America's New Energy Future:
The Unconventional Oil and Gas Revolution and the US Economy

Volume 2 – State Economic Contributions

State Economic Contributions: Highlights

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Key Definitions

Producing vs. Non-producing Definitions

Producing states are defined as those that are part of the 20 largest unconventional oil and natural gas producing plays in the US Lower 48, such as the Bakken and Marcellus Shale plays. Producing states also include those states that are part of an emerging oil or natural gas play that is expected to have sizeable unconventional oil and/or natural gas production in the forecast horizon. The 16 producing states are Arkansas, California, Colorado, Kansas, Louisiana, Mississippi, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia, and Wyoming.

Non-producing states are not part of the 20 largest unconventional oil and natural gas producing plays in the US Lower 48 and are not part of an emerging oil or natural gas play in the 2012 to 2035 forecast horizon. These states may be part of plays that are currently producing oil and/or natural gas, but nevertheless are classified as non-producing states because current production is relatively small and the prospect for future unconventional production is unknown. The 32 non-producing states are Alabama, Arizona, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, Washington and Wisconsin. Some of these may over time move into the producing states category.

It is also important to note that the current policies of state governments toward unconventional oil and natural gas production are assumed to continue through the forecast horizon. For example, the current policy against unconventional oil and natural gas production in the state of New York is assumed to continue; as a consequence New York is considered a non-producing state in this study. It is recognized, however, that this could change at some point.

Finally, states like California, which is anticipated to have unconventional oil production from the emerging Monterey Formation but has no current production, may make major economic contributions. While significant unconventional oil production in California is not expected to begin until late in the forecast period, the large volume of its goods and services that feed into the unconventional oil and natural gas supply chain make California one of the largest producing states in terms of employment, government revenues and value-added.

Activity Type Definitions

Unconventional natural gas activity represents the production of gas and liquids recovered from shale gas and tight gas plays.

Unconventional oil activity represents the production of oil and associated gas recovered from tight oil plays.

Total unconventional activity represents the sum of unconventional gas activity and unconventional oil activity.

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PRODUCING STATES

ARKANSAS

OVERVIEW

In 2012, Arkansas' economy has begun to gradually recover from the recession. Although private-sector job growth has been weak, one of Arkansas' strengths is its large government sector, which is responsible for nearly one-fifth of total employment and which continued adding jobs even through the recession. The state government was able to maintain such high job growth, because its financial status is healthy compared with many other states that have budgets in deep deficit. Contributing significantly to the state's bottom line has been oil and gas revenue: Arkansas reaped $530 million in state and local taxes from unconventional oil and gas activity in 2012, helping in turn to boost government payrolls. The oil and gas industry has thus been a significant factor in the state's return to economic health.

In 2012, the state marked the first year of positive job growth since 2007, providing a much-needed shot in the arm for the state's economy. The Natural State's employment growth will build momentum in the near term, averaging 1.4% gains per year from 2012 through 2017. Since Arkansas also did not suffer the same magnitude of job losses as the rest of the country during the recession, the state does not require as strong of a recovery to return to its pre-recession level. Indeed, we expect Arkansas' employment to regain its 2008 peak by 2014, around the same time as the nation as a whole.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Arkansas produced 17,000 barrels of crude oil per day in August 2012, according to the Energy Information Administration. However, this is primarily a gas-producing state, with most of the oil being produced in conjunction with gas production. The Fayetteville Shale gas play, which began production in 2006, is contributing 2.6 billion cubic feet per day (bcf/day) of gas. In 2012, the state spent over $2.6 billion on unconventional gas, and spending is expected to increase steadily in coming years. In 2022, Arkansas will continue to be a significant producer of shale gas as the Fayetteville Shale gas play is expected to increase production to 3 bcf/day. Additionally, the state's access to specific natural resources, supplier networks, and trade flows indirectly creates jobs. For example, Arkansas is one of the few states that produces special sand required for hydraulic fracturing, a process used to extract tight oil and gas. With this competitive advantage, Arkansas will be a strong exporter of this special sand for years to come.

In 2012, the economic activity associated with unconventional oil and gas directly and indirectly supported over 33,000 jobs in the state, or 3% of the state's total nonfarm employment[1]. Unconventional oil- and gas-related employment is expected to increase to 52,500 by 2020 and to 56,000 by 2035. These jobs would employ 3.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $3.8 billion in Arkansas in 2012. We forecast that this contribution will grow to nearly $7 billion by 2035. As for labor income, the average annual wage in Arkansas in 2012 is $46,700, while the average wage of direct jobs in unconventional oil and gas activity is significantly higher, at $83,800, providing a solid quality of life for state residents employed by the industry.

Unconventional oil and gas activity is also a major source of revenues for the state government in Arkansas. In 2012, it generated over $1 billion in taxes for state and federal coffers. This includes $530 million in state and local taxes, or the equivalent of about 7% of the state's $7.7 billion budget for 2012. Tax revenues generated by unconventional oil and gas activity would help the state significantly reduce its current budget deficit.

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[1] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Arkansas Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	11,933	8,661	12,506	33,100
2020	18,277	14,116	20,146	52,539
2035	18,498	15,795	22,125	56,418

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2,149	823	847	3,818
2020	3,594	1,364	1,451	6,409
2035	3,708	1,561	1,608	6,876

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1,000	511	499	2,010
2020	1,677	844	814	3,335
2035	1,822	952	900	3,674

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Arkansas

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**474**	**789**	**852**	**16,829**
Personal Taxes	356	590	652	12,655
Corporate Taxes	109	185	193	3,897
Federal Royalty Payments	8	14	8	264
Federal Bonus Payments	1	1	0	13
State and Local Taxes	**530**	**900**	**829**	**18,707**
Personal Taxes	71	116	111	2,412
Corporate Taxes	293	486	443	9,887
Severance Taxes	126	227	229	5,009
Ad Valorem Taxes	38	68	45	1,345
State Royalty Payments	1	3	1	50
State Bonus Payments	0	0	0	3
Total Government Revenue	**1,003**	**1,689**	**1,681**	**35,536**
Lease Payments to Private Landowners	**7**	**9**	**21**	**241**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

CALIFORNIA

OVERVIEW

In 2012, payrolls in California expanded at a moderate but steady pace. During 2011, the state's payrolls grew 1.2% as it added nearly 168,000 jobs and became the second-largest source of new jobs in the country after Texas. Thanks to renewed hiring, the unemployment rate retreated to 10% by the end of 2012, down more than 2 percentage points from the end of 2010. While a marked improvement, this is still a very high rate, and California remains one of only three states with double-digit unemployment. However, oil and gas jobs have been a significant factor in the state's return to economic health, particularly as a source of tax revenues. California's budget woes are well known, and state and local coffers received $1.6 billion from unconventional oil and gas in 2012. We expect the California economy to continue to grow at a moderate pace during 2013, though not by enough to significantly offset the increase in the labor force, as previously discouraged workers renew their job searches. As a result, we expect the unemployment rate will not dip below the double-digit range until 2014. During its recovery, California will once again be the target for venture-capital investment seeking high returns, because of its highly educated workforce. Alternative-energy technologies, aided in part by government subsides, are also expected to play a part in the recovery, and California is well positioned to benefit from each industry segment (research, design, and manufacturing). From 2013-2018, we expect the Golden State to register solid 1.6% average annual job growth, matching the US average. In a testament to the severity of California's recession, the state will not regain all the jobs lost in the recession until 2015 – a year after the national average returns to its peak.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

The state has produced 530,000 barrels per day of crude oil in July 2012, according to the Energy Information Administration (EIA). This level of production makes California the third largest producer of crude oil in the United States, right behind North Dakota.

The Monterrey Formation has produced oil and gas for the past several decades from many reservoirs in a wide variety of geologic settings. While some in the industry argue that some of the historically producing plays within the Monterrey could be classified as unconventional, the successful large-scale application of unconventional technology has not been implemented on a regional basis; therefore IHS considers currently producing plays to be conventional. A number of unconventional tight oil possibilities associated with the Monterrey Formation have been identified and are currently being investigated. Thus far, producers have not been able to un-lock the vast potential resources that reside in what would be considered the unconventional or "tight" members of this formation. IHS believes that within the next decade, operators are going to be able to figure out how to produce these reservoirs and has included this within its unconventional forecast beginning in 2022.

