report (U.S. Energy Information Administration, 2013), accessed August 16, 2013, <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPND1&f=M>.

⁴⁷ *Assessment of Undiscovered Oil Resources in the Bakken and Three Forks Formations, Williston Basin Province, Montana, North Dakota, and South Dakota, 2013*, report, National Assessment of Oil and Gas Fact Sheet (U.S. Geological Survey, 2013), <http://pubs.usgs.gov/fs/2013/3013/fs2013-3013.pdf>.

Map of Bakken Shale and Williston Basin



Source: Energy Information Administration

North Dakota has experienced GDP growth of more than 20 times the national average.

Between 2008 and 2012, North Dakota's economic growth exceeded 46%.

Between 2008 and 2012, across all industries, North Dakota's growth exceeded 46%, while the mining sector expanded by almost 420%. Over the same time period, real GDP in the U.S. only grew 3%.⁴⁸ Without question, passing Alaska to become the nation's no. 2 oil producer accounts for North Dakota's good fortune. But growth in energy and other sectors of the state's economy has been stimulated by regulatory and fiscal policies that encourage investment and job creation.

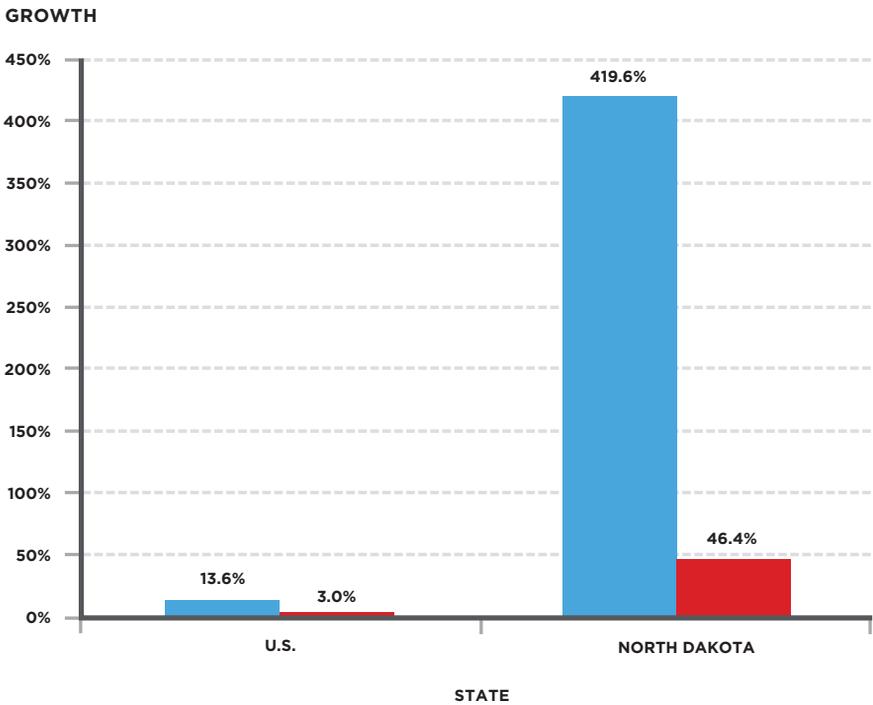
Growth in the energy sector has spurred substantial investment in other industries as well. Private-equity firm KKR is currently developing a sprawling housing community in Williston, ND, that will cost more than \$150 million. Homes in Williston do not stay on the market for more than a few weeks, and prices have quadrupled in just a few years. In 2012, over 1,500 houses were built in Williston. In 2003, that number was just 27.⁴⁹

⁴⁸ *Regional Economic Accounts*, report (Bureau of Economic Analysis, U.S. Department of Commerce, 2013), accessed July 15, 2013, <http://www.bea.gov/regional/index.htm>.

