



OIL, GAS, AND COAL CAN PRIME THE JOBS PUMP Which states will benefit?

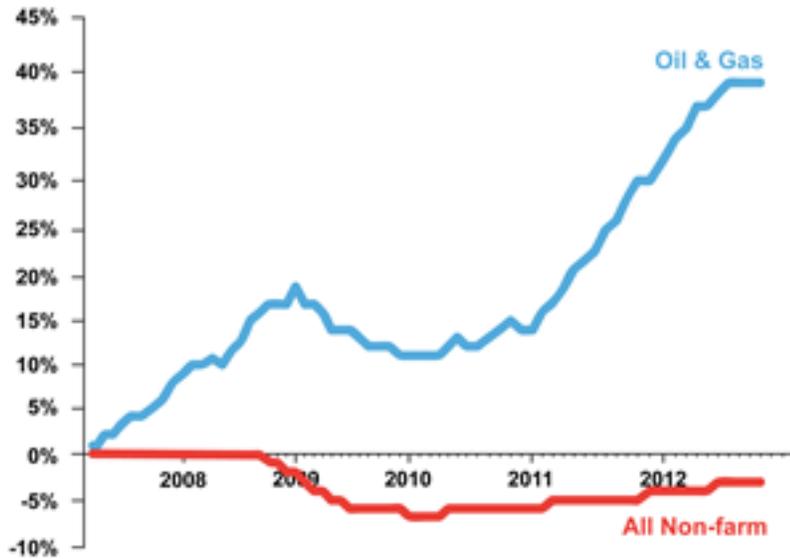
Mark P. Mills
Senior Fellow
Yevgeniy Feyman
Research Associate

Energy production has emerged as a key issue in the presidential campaign, but not in a way familiar to most Americans. Rather than a focus on shortages or on alternatives to hydrocarbons—oil, gas, and coal—talk has turned to the potential benefits from an energy production boom, and how best to encourage an even bigger boom.

There are good reasons for this shift. The nation is in desperate need of jobs. And technology has unleashed a surprising increase in domestic oil and gas output.¹ The U.S. now has a glut of natural gas, such that applications have backed up to convert facilities originally intended for imports into export terminals. At the same time, the 40-year decline in domestic oil production has been reversed. Add to this the rush to export abundant high-quality coal to soaring world demand and not only are lower prices now in play, but energy independence is in sight for the first time.

Policies that would take advantage of this hydrocarbon abundance could spark widespread employment growth at time when unemployment is a central concern for many citizens, and can be a critical issue in political “swing” states.

OIL & GAS EMPLOYMENT GROWTH ALREADY ON A TEAR (Recent trends in job growth)



Source: Federal Reserve Economic Data; growth rate indexed to 2007

About 10 million Americans are already employed directly and indirectly in businesses associated with oil, natural gas, and coal production.² These jobs are widely distributed across the nation: 16 states have

more than 150,000 people employed in hydrocarbon-related activities.

As for the future, accelerating domestic hydrocarbon energy production will create at least three to four million jobs in the immediate future.⁴ Five electoral “swing states” are among the 12 states that stand to gain the most from policies that would promote the boom. Over a half-million jobs would be generated in Ohio, Pennsylvania, Florida, Michigan, and Colorado.⁵

The employment opportunities reach far beyond those directly associated with drilling and digging in the field. Hydrocarbon jobs ripple throughout the economy. For every direct hydrocarbon job, about six jobs are added in sectors from manufacturing to information services.⁶

In at least 20 states, the jobs from hydrocarbon expansion equal one-fifth to three-fourths of all people counted as currently unemployed or underemployed, including in Wisconsin, Colorado, Iowa, Ohio, and Pennsylvania.⁷

EXISTING HYDROCARBON-RELATED JOBS³ (thousands)

Texas	1,800
California	780
Oklahoma	350
Louisiana	340
Pennsylvania	330
New York	300
Illinois	290
Florida	280
Ohio	260
Colorado	210
Virginia	190
Michigan	180
Kentucky	170
W. Virginia	170
Georgia	160
New Jersey	150

NEW HYDROCARBON JOBS: TOP 12 STATES (thousands)