The economic activity associated with unconventional oil and gas produced in other states supported nearly 100,000 jobs in the state in 2012, mostly in the industrial and chemical manufacturing sectors. This number represents 8% of the state's total manufacturing jobs[1].

The state's unconventional oil and gas-related employment is expected to increase 50% to 153,000 jobs by 2020, and to increase to 187,000 by 2035. These 187,000 jobs would employ nearly 1% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $10.4 billion in California in 2012. We forecast that this contribution will grow to $21.6 billion by 2035. As for labor income, the average annual wage in California in 2012 is $66,700, while the average wage of direct jobs in

[1] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

unconventional gas activity is much higher, at $82,400, providing a strong quality of life for state residents employed by the industry.

Another contribution of unconventional gas employment is to government revenues. In 2012, it generated nearly $3 billion in taxes for state and federal coffers. This includes over $1.6 billion in state and local taxes, or the equivalent of 1.4% of the state's $117 billion budget and almost exactly the amount of revenues raised by alcohol and tobacco taxes in 2012. California currently faces a budget deficit of $16 billion, and the revenues generated by unconventional gas activity are equivalent to nearly 10% of the deficit.

California Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	6,480	33,337	56,737	96,553
2020	7,910	53,150	92,598	153,658
2035	13,120	63,502	110,647	187,270

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	751	4,094	5,610	10,455
2020	1,124	6,737	8,786	16,647
2035	2,806	8,262	10,563	21,631

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	534	2,579	3,152	6,265
2020	740	4,171	5,174	10,085
2035	1,518	5,013	6,154	12,686

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: California

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**1,363**	**2,178**	**2,895**	**52,090**
Personal Taxes	1,111	1,783	2,251	41,831
Corporate Taxes	252	395	539	9,558
Federal Royalty Payments	0	0	105	698
Federal Bonus Payments	0	0	0	3
State and Local Taxes	**1,623**	**2,437**	**2,878**	**56,292**
Personal Taxes	463	693	725	15,418
Corporate Taxes	1,160	1,743	2,119	40,653
Severance Taxes	0	0	3	19
Ad Valorem Taxes	0	0	22	147
State Royalty Payments	0	0	8	55
State Bonus Payments	0	0	0	0
Total Government Revenue	**2,987**	**4,615**	**5,773**	**108,383**
Lease Payments to Private Landowners	**0**	**0**	**13**	**92**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

COLORADO

OVERVIEW

Colorado is one of the few states that continually added jobs in 2012, led by impressive gains in the construction, natural resources, and mining sectors. The natural resources and mining sector is getting a boost from the housing recovery and from increasing development of Colorado's oil and gas resources. The state's burgeoning renewable-energy sector, which has featured significant growth in jobs and economic activity from the manufacture of solar- and wind energy-production equipment, has come on hard times due to the looming expiration of wind and solar tax credits. But Colorado is having better success than most states in maintaining public-sector jobs at both the state and local government levels. Many of these jobs are in public school education, which relies on state and local taxation for funding. The oil and gas industry is a factor here, and the tax revenues generated by unconventional oil and gas employment alone reached $1.4 billion in 2012.

Employment growth in Colorado will rank near the top of all the states during 2012-2017. Colorado's economy will benefit from several advantages, including abundant energy reserves, a growing and well-educated labor force, and a relatively low cost of living. Professional and business services and the healthcare sector will both grow robustly, but the construction sector will see the fastest growth, with the bulk of its gains seen in 2014-2016 as the housing recovery reaches full steam.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Colorado is playing a major role in the nation's resurgence as an on-shore oil and gas producer, with conventional production being greatly augmented by unconventional production facilitated through the use of horizontal drilling and hydraulic fracturing. The state has abundant resource of oil and gas in shale and tight sands within three basins, but the Niobrara play in the Denver basin is currently the most active. Horizontal drilling within the basin has revitalized the play with anticipated increases in future production. Gas production from the San Juan Basin located in the southwest part of the state is in decline. In 2012, unconventional tight gas production from the Piceance Basin located in the northwest part of the state has also declined somewhat due to the drop in natural gas prices, but activity there is expected to resume as prices stabilize. In addition, supplier networks, trade flows and income effects from earnings related to unconventional oil and gas also create a significant number of jobs here. The economic activity associated with unconventional oil and gas directly and indirectly supported over 77,000 jobs in the state in 2012, with many of these jobs in construction and manufacturing at relatively high wages.[2]

The state's unconventional oil- and gas-related employment is expected to increase to over 121,000 jobs by 2020 and to 175,300 by 2035. These jobs would employ 4.9% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributes value-added economic activity of over $11 billion in Colorado in 2012. We forecast that this contribution will grow to over $26 billion by 2035. As for labor income, the average annual wage in Colorado in 2012 is $60,600, while the average wage of direct jobs in unconventional oil and gas activity is $116,000, which helps to boost the average income of state residents employed by the industry.

There is also the contribution of unconventional oil and gas employment to government revenues. In Colorado in 2012, it generated nearly $3 billion in taxes for state and federal coffers. This includes over $1.4 billion in state and local taxes, or the equivalent of 15% of the state's 2011 tax revenues.

[2] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Colorado Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	23,737	21,555	32,329	77,622
2020	34,775	34,064	52,559	121,398
2035	48,818	49,944	76,601	175,363

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	6,206	2,699	2,742	11,647
2020	8,601	4,327	4,678	17,605
2035	13,575	6,301	6,799	26,675

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2,755	1,612	1,534	5,901
2020	3,971	2,562	2,521	9,054
2035	6,232	3,746	3,644	13,622

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Colorado

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**1,486**	**2,312**	**3,460**	**58,355**
Personal Taxes	1,046	1,601	2,416	40,303
Corporate Taxes	346	515	786	13,088
Federal Royalty Payments	94	196	258	4,960
Federal Bonus Payments	0	0	0	4
State and Local Taxes	**1,449**	**2,436**	**3,687**	**63,187**
Personal Taxes	259	395	511	9,494
Corporate Taxes	725	1,051	1,413	25,617
Severance Taxes	222	474	856	13,490
Ad Valorem Taxes	232	494	877	14,023
State Royalty Payments	10	22	29	549
State Bonus Payments	1	1	1	14
Total Government Revenue	**2,935**	**4,748**	**7,147**	**121,542**
Lease Payments to Private Landowners	**20**	**33**	**73**	**1,065**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

KANSAS

OVERVIEW

Kansas' economy continued to move slowly in the right direction in 2012. Progress has been tepid as China's economic slowdown and layoff announcements in the aerospace manufacturing sector, particularly by firms such as Boeing and Hawker-Beechcraft have impeded more robust growth. As a result, Kansas has added fewer than half of the 73,000 jobs lost during the recession when employment bottomed out in the first quarter of 2010. The unemployment situation in Kansas has been improving at an equally meager pace amid sluggish recovery. The jobless rate has inched down only about 1 percentage point in the past two years, and the pre-recession peak employment level will not be met until late 2014. Our 2013 forecast calls for growth in the Kansas economy to be slightly below the national averages in employment, real gross state product (GSP), and real personal income during 2013. We anticipate much of the same through 2017. Instrumental to the state's healing process will be not just the aerospace manufacturing the state is known for, but also the services sectors and the unconventional oil and gas industry, where jobs will double during the five-year forecast period.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Kansas currently ranks 8th in the nation in natural gas production, thanks largely in part to the Hugoton Natural Gas Field, the nation's fifth-largest gas field. Even though Hugoton's production has declined, there has been some limited coal bed methane activity in the Cherokee Platform. Associated gas from oil production also contributes to the gas total in a state that is also responsible for 2% of the nation's oil production. Currently, the Mississippian Lime is the preeminent unconventional oil play in Kansas, stretching some 17 million acres through the southern part of the state and into northern Oklahoma. This emerging play is still being delineated but may hold between 5.4 and 5.9 billion barrels of commercially recoverable oil equivalent. The economic activity associated with unconventional oil directly and indirectly support over 11,000 jobs in the state in 2012, mostly in the construction, steel manufacturing and machinery manufacturing [3].