⁴⁹ Craig Karmin and Gregory Zuckerman, "A Boomtown Is Born in North Dakota," *The Wall Street Journal*, November 14, 2012, <http://online.wsj.com/article/SB10001424127887324595904578117190099158474.html>.

Cumulative GDP Growth, U.S. vs. North Dakota 2008 – 2012

- Mining Sector Real GDP Growth
- Total Real GDP Growth, All Industries



Source: Bureau of Economic Analysis

The jobs tell the story.

North Dakota has the lowest unemployment rate of any state in the nation.

Between 2008 and 2012, total nonfarm employment across all industries in North Dakota increased 19.9%, and the number of mining and logging employees rose 382.4%. Over the same time span, total nonfarm employment decreased by 2.8% in the U.S.⁵⁰

Growth in the state's energy sector has had a substantial impact on other industries in the state as well. Some of the busiest McDonald's restaurants in North Dakota pay up to \$15 per hour for servers.⁵¹ In the boomtown of Williston, ND, the local Wal-Mart boosted wages during the summer of 2012 from \$12.50 per hour to \$17 per hour.⁵²

As of June 2013, North Dakota has the lowest unemployment rate of any state in the nation, at just 3.1%.⁵³

⁵⁰ *Local Area Unemployment Statistics*, report (Bureau of Labor Statistics, U.S. Department of Labor, 2013), accessed July 15, 2013, <http://www.bls.gov/lau/>.

⁵¹ Brain A. Shactman, "Unemployed? Go to North Dakota," *CNBC.com*, August 28, 2011, <http://usatoday30.usatoday.com/money/economy/story/2011-08-27/Unemployed-Go-to-North-Dakota/50136572/1>.

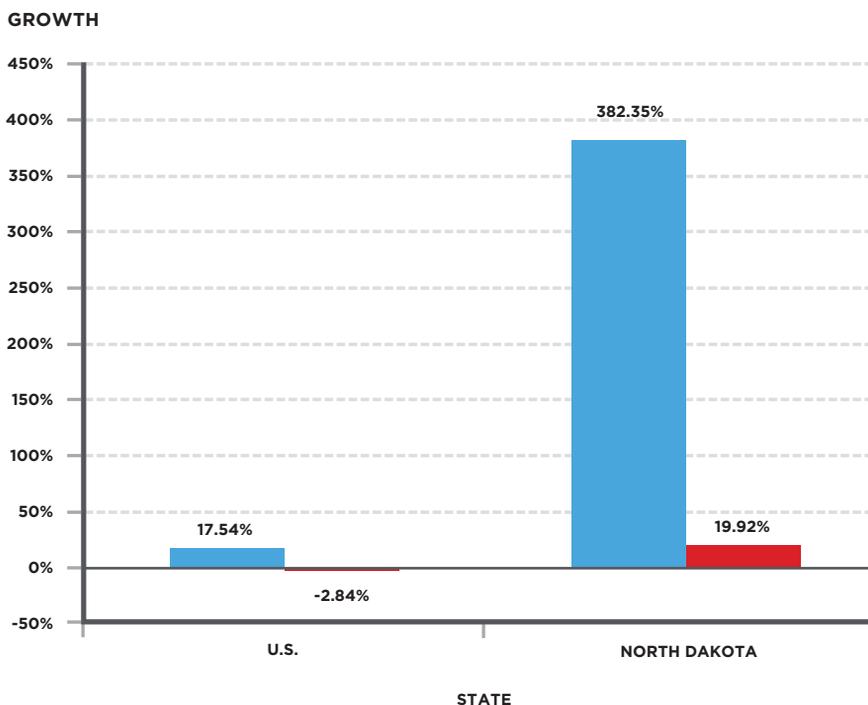
⁵² Craig Karmin and Gregory Zuckerman, "A Boomtown Is Born in North Dakota," *The Wall Street Journal*, November 14, 2012,

<http://online.wsj.com/article/SB10001424127887324595904578117190099158474.html>.