	Total*	Oil & Gas Extraction	Manufacturing	Education & Health	Services*	Retail & Leisure
Texas	480	313	77	16	46	22
California	290	41	123	24	67	32
Pennsylvania	140	38	57	14	22	12
New York	125	7	46	20	36	16
Louisiana	120	93	13	4	8	4
Ohio	120	18	63	11	19	11
Illinois	120	16	56	10	26	12
Florida	110	9	29	13	39	18
Oklahoma	100	80	13	3	6	3
Michigan	90	11	46	8	15	8
North Carolina	80	6	43	7	15	9
Colorado	80	46	12	3	11	5

Note: Swing states in red. Totals are rounded and include potential new direct plus indirect jobs. "Services" includes business, IT, financial services, transportation & warehousing, "other" services including construction, and agriculture.

While hydrocarbon jobs can't be the only answer to the country's staggering jobs deficit, they represent the largest single opportunity for near-term jobs, and one that requires no federal spending.⁸ The broad economic benefits that come from privately-financed expansions in domestic production would generate at least \$2 trillion for the country.⁹ Put another way, each hydrocarbon job created brings an average societal benefit of \$500,000 per job.¹⁰

It bears noting that half of all existing hydrocarbon jobs and the major share of the recent increase in domestic production of oil and natural gas come from 18,000 small and mid-sized companies. And the expansion has occurred on private and state lands, without federal stimulus and despite regulatory headwinds.¹¹

It should be unsurprising that there are a lot of jobs associated with hydrocarbon industries. Over 80 percent of the U.S. and world's energy needs are met with hydrocarbons.¹² Meanwhile, today barely 2 percent of total energy consumption comes from the popularly discussed alternatives of solar, wind and biofuels.¹³ For the coming two decades, oil, gas, and coal are forecast to supply 60 to 80 percent of world growth according to all major forecasts, including the U.S. Department of Energy.¹⁴

America lost over 8.4 million jobs from February 2008 to 2010. Since then, through August 2012, only 4.4 million jobs were added. America needs more jobs, and needs them soon—and the hydrocarbon sector alone could add over 4 million more jobs.

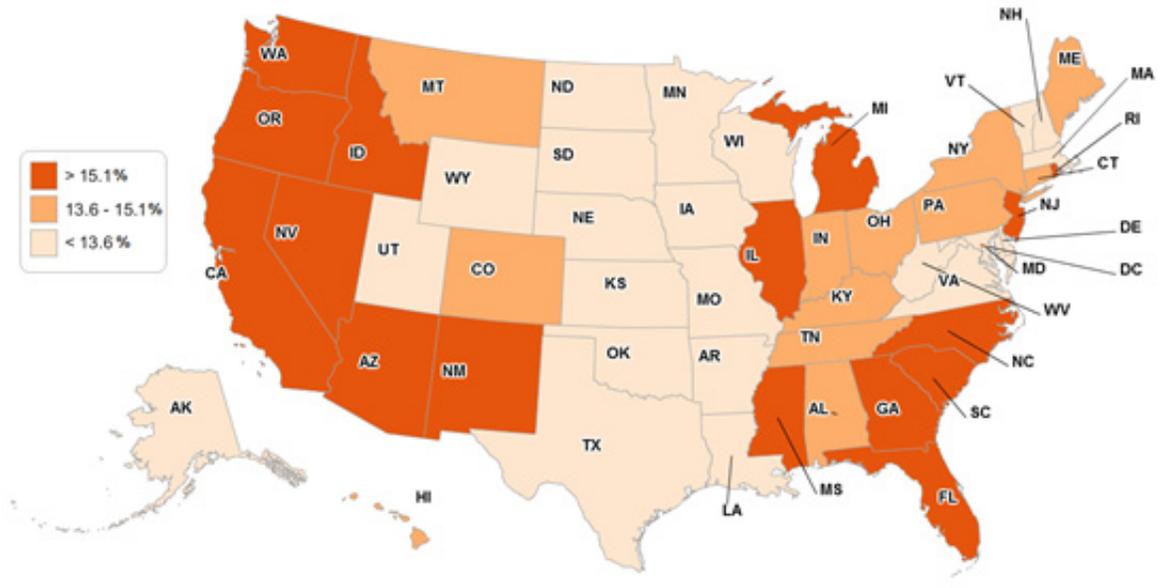
Over the long term, innovation and new technologies across all sectors of our economy will surely revitalize the economy and create a new cycle of job growth, and doubtless in some unexpected ways.¹⁵ It is critical to have policies that ensure this great cycle is encouraged. But the depth and magnitude of job destruction from the Great Recession means that creating jobs in the near-term is vital.