The state's unconventional oil-related employment is expected to more than double to over 25,000 jobs by 2020, and to quadruple to 44,000 by 2035. These jobs would employ 2.5% of the state's labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $1.1 billion in Kansas in 2012. We forecast that this contribution will grow to $5.8 billion by 2035. As for labor income, the average annual wage in Kansas in 2012 is $54,900, while the average wage of direct jobs in unconventional oil activity is $72,500, providing a solid quality of life for state residents employed by the industry.

There is also the contribution of unconventional gas employment to government revenues. In Kansas in 2012, it generated over $250 million in taxes for state and federal coffers. This includes $100 million in state and local taxes, or the equivalent of 1.5% of the state budget.

[3]Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Kansas Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	2,070	3,196	5,765	11,032
2020	6,228	7,061	12,051	25,340
2035	12,578	12,286	19,095	43,959

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	300	375	508	1,183
2020	1,345	806	999	3,150
2035	2,951	1,363	1,538	5,853

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	150	227	282	659
2020	533	490	567	1,589
2035	1,215	832	864	2,911

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Kansas

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**151**	**391**	**741**	**10,635**
Personal Taxes	117	281	517	7,513
Corporate Taxes	32	94	177	2,552
Federal Royalty Payments	3	16	47	571
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**100**	**340**	**730**	**10,051**
Personal Taxes	33	74	110	1,824
Corporate Taxes	43	120	203	3,115
Severance Taxes	13	81	233	2,852
Ad Valorem Taxes	10	60	171	2,100
State Royalty Payments	1	4	13	155
State Bonus Payments	0	0	0	4
Total Government Revenue	**251**	**731**	**1,471**	**20,686**
Lease Payments to Private Landowners	**3**	**9**	**22**	**304**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

LOUISIANA

OVERVIEW

After expanding 2% during 2011, Louisiana surpassed its pre-recession peak employment level in February 2012. In early 2012, Louisiana moved from recovery to expansion, boosted by growth in mining, information and services. Oil and gas jobs have been a significant factor in the state's return to economic health, both in terms of jobs and tax revenues generated. With oil prices falling from their highs in early 2012, payroll expansion in the mining sector slowed during 2012, but it continued to have a positive impact on the state's bottom line throughout the year. During 2013, we expect Louisiana's economy to continue its current, moderate expansion. Despite continued growth in private payrolls, a rising labor force will prevent a significant improvement in the unemployment rate, which will remain above 7% through the end of 2013. Job growth will accelerate, however, and will peak at a rate of 1.5% in 2015.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Louisiana is rich in crude oil and natural gas, both conventional and unconventional, with an abundance of deposits onshore and in near-shore waters. Vast crude oil and natural gas reserves exist offshore in the federally administered Outer Continental Shelf (OCS) in the Gulf of Mexico. Support activities for harvesting this vast offshore resource are located primarily within this state. The Gulf of Mexico's OCS is home to many of the nation's largest oilfields and is the largest oil-producing region in the United States. Louisiana ranks fourth in the nation in terms of crude oil production, and its crude oil reserves account for about 2% of the US total. It is also the second-largest natural-gas-producing state in the country, with about 8.3 bcf/day, according to the Energy Information Administration. Production from the state this year has declined from its 2011 level of 9.0 bcf/day. In 2011, the Haynesville, a primary unconventional shale gas play increased production to nearly 7 bcf/day. Since mid-2011, however, drilling in the play has cooled amid a drop in natural gas prices as producers have moved operations to wet gas plays outside the state that have a higher amount associated liquids. Consequently, production has leveled off. In addition, declining conventional production has accounted for the recent employment drop in this sector. As gas prices firm, some recovery in the Haynesville is anticipated.

The economic activity associated with unconventional gas directly and indirectly supported nearly 79,000 jobs in the state in 2012.[4] These jobs will rise to nearly 151,000 by 2035, or 7.1% of the state's labor force, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $10.7 billion in Louisiana in 2012. We forecast that this contribution will grow to $19.7 billion by 2035. As for labor income, the average annual wage in Louisiana in 2012 is $57,600, while the average wage of direct jobs in unconventional gas activity is much higher, at $108,700, providing an enormous boost to quality of life and family income for state residents employed by the industry.

There is also the contribution of unconventional gas employment to government revenues in Louisiana. In 2012, it generated over $2.5 billion in taxes for state and federal coffers. This includes over $1.2 billion in state and local taxes, or the equivalent of 14% of the state's total budget.

[4] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Louisiana Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	24,314	25,511	29,142	78,968
2020	27,377	30,313	39,728	97,418
2035	49,076	44,590	57,237	150,903

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	5,739	2,830	2,157	10,727
2020	6,106	3,544	3,180	12,829
2035	10,053	5,145	4,520	19,718

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2,642	1,746	1,240	5,627
2020	2,520	2,083	1,732	6,335
2035	4,094	3,027	2,431	9,553

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Louisiana

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**1,315**	**1,525**	**2,323**	**39,259**
Personal Taxes	998	1,121	1,694	28,780
Corporate Taxes	307	391	612	10,136
Federal Royalty Payments	5	7	10	187
Federal Bonus Payments	6	6	7	156
State and Local Taxes	**1,238**	**1,545**	**2,858**	**43,426**
Personal Taxes	149	169	222	4,170
Corporate Taxes	819	1,019	1,400	25,367
Severance Taxes	76	81	795	6,311
Ad Valorem Taxes	56	87	197	2,732
State Royalty Payments	94	144	190	3,681
State Bonus Payments	43	46	54	1,166
Total Government Revenue	**2,553**	**3,070**	**5,181**	**82,685**
Lease Payments to Private Landowners	**32**	**49**	**81**	**1,395**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

MISSISSIPPI

OVERVIEW

Mississippi experienced another year of anemic job growth in 2012. While the nation as a whole has made significant strides in its post-recession recovery, Mississippi has recovered only a small fraction of the thousands of jobs it lost during the recession. Mississippi's unemployment rate was 8.9% in late 2012, nearly a full percentage point higher than the national rate. With its labor market in such a dire situation, unemployment remains a challenge. However, there are signs of hope. Developments at the Toyota, Northrop Grumman, and GE Aviation plants are expected to buttress the transportation equipment sector in coming years. Mississippi's transportation and warehousing sector is also expected to surge in the future as the state invests in its ports, positioning itself to benefit from the widening of the Panama Canal. Oil and gas jobs – if the development of the Tuscaloosa Marine Shale and other unconventional plays come to fruition – would be a significant shot in the arm to the state economy. Employment in Mississippi is currently projected to grow at about the national average over the medium term, but the Magnolia State will not recoup all of its recessionary job losses until 2017, three years after the nation as a whole. Most of the state's growth will come from the professional and business services sector and construction, as housing starts pick up and demand for residential and commercial real estate grows. Mississippi's manufacturing sector, after a decade of nearly continuous decline, began to pick up in 2012 and will continue to grow for the next four years. Transportation equipment manufacturing in particular is expected to surge for the next four years: new Toyota and GE plants will help fuel the sector's recovery. Despite the economic progress anticipated in the future, unemployment will remain a challenge for Mississippi. The unemployment rate is not expected to return to its pre-recession trough in the foreseeable future. It will sink to 7.4% in 2017 – that decline will be slower than in most other states.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Mississippi currently produces oil and is expected to start producing both shale and tight gas in the near future, if the Tuscaloosa Marine Shale and other emerging unconventional play materialize. The state produced 64,000 barrels of crude oil per day in August 2012, according to the Energy Information Administration. The economic activity associated with unconventional oil and gas directly and indirectly supports more than 5,000 jobs in the state in 2012, which represents 0.5% of the state's total nonfarm employment[5]. The unconventional oil- and gas-related employment is expected to surge to 8,900 by 2020 and to 22,400 by 2035. These jobs would employ 1.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $510 million in Mississippi in 2012. We forecast that this contribution will grow to $2.8 billion by 2035. As for labor income, the average annual wage in Mississippi in 2012 is $45,800, while the average wage of jobs in unconventional oil and gas activity is significantly higher at $59,000, providing a solid quality of life for state residents employed by the industry.

There is also the contribution of unconventional oil and gas to government revenues. In 2012, it generated $161 million in taxes for state and federal coffers. This includes $93 million in state and local taxes, or the equivalent of about 1.4% of the state's $5.5 billion budget for 2012. Tax revenue generated by unconventional oil and gas activity would help the state reduce its current budget deficit.