⁵³ *Local Area Unemployment Statistics*, report (Bureau of Labor Statistics, U.S. Department of Labor, 2013), accessed July 15, 2013, <http://www.bls.gov/lau/>.

Employment Growth, U.S. vs. North Dakota 2008 – 2012

- Mining and Logging Employees
- Total Nonfarm Employees, All Industries



Source: Bureau of Labor Statistics

With sensible policies, North Dakota will continue to grow over the next decade.

North Dakota encourages new investment in oil and gas production.

The North Dakota Workforce Intelligence Network projects that between 2010 and 2020, the state will add over 16.5 thousand mining and logging employees and more than 76.5 thousand new workers statewide.⁵⁴

North Dakota is unique in that very few states sit atop formations like the Bakken Shale. But in addition to its resource base, the state's business-friendly policies have helped grow the energy sector. Unlike other states that block development of their substantial shale potential, such as New York and California, North Dakota offers an accommodating and supportive regulatory climate that encourages new investment in oil and gas production.

For one, the state and its elected officials encourage investment in the energy sector. In 2013, North Dakota Senators John Hoeven (R) and Heidi Heitkamp (D) introduced the Bureau of Land Management Streamlining Act in the Senate to help improve the oil and gas permitting process on federal lands in western North Dakota. The BLM North Dakota Field Office has also implemented a program for electronic submission of drilling permit applications. This program enables timely submissions and reviews and allows operators to track the status of their applications.⁵⁵

While lawmakers in states such as New York grapple over whether to allow hydraulic fracturing, North Dakota officials are allowing the oil and gas industry to "energize" the state's economy.

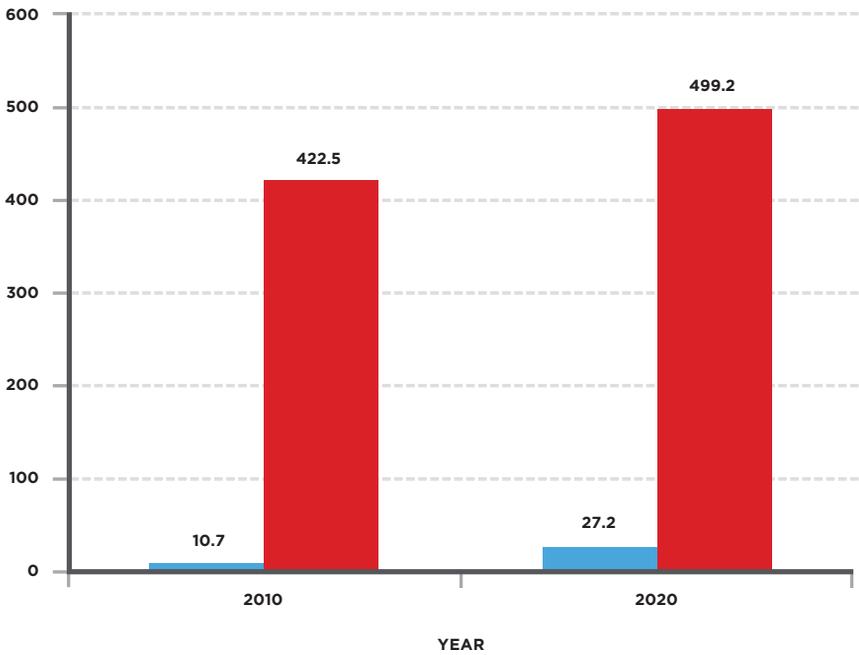
⁵⁴ *Long Term Industry Projections*, report (North Dakota Workforce Intelligence Network), accessed August 17, 2013, <https://www.ndworkforceintelligence.com/vos-net/lmi/industry/industrysummary.aspx?session=inddetail&geo=3801000000&ion=projdata&geotype=&city=&zip=&radius=>

⁵⁵ Nick Snow, "Senators Promote North Dakota's Regulatory Role during Jewell Visit," *Oil and Gas Journal*, August 7, 2013, <http://www.ogj.com/articles/2013/08/senators-promote-north-dakota-s-regulatory-role-during-jewell-visit.html>.