We know now where to dig, drill, build, and ship, and create millions of jobs using new hydrocarbon technologies. Expanding production and encouraging exports will jumpstart great swaths of our economy, help our balance of trade, and put millions on the payroll.

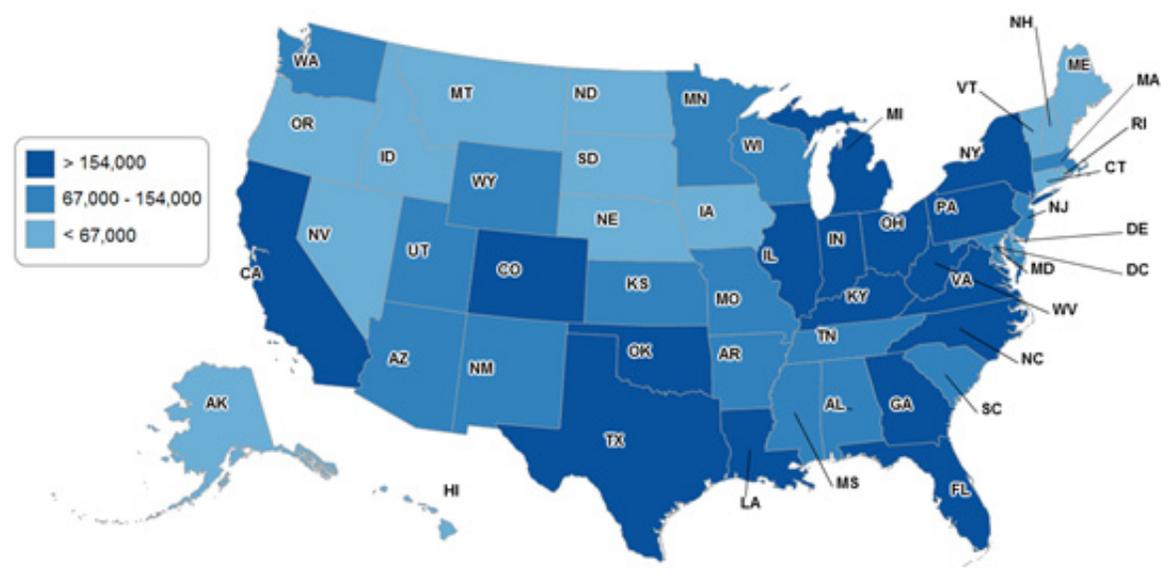
KEY POLICIES

Developing and implementing policies that will not just continue but accelerate the boom in domestic hydrocarbon production will enable us to rapidly realize the economic and jobs benefits outlined above.¹⁸ Recent history shows that these jobs can be created

STATE OF THE UN- AND UNDER-EMPLOYED IN AMERICA
 (% by state: actively looking + discouraged stopped looking + part-time wanting full-time)¹⁶



LOCATION OF HYDROCARBON JOBS
 (# of existing hydrocarbon jobs by state)¹⁷



quickly. Both production and employment have grown from marginal or near zero in places in North Dakota, Ohio, and Pennsylvania for example, to become major forces in only a few years. The same could happen in many states, not just Texas, Oklahoma, and Colorado, but also in California and New York.

However, the remarkable gains in production are not guaranteed to continue. They are at risk if new restrictions are imposed on the industry, from delays

in approval of LNG exports, to opposition to expanding ports for coal export, to opposition to pipelines and refineries, and to the threat of redundant federal regulations on the technology of hydraulic fracturing.