[5] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Mississippi Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	0	1,601	3,481	5,082
2020	3	2,786	6,099	8,887
2035	4,969	6,256	11,216	22,441

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	194	316	510
2020	1	342	517	860
2035	1,328	628	856	2,811

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	120	180	300
2020	0	211	316	527
2035	542	386	496	1,424

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Mississippi

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**68**	**117**	**343**	**3,867**
Personal Taxes	56	96	261	3,055
Corporate Taxes	12	21	82	811
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	1
State and Local Taxes	**93**	**155**	**661**	**6,349**
Personal Taxes	8	14	31	400
Corporate Taxes	85	141	502	5,174
Severance Taxes	0	0	117	720
Ad Valorem Taxes	0	0	8	35
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	3	20
Total Government Revenue	**161**	**272**	**1,004**	**10,216**
Lease Payments to Private Landowners	**0**	**0**	**12**	**80**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

MONTANA

OVERVIEW

After experiencing small employment declines for nearly a year, Montana in late 2012 returned to employment growth, and we expect Montana's economy to see robust gains in 2013. . Much of this economic resurgence was due to oil jobs: Eastern Montana has been participating in the Bakken oil boom in neighboring North Dakota, specifically providing refining, exploration, and administrative and support services. And with the Bakken play set to expand, Eastern Montana is expected to see continued employment gains. The state's construction sector boomed in 2012 because of tremendous growth in new housing construction, much of that to fill demand around the Bakken play. Natural resources-mining and business support services, along with the rising real estate and construction sectors, will propel job growth, and the unemployment rate should slip below 6% in 2013. Through 2018, Montana's employment growth will decelerate, however, averaging about 1.6% annually, as the lack of economic diversity limits the state's expansion. Real income growth will slightly lag the national pace during 2012–18, and real output growth will be slightly lower than the nation by then as well. Employment will regain pre-recession levels around the beginning of 2015. Montana's wealth of natural resources, abundant tourist destinations, and growing need for services geared toward the elderly helped the state overcome its lack of industrial diversity during the national recession; however, we expect Montana to grow at a slightly slower pace than the country during the recovery. Employment will regain pre-recession levels around the beginning of 2015. Montana's employment growth, at 1.6%, will run at a slower pace than the nation's during 2012–2018.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Montana does not currently produce unconventional gas, but it is home to significant oil activity. Montana produced 70,000 barrels per day of crude oil in July 2012, or about 1% of total US production, according to the Energy Information Administration. The economic activity associated with unconventional gas directly and indirectly supported over 9,600 jobs in the state in 2012 – mostly in drilling oil and gas wells, and the manufacturing and support activities that support it.[6] Unconventional gas-related employment is expected to increase to just over 16,700 jobs by 2020 and to over 18,800 by 2035. These jobs would employ 3.2% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $1.2 billion in Montana in 2012. We forecast that this contribution will grow to $2.7 billion by 2035. As for labor income, the average annual wage in Montana in 2012 is $46,000, while the average wage of direct jobs in unconventional gas activity is more than double that amount, at $104,000, providing strong quality of life for state residents employed by the industry.

There is also the contribution of unconventional gas employment to government revenues. In Montana in 2012, it generated over $511 million in taxes for state and federal coffers. This includes $360 million in state and local taxes, or the equivalent of 16% of the state's current budget.

[6] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Montana Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	2,615	2,687	4,332	9,634
2020	4,584	4,737	7,478	16,799
2035	4,933	5,432	8,445	18,811

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	695	264	301	1,260
2020	1,517	478	544	2,539
2035	1,557	551	619	2,728

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	271	147	168	586
2020	528	263	294	1,085
2035	595	306	336	1,237

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Montana

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**150**	**289**	**321**	**6,622**
Personal Taxes	104	192	220	4,425
Corporate Taxes	41	88	90	1,950
Federal Royalty Payments	4	8	10	203
Federal Bonus Payments	2	2	2	45
State and Local Taxes	**360**	**702**	**694**	**15,680**
Personal Taxes	27	44	40	953
Corporate Taxes	233	472	435	10,163
Severance Taxes	75	144	170	3,518
Ad Valorem Taxes	18	34	40	839
State Royalty Payments	1	2	3	58
State Bonus Payments	5	6	6	149
Total Government Revenue	**511**	**991**	**1,015**	**22,302**
Lease Payments to Private Landowners	**5**	**8**	**13**	**225**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

NEW MEXICO

OVERVIEW

New Mexico, which had become an attractive target for relocation by homeowners, especially retirees, during the economic boom, was hit hard by the housing crisis and is now working through a backlog of foreclosures. The energy and leisure-hospitality sectors have been the main drivers of the economy since the end of the recession. With oil prices coming down from their early-2012 highs, growth in the energy sector has slowed, but it remains a major source of employment and government revenues. The San Juan Basin in the northwest corner of the state is a heavy producer of conventional gas and coal-bed methane. Low natural gas prices have recently kept drilling activity in this area depressed, but the southeast corner of the state is part of the Permian Basin, where oil-directed drilling was booming thanks to high prices. The New Mexico economy should begin to turn around in 2013. Job growth will be driven by the continued expansion of the leisure-hospitality and trade-transportation sectors, as well as a much-awaited turnaround in professional-business services and construction. Despite renewed hiring, the return of previously discouraged workers to the workforce will keep the unemployment rate above 6% until the end of 2014. Between 2013 and 2018, payrolls – led by the professional-business services sector and, finally, the much-awaited turnaround in the construction sector – are expected to expand by 1.6% annually, matching average US growth during this period. Due to recent weakness, though, New Mexico is not expected to reach its prerecession peak employment level until 2016, lagging the nation's recovery by two years.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

New Mexico's crude oil, which occurs primarily in the Permian Basin, represents just over 3% of the annual US total output. The state has three oil refineries, and several petroleum pipelines connecting the refineries to area markets. New Mexico is also the fifth-largest natural gas-producing state in the country, and its output accounts for around to one-twentieth of US production at 3.7 bcf/day. Although natural gas production declined through much of the 1980s, output has increased sharply since the early 1990s due in large part to the rapid development of coal bed methane in the San Juan Basin. Today, coal bed methane production – the production of unconventional natural gas from coal seams -- accounts for about one-third of New Mexico's natural gas production but is declining due to lower-performing wells. Although more than two-thirds of US households use natural gas as their primary energy source for home heating, the state's small population consumes less than one-tenth of New Mexico's natural gas production. The majority of New Mexico's supply is delivered via pipeline to markets on the West Coast, and to market hubs in West Texas that supply the Midwest. Unconventional oil production from plays such as Bone Spring, located in the Permian Basin, may help to offset some of the declines in gas production from the San Juan Basin.

The economic activity associated with unconventional oil and gas directly and indirectly supported 23,600 jobs in the state in 2012.[7] The state's unconventional oil and gas-related employment is expected to more than double to 58,000 jobs by 2035, or 5.1% of the state labor force, helping to reduce unemployment and create a strong source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $2.7 billion in New Mexico in 2012. We forecast that this contribution will grow to $6.8 billion by 2035. As for labor income, the average annual wage in New Mexico in 2012 is $51,000, while the average wage of direct jobs in unconventional gas activity is $79,700, providing a significantly higher quality of life for state residents employed by the industry.

There is also the contribution of unconventional gas employment to government revenues. In New Mexico in 2012, it generated $1.5 billion in taxes for state and federal coffers. This includes $1 billion in state and local taxes, or the equivalent of more than 21% of the state's $5 billion budget.