North Dakota Employment 2010 and 2020

- Mining and Logging Employees (Thousands)
- Statewide Total Employees (Thousands)

EMPLOYEES (THOUSANDS)



Source: North Dakota Workforce Intelligence Network

Another piece of the growth puzzle is Texas.

Average salaries in the oil and gas sector in Texas are more than two times higher than average salaries across all industries.

Texas is endowed with an abundance of hydrocarbons. Oil production in the state dates back to 1901, when a well at Spindletop in Beaumont began to gush “liquid gold.”

And the “shale revolution” began in the Barnett near Fort Worth around a decade ago. Currently, Texas’s oil and gas industry leads the nation both in output and employment. But Texas’s dominance in energy production would not have occurred without favorable business and regulatory environments.

According to the Texas Independent Producers & Royalty Owners Association (TIPRO), in 2012:

- Total Texas oil production was equal to 717 million barrels (no. 1 in the U.S.). Oil production in Texas in 2012 rose by 185 million barrels compared to 2011, a 25% increase.
- Total Texas gas production for 2012 exceeded 8 trillion cubic feet (no. 1 in the in U.S.). In 2012, gas production in Texas rose by 102 billion cubic feet compared to 2011, a 1% increase.
- Texas was home to 39% of all oil and gas jobs nationwide. Average salaries in the oil and gas sector in Texas are more than two times higher than average salaries across all industries. Approximately 4.3% of all jobs in Texas are in oil and gas.
- Taxes and state royalties paid by the oil and gas industry in Texas exceeded \$10 billion. This revenue helps to provide funding to all areas of the state and local economy, including schools, Medicaid, children’s health insurance programs, children’s protective services, roads, and police and fire departments.⁵⁶

⁵⁶ TIPRO’s 2013 State of Energy Report, report (Austin, TX: Texas Independent Producers & Royalty Owners Association, 2013), <http://tipro.org/newsroom/soe#>.

The Texas Energy Sector Shines Brightly



Texas suggests California could frack its way back.

California is estimated to contain approximately two-thirds of America's total shale reserves.

Oil production in California has declined steadily over the past decade while it has boomed in Texas. Still, California has tremendous shale reserves that could be developed to help bring down its 8.6% unemployment rate, the highest of any large state.⁵⁷

Developing the Monterey Shale will require the use of horizontal drilling and hydraulic fracturing, a process that has already generated push-back from the state's strong environmental lobby.

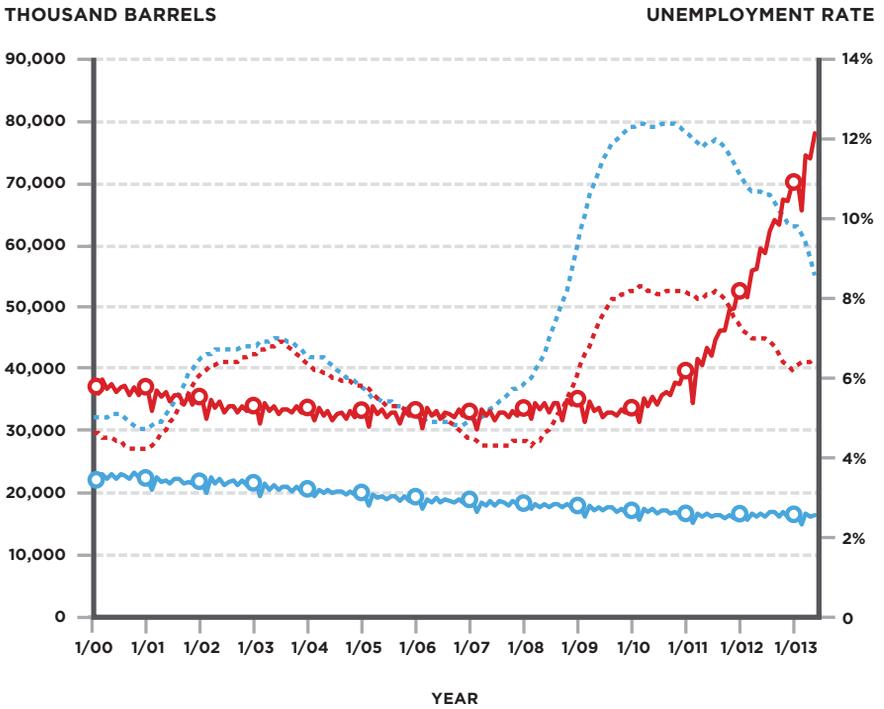
With accommodating energy policies and regulations, California could realize employment and GDP gains similar to those experienced by Texas and North Dakota. According to a recent study conducted by the University of Southern California and the Communications Institute, a Los Angeles think tank, the development of the Monterey Shale could generate 500,000 new jobs by 2015 and 2.8 million new jobs by 2020. The study also indicates that California could reap an additional \$4.5 billion in tax revenue by 2015 and \$24.6 billion in new tax revenue by 2020.⁵⁸