Conversely, more jobs could come sooner under policies favorable to development which ameliorate, suspend, or remove regulations that have created either unintended or intended impediments to domestic production.¹⁹

ENDNOTES

¹ For elaboration, see Mark P. Mills, "Unleashing the North American Energy Colossus: Hydrocarbons Can Fuel Growth and Prosperity," Manhattan Institute, July 2012, http://www.manhattan-institute.org/html/pgi_01.htm.

² "The Economic Impacts of the Oil and Natural Gas Industry on the U.S. Economy, Prepared for American Petroleum Institute," PriceWaterhouseCoopers, September 2009; and "The Economic Contributions of U.S. Mining in 2010," National Mining Association, September 2012.

³ Ibid: total is for (coal + oil + gas), and (direct + indirect) employment

⁴ "ENERGY 2020: North America, the New Middle East?," Citi GPS: Global Perspectives & Solutions, March 20, 2012. <http://fa.smithbarney.com/public/projectfiles/ce1d2d99-c133-4343-8ad0-43aa1da63cc2.pdf>; forecast 3.6 million new hydrocarbon (oil and gas only) jobs by 2020 under a policy that continues current trends; policies to incentivize the oil and gas sector, and encourage coal production for export could yield many more jobs and sooner.

⁵ This data was derived by using the job numbers from the Citi GPS Energy 2020 report, which were themselves derived using a proprietary Computed General Equilibrium (CGE) model used for economic forecasting. We then used the Census Bureau's Statistics of U.S. Businesses database to establish the distribution of industry employment across the states. Finally, we distributed the jobs derived from the Energy 2020 report based on each state's proportion of national jobs in each industry. It is worth noting that these job numbers understate the full impact of our policy prescriptions because they do not include jobs in the coal sector. Additionally, we did not allocate increases in government employment, further understating the impact.

⁶ See Citi GPS, and "U.S. Supply Forecast and Potential Jobs and Economic Impacts 2012-2030," Wood Mackenzie, September 2011, for American Petroleum Institute, http://www.api.org/newsroom/upload/api-us_supply_economic_forecast.pdf: "Every \$1 million of upstream capital expenditure by independent producers results in \$1.1 million in total taxes, \$5.1 million in overall contribution to U.S. GDP, six direct jobs, and 33 total upstream jobs."

⁷ Top 20 States – new hydrocarbon jobs are presented as a percent of the total population in U6. The data understates hydrocarbon additions as it counts only developments in oil and gas. Including coal expansion (due to greater exports) adds over 0.5 million jobs to the totals.

TOTAL HYDROCARBON JOBS AS % OF U6	
Wyoming	147%
North Dakota	76%
West Virginia	67%
Oklahoma	57%
Alaska	47%
Louisiana	45%
New Mexico	29%
Texas	29%
Kansas	26%
Kentucky	25%
Utah	24%
South Dakota	23%
Montana	22%
Arkansas	22%
Iowa	20%
Nebraska	20%
Colorado	19%
Alabama	17%
Minnesota	17%
Wisconsin	17%

⁸ There are also balance-of-trade, geopolitical and security benefits from radically increasing production and export of U.S. hydrocarbons – see Mark P. Mills, July 2012.

⁹ “The Economics of Allowing More U.S. Oil Drilling,” Hahn, Passell, *Energy Economics* 32 (2010): 638-650: \$75 billion net social economic per 1 billion BBOE production.

¹⁰ \$2 trillion total benefits associated with 4 million total new jobs

¹¹ Mills, July 2012.

¹² Ibid.

¹³ “Statistical Review of World Energy 2012,” BP, June 2012. http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2011/STAGING/local_assets/spreadsheets/statistical_review_of_world_energy_full_report_2012.xlsx.

¹⁴ Mills, July 2012.

¹⁵ Mark P. Mills, *The Next Great Growth Cycle*, The American, August 25, 2012.

¹⁶ Data from Bureau of Labor Statistics, Local Area Unemployment Statistics. Numbers are based on a four-quarter average.

¹⁷ Combined employment related to oil, gas, and coal. Sources: PriceWaterhouseCoopers, September 2009; National Mining Association, September 2012.

¹⁸ For elaboration, see Mark P. Mills, *Liberating the Energy Economy: What Washington Must Do*, Manhattan Institute, September 2012.

¹⁹ Ibid.