[7] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

New Mexico Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	7,117	7,690	8,818	23,625
2020	7,262	9,950	12,637	29,849
2035	16,787	19,172	22,508	58,466

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1,248	804	667	2,719
2020	1,398	1,134	1,015	3,547
2035	3,163	1,937	1,734	6,835

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	567	481	375	1,423
2020	517	667	560	1,743
2035	1,282	1,162	924	3,369

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: New Mexico

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**410**	**531**	**1,012**	**14,847**
Personal Taxes	252	308	598	8,473
Corporate Taxes	78	109	209	2,983
Federal Royalty Payments	53	89	165	2,667
Federal Bonus Payments	26	25	40	723
State and Local Taxes	**1,063**	**1,400**	**2,585**	**38,452**
Personal Taxes	54	60	93	1,528
Corporate Taxes	784	1,032	1,803	27,265
Severance Taxes	99	165	420	5,343
Ad Valorem Taxes	27	45	107	1,440
State Royalty Payments	6	11	20	325
State Bonus Payments	93	87	140	2,552
Total Government Revenue	**1,473**	**1,931**	**3,597**	**53,299**
Lease Payments to Private Landowners	**4**	**6**	**25**	**263**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

NORTH DAKOTA

OVERVIEW

The North Dakota economy continues to create jobs at a remarkable rate, thanks in large part to drilling activity in the northwestern corner of the state. Unprecedented growth in employment, fueled by the energy sector, has created a unique situation and placed pressure on a state labor market that is already the tightest in the country. The Bakken shale formation is the locus of the economic boom: oil production in the region has nearly quadrupled since 2005. Production in 2012 topped an astonishing 700 million barrels per day. Although the pace of job growth in the natural resources and mining sector has slowed a bit in 2012 due to a decline in oil prices, the sector's job growth remains strong. A number of other sectors are now benefitting from drilling activity in the Bakken, including construction, transportation and warehousing, and manufacturing. Truckers, for example, are in high demand to transport materials into, and crude out of, the Bakken. The five-year outlook for North Dakota's total payrolls puts the state well ahead of the national average. North Dakota's small population and the oil sector's high wages have resulted in an influx of workers from outside the state in search of well-paying jobs. Demand for construction and for manufactured goods has increased in the Bakken region to meet the housing, municipal and industrial infrastructure needs of rapid population gains and economic growth. The population influx is a reversal from the period prior to 2006, when the Peace Garden State had generally seen more annual out-migration than in-migration, as many young people left the state in search of better economic opportunity. In-migration accelerated rapidly starting in 2008, and the Bakken is now a major draw for workers from other states where unemployment remains stubbornly high. These new residents with strong purchasing power also have positive impacts on the local and state economies.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

North Dakota is home to significant oil activity, much of it fairly new. It recently passed Alaska to become the second-ranked oil-producing state, behind Texas. Production is expected to rise above 1.2 million barrels per day by the end of this decade as the Bakken play continues to be developed at a rapid rate. While drilling and production within the Bakken is expected to ramp up quickly, IHS expects that production will peak in 2021, and thereafter will begin a steady decline without advances in drilling technologies, downspacing, or new discoveries as available drilling locations are exploited. This decline in drilling will ultimately begin to affect capital expenditure and employment. Currently, the only natural gas production is associated gas which results from the oil plays. In addition to the direct jobs, employment is also being created in the supplier networks and trade flows and from the income effects of earnings related to unconventional oil and gas. The economic activity associated with unconventional drilling directly and indirectly supported over 71,800 jobs in the state in 2012.[8] Many of these jobs are in the construction, fabricated metals manufacturing, and machinery manufacturing sectors.

The state's unconventional oil and gas-related employment is expected to increase to over 114,000 jobs by 2020, which equates to 5.8% average annual growth. This growth compares to a 2.1% in the state's manufacturing sector and 1.6% overall state job growth during the same time period. After this period, we will begin to see declines in employment through 2035. These jobs would employ a significant portion of the state labor force, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $6.8 billion in North Dakota in 2012. We forecast that this contribution will grow to just over $13 billion in 2020, before tapering off to $6.3 billion by 2035. As for labor income, the average annual wage in North Dakota in 2012 is $64,600, while the average wage of direct jobs in unconventional oil and gas activity is $67,400. These jobs have vastly improved the quality of life for many state residents employed by the industry.

[8] Direct jobs are those created at the firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

There is also the contribution of unconventional gas employment to government revenues. In North Dakota in 2012, it will generate nearly $5.7 billion in taxes for state and federal coffers. This includes almost $4 billion in state and local taxes, which will allow the state to enjoy continued record-setting budget surpluses this year and in the near future.

Finally, it should be noted that these forecasts assume that the Bakken and Three Forks formations are developed in North Dakota using current technology. Other North Dakota shales and petroleum source rocks exist, but these were not evaluated in this report. If other formations are developed, North Dakota employment, value added and government revenues are likely to be higher, especially in the later years of the forecast. In the Bakken and Three Forks formations, future advances in drilling and completion technology and downspacing could extend or increase production and investment in the latter part of the forecast thus increasing their economic impact.

North Dakota Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	19,746	24,099	27,978	71,824
2020	30,813	38,750	44,677	114,240
2035	14,516	19,618	23,132	57,267

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2,918	2,284	1,605	6,808
2020	6,252	3,866	2,928	13,046
2035	3,069	2,003	1,559	6,630

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1,331	1,322	956	3,609
2020	5,856	2,185	1,545	9,586
2035	2,938	1,131	826	4,896

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: North Dakota

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**1,812**	**3,688**	**1,958**	**72,392**
Personal Taxes	640	1,693	870	31,977
Corporate Taxes	193	209	105	4,133
Federal Royalty Payments	905	1,703	955	34,655
Federal Bonus Payments	74	83	28	1,627
State and Local Taxes	**3,946**	**6,472**	**3,405**	**130,000**
Personal Taxes	79	181	73	3,233
Corporate Taxes	832	843	381	16,395
Severance Taxes	1,396	2,579	1,421	52,315
Ad Valorem Taxes	1,055	1,939	1,062	39,302
State Royalty Payments	358	676	381	13,767
State Bonus Payments	226	254	87	4,988
Total Government Revenue	**5,758**	**10,159**	**5,363**	**202,392**
Lease Payments to Private Landowners	**81**	**137**	**77**	**2,919**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

OHIO

OVERVIEW

The recovery in Ohio's labor market continued in 2012, thanks to consistent expansions in finance, professional-business, and education-health services. The manufacturing sector is also now in an expansion mode and the construction sector has been on an upward trajectory. The labor market built momentum in 2012, but prospects for 2013 are not quite as rosy, as job growth will decelerate as gains in the manufacturing sector wane. Over the next five years, Ohio's recovery will be moderate, though still a welcome turnaround from the 2001–2010 decade, when employment lost an average 1.1% annually. The manufacturing sector, a key factor in the decade of losses, will be a primary force behind economic growth over the medium-term, thanks to resurgent automobile and metal manufacturing sectors, and expected growth in unconventional oil and gas jobs related to the Utica shale. This increased manufacturing activity will provide a stimulus for the transportation and warehousing sector, as more goods flow through the state. That, combined with robust export activity, will keep job growth strong in the transportation and warehousing sector over the next five years. The service sectors, however, remain the key to long-term economic expansion. Professional-business and education-health services will be two of the fastest-growing sectors during 2012–2017. The state has been aggressively expanding its healthcare industry, which is a source of stable and high-paying jobs, and given the aging demographics this will be one of the most consistent performing sectors. On the whole, job growth will average 1.3% annually over the next five years, much better than in recent history, though below the national average.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Sitting on the promising Utica shale formation, Ohio's unconventional oil and gas industry has much potential. While Utica's development is in the early stages, leasing and exploration activity have ramped up in recent years. Recent well test results have been highly encouraging. Furthermore, the extent of the play is vast, covering as much as one-half of the state's land area. In 2011 Chesapeake Energy, a major shale gas player in the state, announced that it spent more than $1 billion on exploration and production in Ohio and paid more than $650 million to land and mineral rights owners. The company also announced plans to increase rig counts in the coming years. Consequently, IHS forecasts substantial increases in production of oil and gas and related activity. More transport and processing infrastructure will be needed to fully develop the play, but delays in infrastructure could slow development. This oil and gas activity not only directly creates jobs and income but it also creates work for auxiliary industries, including manufacturing. Recent developments include Vallourec & Mannesmann Holdings building a new steel plant in Youngstown to supply steel tubes used in drilling for oil and gas formations; U.S. Steel Corp expanding and upgrading its plant in Lorain; and Timken Co. upgrading its Canton plant to accommodate additional business related to drilling. Ohio, with its large industrial base and proximity to promising reserves, is poised to gain further by producing the heavy metal and machinery required to perform unconventional drilling.