⁵⁷ *Local Area Unemployment Statistics*, report (Bureau of Labor Statistics, U.S. Department of Labor, 2013), accessed July 15, 2013, <http://www.bls.gov/lau/>.

⁵⁸ *Powering California: The Monterey Shale & California's Economic Future*, University of Southern California Global Energy Network, The Communications Institute, March 2013, <http://gen.usc.edu/assets/001/84787.pdf>.

Monthly Crude Oil Production and Unemployment Rate in Texas and California January 2000 – May 2013

- California Crude Production
- Texas Crude Production
- - - California Unemployment Rate
- - - Texas Unemployment Rate



Sources: Energy Information Administration and Bureau of Labor Statistics

Spreading the Boom

The energy boom can spread with a few policy changes.

Lift the export controls.

The world's growing appetite for fossil fuels presents America with a unique economic opportunity. The U.S. currently ranks first in the world in natural gas production and is likely to pass Russia and Saudi Arabia within a few years to regain the crown as the planet's no. 1 oil producer.⁵⁹ However, current regulations restrict U.S. exports of oil and gas. It is time for Congress to consider amending these restrictions, giving American corporations the opportunity to sell America's abundant natural resources on the world market.

Permit the Keystone Pipeline.

Currently, growing volumes of crude oil from the Alberta oil sands in Canada and the Bakken Shale play in North Dakota are being transported by rail. With Keystone, this oil could be delivered more quickly and cheaply to refineries along the Gulf Coast.

Shipments of oil by rail from Alberta and the Bakken have grown 25-fold since 2008 and are likely to rise much higher if Keystone XL is not built. According to the state Pipeline Authority, about 75% of Bakken oil left North Dakota on trains in April 2013.⁶⁰ But rail is not the safest way to transport oil. Pipelines carry far more crude and have fewer leaks per mile.

Get more realistic about fracking.

Despite the claims of documentaries such as *Gasland* that hydraulic fracturing is causing serious long-term environmental damage, careful studies by the EPA and the Groundwater Protection Council have not revealed a single case of groundwater contamination from shale gas drilling.⁶¹ Another "good news" story is that greater use of natural gas is driving down greenhouse gas emissions in the United States. In fact, America's CO₂ emissions in 2012 were lower than 20 years earlier, even with an economy that was one-third larger.⁶²

59 Benoit Facon and Sarah Kent, "IEA Pegs U.S. as Top Oil Producer by 2020," *The Wall Street Journal*, November 12, 2012, <http://online.wsj.com/article/SB10001424127887323894704578114492856065064.html>.

60 Dan Murtaugh, "North Dakota's Bakken Hits Record Oil Production Level in April," *Bloomberg.com*, June 14, 2013, <http://www.bloomberg.com/news/2013-06-14/north-dakota-s-bakken-hits-record-oil-production-level-in-april.html>.

61 Ben Geman, "Energy Secretary: Natural Gas Helps Battle Climate Change - for Now," *The Hill*, August 1, 2013, <http://thehill.com/blogs/e2-wire/e2-wire/315009-energy-secretary-natural-gas-helps-battle-climate-change-for-now>.

62 Dr. Dino Falaschetti, *Is the Precautionary Principle Doing Harm? Economic and Environmental Risks from Clean Energy Policies*, George W. Bush Institute, July 2013.

Property rights facilitate growth. America's new oil and gas boom is due almost entirely to production on privately owned and other non-federal land. Policy toward Native American lands should be changed to reflect that reality.

Some have suggested that the benefits of carbon reduction outweigh the regulatory costs. But unilateral carbon regulations in the U.S. will do little to affect global warming, which is, as the name implies, a global phenom-

enon. As the EPA itself has noted, "climate change presents a problem that the United States alone cannot solve. Even if the United States were to reduce its greenhouse gas emission to zero, that step would be far from enough to avoid substantial climate change."⁶³

Slow Down the Rulemaking.

Rather than streamlining the system in favor of needed efficiency, regulatory agencies continue to promulgate new rules that constrain the very industry they govern. In May 2012, for example, the Interior Department's Bureau of Safety and Environmental Enforcement, which oversees offshore drilling, announced new rules on drilling safety and environmental management systems, as well as new proposed rules to heighten requirements regarding blowout preventers and production safety systems.

According to a February 2013 study performed by the Institute for Energy Research (IER), opening federal land that is currently off-limits would generate substantial economic growth through direct and ancillary effects. Specifically, GDP would increase by \$127 billion annually and 552,000 jobs would be created over the next seven years. Furthermore, wages would increase by \$32 billion annually over the next seven years, and annual federal tax revenue would increase by \$24 billion.⁶⁴

Property rights facilitate growth. America's new oil and gas boom is due almost entirely to production on

⁶³ *Monthly Energy Review* July 2013, report (U.S. Energy Information Administration), <http://www.eia.gov/todayinenergy/detail.cfm?id=7350&src=Environment-b4#>.

⁶⁴ Joseph R. Mason and Hermann Moyses, Jr., *Beyond the Congressional Budget Office: The Additional Economic Effects of Immediately Opening Federal Lands to Oil and Gas Leasing*, publication (Washington, D.C.: Institute for Energy Research, February 2013), pg. 2, http://www.instituteforenergyresearch.org/wp-content/uploads/2013/02/IER_Mason_Report_NoEMB.pdf.

privately owned and other non-federal land. Policy toward Native American lands should be changed to reflect that reality.

Recognize that Native American lands are part of the answer.

As Shawn Regan and Terry Anderson note, "If tribes and individual Indians had the same rights and institutions as those living outside of reservations, they could unlock the tremendous wealth of their lands.... Native Americans would have additional income of \$75 billion per year, and U.S. GDP would increase by 0.5%."⁶⁵

In 2012, U.S. nominal GDP was approximately \$16.2 trillion.⁶⁶ Energy resources on American Indian reservations are worth nearly \$1.5 trillion, as indicated above. Therefore, tapping these resources could add 11% to U.S. GDP over the life of their development. Despite this vast potential, current regulations governing American Indian lands suppress energy-related economic growth by significantly limiting the number of oil and gas wells drilled on American Indian lands.

With improved regulation, energy can make strong growth the new normal for America.

Invest in nuclear power.

Nuclear power is the natural complement to other forms of domestic energy. Nuclear power is carbon-free, yet fears regarding the security of nuclear facilities have basically halted the construction of any new plants in the U.S. It is time to build new facilities and not rely solely on the old 1970s models to power the future.