In additional to manufacturing, gas drilling supports jobs in the transportation, construction, and professional, scientific and technical sectors. Currently, unconventional drilling employment supports 38,000 jobs.[9] That is expected to balloon to 143,000 by 2020 and to 266,000 by 2035. These jobs would employ 4.3% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $4.1 billion in Ohio in 2012. We forecast that this contribution will grow to $35.2 billion by 2035. As for labor income, the average annual wage in Ohio in 2012 is almost $55,000, while the average wage of direct jobs in unconventional gas activity is $81,000, providing a sizable economic boost.

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[9] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

There is also the contribution of unconventional gas employment to government revenues. In Ohio in 2012, it generated nearly $1.5 billion in taxes for state and federal coffers. This includes over $910 million in state and local taxes, or the equivalent of about 3.6% of the state's $25 billion in 2011 revenues.

Ohio Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	4,210	13,601	21,020	38,830
2020	38,728	41,849	63,018	143,595
2035	77,647	77,318	111,659	266,624

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	611	1,574	1,918	4,103
2020	8,243	4,553	5,164	17,960
2035	18,337	8,105	8,850	35,292

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	341	1,021	1,116	2,478
2020	3,278	2,905	2,979	9,162
2035	7,738	5,151	4,973	17,862

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Ohio

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**537**	**2,150**	**4,218**	**57,681**
Personal Taxes	439	1,619	3,168	43,440
Corporate Taxes	98	530	1,050	14,241
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**911**	**4,594**	**8,453**	**120,275**
Personal Taxes	164	573	915	14,175
Corporate Taxes	738	3,789	6,841	97,967
Severance Taxes	1	53	215	2,185
Ad Valorem Taxes	8	176	471	5,807
State Royalty Payments	0	4	12	141
State Bonus Payments	0	0	0	0
Total Government Revenue	**1,448**	**6,744**	**12,672**	**177,956**
Lease Payments to Private Landowners	**4**	**45**	**119**	**1,490**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

OKLAHOMA

OVERVIEW

Powered by a strong energy sector, Oklahoma's economy has created jobs at an impressive rate in 2012. In fact, Oklahoma's recent economic progress has placed it among the best-performing states in the country. Much of Oklahoma's economic advancement can be attributed to the state's abundance of oil and natural gas. With new projects underway by Southwest Energy Pool and TransCanada, the energy industry will remain a key component of Oklahoma's economy for the next several years. Most of the state's other private industries made significant progress over 2012 as well, notably manufacturing and professional-business services. Oklahoma's services industries have benefited from firms' decisions to relocate their administrative activities to the state, and many more have plans to do so.

The recent growth in payrolls helped reduce the unemployment rate, despite a large increase in the labor force. This suggests that the reduction in the jobless rate coincided with hiring, rather than discouraged workers dropping out of the labor force. Oklahoma's recovery is well ahead of the US recovery – the state has already regained nearly all of the jobs lost during the recession. Looking ahead, employment will climb at an average annual rate of 1.6% from 2012-2017. Some of the largest job gains will come in the construction sector, as the real estate market recovers and housing starts pick up. The professional-business services sector will be another engine of growth. Oklahoma's relatively low wages and operating costs, convenient and central location, and business-friendly tax laws make the state an attractive place to do business. The energy sector will continue to be a boon to the state. We expect jobs in unconventional oil and gas alone to double during the forecast period. As employment picks up, Oklahoma's unemployment rate will decline steadily, dipping below 4% by 2016.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Oklahoma is a strong producer of oil and both shale and tight gas. The state produced 225,000 barrels of crude oil per day in August 2012, according to the Energy Information Administration (EIA), making Oklahoma the fifth-largest producer of crude oil in the United States, behind Texas, North Dakota, California, and Alaska. The state is the fourth-largest producer of natural gas at 5.5 bcf/day according to the EIA.

While conventional oil has been Oklahoma's mainstay for decades, the emerging Mississippian Lime tight oil play spanning the northern third of the state is being aggressively developed. Another important play, the Granite Wash straddling the Oklahoma-Texas border in the panhandle area, is an example of how horizontal drilling has transformed a dying tight sand play into one of the premier plays in North America. Aggressive development will continue in this liquids-rich gas play and in some adjacent, smaller nearby tight oil plays such as the Cleveland and Tonkawa. Additional infrastructure will be required to process the abundant natural gas liquids from the play, providing additional opportunities for employment growth. Two areas of the Woodford Shale development will continue to contribute to gas production. While these areas are not projected to be as massive as the Granite Wash, they will nonetheless contribute to employment growth.

The economic activity associated with unconventional oil and gas directly and indirectly supported over 65,000 jobs in Oklahoma in 2012.[10] This number represents almost 4% of the state's total nonfarm employment. The unconventional oil- and gas-related employment is expected to increase to 150,000 by 2020 and to 225,000 by 2035. These jobs would employ 11.1% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $8.9 billion in Oklahoma in 2012. We forecast that this contribution will grow to $38 billion by 2035. As for labor income, the

[10] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

average annual wage in Oklahoma in 2012 is $52,200, while the average wage of direct jobs in unconventional oil and gas activity is significantly higher at $108,600, providing a solid quality of life for state residents employed by the industry.

Unconventional oil and gas activity is a major source of government revenues in Oklahoma. In 2012, it generated over $2.4 billion in taxes for state and federal coffers. This includes $1.3 billion in state and local taxes, or the equivalent of about 17.5% of the state's $7.8 billion dollar budget for 2012. Tax revenues generated by unconventional oil and gas activity would help the state significantly reduce its current budget deficit.

Oklahoma Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	21,137	18,821	25,367	65,325
2020	49,258	42,186	58,173	149,617
2035	72,558	64,495	88,334	225,387

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	5,032	2,085	1,793	8,911
2020	15,326	4,778	4,349	24,454
2035	24,363	7,161	6,538	38,061

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2,296	1,146	1,004	4,447
2020	6,191	2,575	2,264	11,030
2035	9,968	3,885	3,392	17,245

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Oklahoma

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**1,069**	**2,794**	**4,370**	**69,919**
Personal Taxes	788	1,950	3,058	48,822
Corporate Taxes	269	809	1,254	20,114
Federal Royalty Payments	8	28	52	833
Federal Bonus Payments	4	7	6	151
State and Local Taxes	**1,362**	**4,222**	**6,753**	**108,593**
Personal Taxes	168	393	515	9,271
Corporate Taxes	814	2,358	3,294	56,497
Severance Taxes	247	1,041	2,163	30,657
Ad Valorem Taxes	64	254	517	7,448
State Royalty Payments	31	110	204	3,227
State Bonus Payments	39	66	59	1,493
Total Government Revenue	**2,432**	**7,016**	**11,123**	**178,512**
Lease Payments to Private Landowners	**39**	**106**	**189**	**3,024**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

PENNSYLVANIA

OVERVIEW

In 2012, employment in the natural resources and mining sector has leveled off and remained steady after two years of double-digit growth. The adoption of hydraulic fracturing in Pennsylvania was the main driver of double digit job growth in Pennsylvania in 2010 and 2011, providing a bulwark against deep recession at a time when many other sectors of the state economy were struggling. Payrolls in the sector remained stable in 2012. The state is moving to take advantage of the long-term potential of its vast natural resources in a variety of ways, from a proposed ethylene cracker in western Pennsylvania to exports of natural gas liquids from ports along the Delaware River. Pipelines continue to be built to move the gas to where it has the most value, such as the Northeast's US home heating market. Demand for metallurgical coal and its derivatives remain robust, both domestically and overseas. ArcelorMittal will invest $50 million to retool its Monesson coke plant and restart it in 2014. The renovation will result in construction and other jobs in the interim.

Pennsylvania's economy is expected to add jobs at a 1.2% average annual rate between 2012 and 2017. This growth rate would rank Pennsylvania in the bottom tier of the states, due to a couple of factors. First, although the state certainly lost plenty of jobs to the recession, the magnitude was less than in many other states. As a result, Pennsylvania's employment growth is not expected to snap back as much as it will in states like Florida and Arizona. Second, Pennsylvania's population growth is expected to remain below the national average, limiting its potential job growth, especially in the service sectors. Pennsylvania will return to its pre-recession peak employment level near the end of 2013. Development of natural gas in the Marcellus Shale formation under much of Pennsylvania continues to dominate the economic outlook there, especially in the longer term..