Take congressional action on energy exports to change the law.

Given the rising volumes of oil production in America, combined with a declining domestic demand for

65 Shawn Regan and Terry L. Anderson, *The Energy Wealth of Indian Nations*, George W. Bush Institute, 2013.

66 Bureau of Economic Analysis, U.S. Department of Commerce.

gasoline as a result of greater vehicle fuel efficiency, the United States has the potential become an oil exporter within a few years. However, this will require Congressional action, since oil exports have been essentially banned since the OPEC embargo in 1973-74.

Allowing the export of oil will encourage further investment in domestic exploration and drilling, which will create jobs and increase personal income and tax revenue. Since oil is a global commodity that is priced on the world market, exporting some of the country's production should have only marginal impacts on gasoline prices.

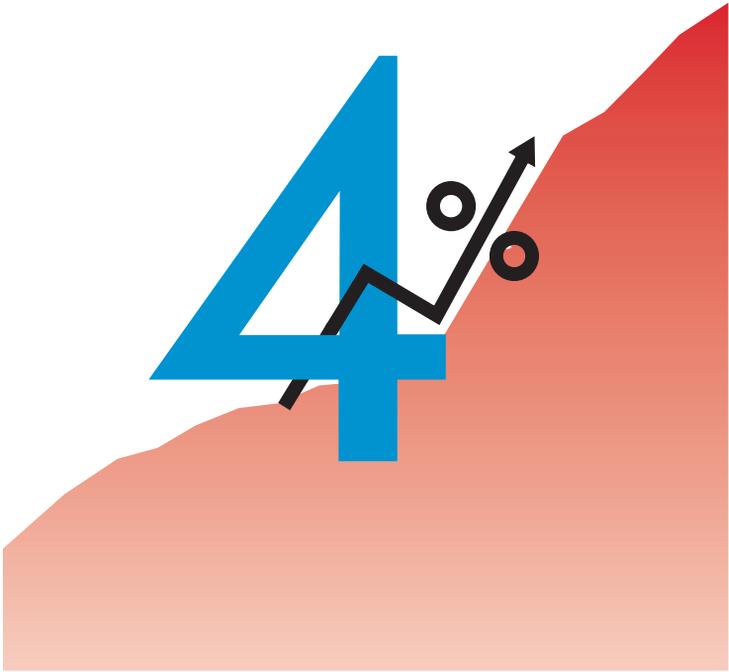
The U.S. could also soon become a net exporter of natural gas. Despite its position as the world's top producer of natural gas, exports are negligible. The U.S. lacks the required infrastructure to export gas, and regulatory approval will be required in order to change this. To ship American gas across the oceans, it must first be liquefied. This requires huge investments in liquefaction plants, export terminals, and special liquefied natural gas, or LNG, carriers. To date, only three projects have been approved by the Department of Energy.

Resistance from some manufacturing industries and environmental organizations is holding up the DOE's approval of many other export terminals. America is, quite literally, in danger of "missing the boat" on LNG exports. While America dithers, countries like Qatar, Canada, Australia, and Russia are rapidly expanding their export capacities.

Make sure people know the energy story.

The energy story is a good one, but it needs more telling. That is why the 4% Growth Project covers this material on its website and in its publications.

With improved regulation, energy can make strong growth the new normal for America.



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Dr. Weinstein has authored or co-authored numerous books, monographs and articles on the subjects of economic development, energy security, public policy, and taxation, and his work has appeared in professional journals such as *Land Economics*, *Challenge*, *Society*, *Policy Review*, *Economic Development Quarterly*, *Policy Studies Journal*, and *Annals of Regional Science*. His op-eds have been published in *The New York Times*, *The Wall Street Journal*, *The Washington Times*, *Investor's Business Daily*, *The Financial Times*, *The Los Angeles Times* and a number of regional newspapers and magazines. He is also a regular contributor to the *National Journal's* Energy and Environment blog and *The Hill*.

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