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Pennsylvania's petroleum industry got its start in the mid-19th century, with the first oil well near Titusville. In the 20th century, the state played a much smaller role in the national oil and gas industry, but the recent development of its massive, world-class Marcellus Shale play, using horizontal drilling and hydraulic fracturing, has re-elevated the state into prominence in the energy industry. More transport and processing infrastructure will be needed to fully develop the play, and delays in infrastructure could slow development, but the vast Marcellus play covering about 60% of the state has enormous resource potential.

The Utica shale gas play is located primarily in the neighboring state of Ohio, but it extends into western Pennsylvania and will contribute to Pennsylvania's economy in the future. In addition, supplier networks, trade flows and income effects from earnings related to unconventional gas also create significant employment here, helping to knock the rust off of part of the "Rust Belt" industries that have historically been prominent in the state's economy. The economic activity associated with unconventional gas will directly and indirectly supported nearly 103,000 jobs in the state in 2012, especially in the drilling and completion and steel and metal fabrication manufacturing sectors.[11] These two sectors accounted for 22% of the state's total manufacturing jobs in 2012.

The state's unconventional gas-related employment is expected to more than double to nearly 221,000 by 2020 and grow to 387,000 by 2035. These jobs would employ 5.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $14 billion in Pennsylvania in 2012. We forecast that this contribution will grow to just over $49.0 billion by 2035. As for labor income,

[11] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

the average annual wage in Pennsylvania in 2012 is $58,400, while the average wage of direct jobs in unconventional gas activity is much higher, at $97,000.

There is also the contribution of unconventional gas employment to government revenues. In Pennsylvania in 2012, it generated nearly $3 billion in taxes for state and federal coffers. This includes almost $1.3 billion in state and local taxes, or the equivalent of 3.9% of the state's 2011 tax revenues.

Pennsylvania Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	25,628	33,219	43,821	102,668
2020	57,956	68,876	93,803	220,635
2035	117,336	115,429	154,595	387,360

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	6,025	4,228	3,859	14,113
2020	9,532	9,002	8,180	26,714
2035	20,706	14,933	13,384	49,022

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2,486	2,568	2,276	7,330
2020	3,874	5,337	4,755	13,966
2035	8,449	8,743	7,549	24,741

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Pennsylvania

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**1,716**	**3,266**	**5,915**	**85,991**
Personal Taxes	1,300	2,470	4,384	64,461
Corporate Taxes	409	767	1,461	20,627
Federal Royalty Payments	7	28	70	904
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**1,264**	**2,357**	**3,954**	**60,698**
Personal Taxes	342	638	965	15,811
Corporate Taxes	909	1,669	2,864	43,275
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	13	50	125	1,612
State Bonus Payments	0	0	0	0
Total Government Revenue	**2,980**	**5,623**	**9,869**	**146,689**
Lease Payments to Private Landowners	**32**	**60**	**136**	**1,864**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

TEXAS

OVERVIEW

The Texas economy is one of the country's main engines of growth. Post-recession payrolls in Texas have been expanding since 2010, and Texas, as of December 2011, was the second state in the nation to recoup all of its recessionary job losses (after Alaska). From peak to trough, Texas lost just over 430,000 jobs during the recession, or 4.1% of total payrolls. Oil and gas jobs have been a significant factor in the state's return to economic health. With oil prices falling from their recent highs, payroll expansion in the mining sector has slowed but continues to have a positive impact. The unemployment rate in Texas continues to gradually trend lower from its high of 8.7% in June 2010.

The Texas economy will expand at a moderate pace in the next few years, remaining one of the nation's top performers. The construction and professional-business services sectors will remain the main sources of new jobs. Payrolls in the state will gather momentum in 2013 and accelerate until 2015, averaging 2.2% annually between 2012 and 2017, placing Texas fifth in the country in terms of medium-term growth. But unlike Texas, other states in the top five – Florida and Arizona – were among the hardest hit by the recession and are posting high growth rates from a very low base. The fastest-growing sectors in Texas over the medium term are expected to be professional-business services and education-health services.

From 2012-17, the mining and manufacturing sectors, which are heavily dependent on the oil and gas industry, are projected to increase payrolls by 1.3% and 1.9%, respectively. Exploration in the Eagle Ford Shale will provide a large share of those jobs. Given San Antonio's proximity to the majority of shale play sites, Bexar County is likely to have a significant role in staging exploration, and the energy boom is expected to bring in new investment and generate thousands of jobs in San Antonio as well as other areas of south Texas. Energy companies such as EOG Resources and Chesapeake Energy have already opened satellite offices in the metro area, but the biggest announcement so far has come from oil-field services giant Halliburton. At the end of 2011, Halliburton began work on a $50-million base of operations in San Antonio, requiring 1,500 workers to support its operations in the Eagle Ford Shale. The company said it hopes to fill 75%, or more than 1,100, of these high-paying positions by hiring locally. Other oil-field services companies coming to San Antonio include Houston-based Baker Hughes, Inc., which announced plans to build a $30-million operations center and administrative headquarters employing 400 in southeastern Bexar County. Meanwhile, Schlumberger Ltd., the world's largest oil-field services company, has told local economic development officials that it wishes to establish a site in southern Bexar County as well.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Texas is the country's leading provider of both conventional and unconventional crude oil and natural gas. Of the state's 254 counties, 223 are active in oil and gas production. Twenty of the nation's top 100 conventional oil fields are located in Texas' Permian Basin, and the state's crude oil reserves represent almost one-fourth of the US total. Texas natural gas reserves, meanwhile, account for almost 30% of total US reserves, and the state is the country's leading natural gas producer, accounting for nearly one-third of total domestic production at 22.4 bcf/day. The largest gas fields are heavily concentrated in the East Texas Basin in the northeastern part of the state.

Several of the nation's most important unconventional oil plays dot the Texas landscape. Production in the rapidly growing Eagle Ford play located in south Texas reached 500,000 barrels of liquids per day in June of this year, up from an average of 175,000 barrels per day during 2011. Some communities in south Texas have had difficulty absorbing the demand for infrastructure, housing and services due to the speed of the development. Historically, the Permian Basin has been the most prolific oil producing region in the country. Unconventional oil plays of interest from that basin include the Sprayberry and Bone Spring plays which are experiencing substantial production increases, and the emerging Wolfcamp Shale which may ultimately rival the Eagle Ford in production and drilling. Activity continues in the Barnett Shale Gas play, which was the first of its kind. Barnett production remains constant at 5 bcf/day. Another

important play, the Granite Wash located in the Texas Panhandle, is an example of how horizontal drilling has transformed a dying tight sand play into one of the premier plays in North America. As development continues in this liquids-rich play, IHS anticipates that its production will exceed that of many of the noteworthy plays, such as the Barnett and Haynesville. Activity has dropped somewhat in the Cotton Valley and Bossier plays located in East Texas due to low gas prices, but these will remain important as gas prices firm and new technology is developed. Wet gas plays have a higher economic value as producers can garner additional revenues from associated condensate as well as natural gas liquids which can be extracted from the gas stream. As gas prices are expected to remain low, these plays, which include portions of the Eagle Ford, Barnett and Cotton Valley plays, will be preferentially developed.

The economic activity associated with unconventional oil and gas directly and indirectly supported nearly 576,000 jobs in the state in 2012.[12] This number represents 65% of the state's total manufacturing jobs. The state's unconventional oil and gas-related employment is expected to increase to 733,000 jobs by 2035. These jobs would employ 4.2% of the total state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $101 billion in Texas in 2012. We forecast that this contribution will grow to $125 billion by 2035. As for labor income, the average annual wage in Texas in 2012 is $59,000, while the average wage of direct jobs in unconventional oil and gas activity is $155,000, so these jobs provide an enormous boost to quality of life and family income for state residents employed by the industry.

There is also the contribution of unconventional oil and gas employment to government revenues. In Texas in 2012, it will generate over $22 billion in taxes for state and federal coffers. This includes $10.2 billion in state and local taxes – or a whopping 24% of the state's total budget. We estimate that unconventional oil and gas activity generated $10.2 billion in state and local revenues, the equivalent of about 15% of the education and 18% of the state's healthcare budget.

[12] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Texas Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	159,474	171,204	245,406	576,084
2020	236,976	282,538	409,968	929,482
2035	161,320	234,357	337,502	733,179

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	56,729	24,318	20,585	101,633
2020	93,409	39,287	35,862	168,558
2035	62,970	32,728	30,003	125,701

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	24,674	12,892	11,317	48,883
2020	37,609	20,877	18,695	77,181
2035	27,916	17,591	15,783	61,291

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Texas

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**11,888**	**19,217**	**14,797**	**394,030**
Personal Taxes	8,668	13,644	10,871	282,554
Corporate Taxes	3,180	5,506	3,880	109,993
Federal Royalty Payments	23	50	40	1,145
Federal Bonus Payments	16	17	7	338
State and Local Taxes	**10,280**	**19,321**	**13,859**	**396,954**
Personal Taxes	0	0	0	0
Corporate Taxes	6,564	10,910	6,974	213,536
Severance Taxes	2,641	6,038	5,065	132,924
Ad Valorem Taxes	963	2,132	1,648	45,495
State Royalty Payments	110	239	170	4,955
State Bonus Payments	2	2	1	44
Total Government Revenue	**22,168**	**38,538**	**28,656**	**790,984**
Lease Payments to Private Landowners	**231**	**408**	**330**	**9,180**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

UTAH

OVERVIEW

Utah's rate of job growth in 2012 has led all other states. About half of the increase in jobs over the year has come in professional and business services. Within that sector, the increase has been split nearly evenly between scientific jobs and administrative support jobs, which include temporary employment. Financial and insurance industry employment is also improving as the economy recovers. Utah's housing has begun to recover, with rapid growth in the rate of housing starts over 2012. Unlike many other states, Utah has avoided significant job losses in the public sector, especially at the state and local government level. While most states have been shedding public-sector jobs over the past two years, most notably in their public schools, Utah's total state and local government employment has steadily increased. As in virtually every state, though, federal government jobs are beginning to decline. Utah will remain among the leading states in terms of job growth over the next five years, with payrolls increasing an average of 2.4% annually, compared with 1.7% for the nation. Utah's unemployment rate also will remain well below the national average. Utah will regain its precession peak in payrolls in mid-2013, a year before the nation as a whole. Utah's population growth will remain well above the national average, with higher-than-average birth rates and continued in-migration due to factors such as its robust job market and relatively low cost of living.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Utah has abundant supplies of oil and natural gas locked in shale and tight sands deposits, mainly in the Uinta basin in the eastern part of the state. Within the basin, both the Natural Buttes, a tight gas play, and the Uteland Buttes-Wasatch, a tight oil play, are expected to be the primary drivers of production growth. Coal-bed methane development, which fueled growth in the previous decade, is now on the decline. But development of unconventional oil and natural gas resources has made Utah one of the leaders in the nation's resurgent energy production. In addition, supplier networks, trade flows and income effects from earnings related to unconventional oil and gas also create a significant number of jobs here. The economic activity associated with unconventional oil and gas directly and indirectly supported nearly 55,000 jobs in the state in 2012 with many of these jobs in construction and manufacturing at relatively high wages.[13]

The state's unconventional oil- and gas-related employment is expected to decrease slightly by 2020, but will then increase to over 67,000 by 2035 as unconventional oil and gas production ramps. These jobs will employ 3.2% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $5.6 billion in Utah in 2012. We forecast that this contribution will grow to $9.4 billion by 2035. As for labor income, the average annual wage in Utah in 2012 is $53,900, while the average wage of direct jobs in unconventional oil and gas activity is $94,800, significantly boosting the quality of life and purchasing power of residents employed in the industry.

There is also the contribution of unconventional oil and gas employment to government revenues. In Utah in 2012, it generated over $2.4 billion in taxes for state and federal coffers. This includes over $1.1 billion in state and local taxes, over the equivalent of more than 20% of the state's 2011 tax revenues, or 55% of its education budget.

[13] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Utah Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	10,123	17,762	26,536	54,421
2020	8,051	17,392	26,416	51,859
2035	14,473	21,197	31,381	67,052

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2,187	1,628	1,803	5,618
2020	4,487	1,711	1,997	8,195
2035	4,965	2,065	2,400	9,430

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	960	1,003	1,031	2,994
2020	1,761	1,045	1,105	3,910
2035	1,990	1,277	1,337	4,604

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Utah

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**1,301**	**1,574**	**1,268**	**31,193**
Personal Taxes	531	692	817	15,090
Corporate Taxes	158	258	291	5,488
Federal Royalty Payments	611	624	159	10,606
Federal Bonus Payments	1	0	0	9
State and Local Taxes	**1,100**	**1,415**	**1,368**	**29,457**
Personal Taxes	156	205	213	4,345
Corporate Taxes	427	681	655	13,878
Severance Taxes	307	321	349	7,078
Ad Valorem Taxes	107	111	122	2,450
State Royalty Payments	87	90	24	1,535
State Bonus Payments	17	7	5	171
Total Government Revenue	**2,401**	**2,989**	**2,636**	**60,650**
Lease Payments to Private Landowners	**27**	**18**	**39**	**516**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

WEST VIRGINIA

OVERVIEW

Employment growth in the Mountain State was choppy in 2012 due to weakness in various industries. The manufacturing sector has been on the decline recently, due to hefty losses in the wood products and plastics sector and in the rubber manufacturing sector, the former still weighed down by weak residential construction. Services also struggled, particularly business services – especially the temporary services and administrative component. The mining sector has been hit hard by of a downturn in coal production. The sharp decline in West Virginia's economic growth in recent months will affect 2013 payrolls, when we expect continued weakness in the mining and manufacturing sectors and in the service sectors. The state sits on promising gas reserves primarily from the Marcellus Shale formation, which could provide a significant boost to the state economy. West Virginia's downturn during the recession was not as harsh as those in many states but the recovery so far has been among the weakest, and slow growth is on the horizon over the near term. Over the medium-term, prospects will improve but structural deficiencies will limit the pace of recovery. Factors that will cause West Virginia's recovery to trail the nation's by a significant margin include a lack of economic diversity, and the fact that the state is not coming back from as deep a recession. Payrolls will register yearly gains averaging 1% in 2012-2017, well below the national average of 1.7%.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Coal mining has long been a critical industry in West Virginia but cleaner air standards for coal fired generation and competition from low priced natural gas are beginning to displace demand for coal. Fortunately, the state sits on promising gas reserves, primarily the Marcellus Shale formation. Even though the majority of the play is located in neighboring Pennsylvania, development of the Marcellus started in West Virginia in 2005. After 2008, activity shifted to Pennsylvania with a major focus on the Northeast portion of the state where the gas required little processing to make it pipeline quality and there was good interstate pipeline capacity to market.

Some potential from the Utica play may also exist, but the formation may be too deep for commercial development within the state. Development of these resources is in the early stages but drilling and production is expected to increase as infrastructure is built to handle the additional liquids-rich gas and natural gas liquids that will be produced from the Marcellus Shale. Currently, natural gas dominates West Virginia's unconventional drilling activity, and other less prominent tight sand and shale gas plays in the gas-prone Appalachian Basin contribute as well.

The economic activity associated with unconventional oil and gas directly and indirectly supported nearly 12,000 jobs in the state in 2012.[14] The state's unconventional gas-related employment is expected to increase to 30,000 jobs by 2020 and to 58,000 by 2035. These jobs would employ 6.8% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional energy activity contributed value-added economic activity of $1.6 billion in West Virginia in 2012. We forecast that this contribution will grow to $9.3 billion by 2035. As for labor income, the average annual wage in West Virginia in 2012 is $50,500, while the average wage of direct jobs in unconventional gas activity is much higher at $91,000, significantly boosting the quality of life and purchasing power of residents employed in the industry.

There is also the contribution of unconventional gas to government revenues. In West Virginia in 2012, it generated $483 million in taxes for state and local coffers. This includes $283 million in state and local taxes, or the equivalent of 5.5% of the state's total budget.

[14] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

West Virginia Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	3,631	3,492	4,761	11,884
2020	10,306	8,150	11,200	29,656
2035	21,559	15,594	21,091	58,244

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	799	443	377	1,618
2020	2,641	972	865	4,479
2035	6,158	1,696	1,540	9,394

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	330	250	214	794
2020	1,059	556	472	2,087
2035	2,491	995	821	4,307

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: West Virginia

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**200**	**551**	**1,169**	**15,448**
Personal Taxes	141	369	763	10,180
Corporate Taxes	50	144	306	4,016
Federal Royalty Payments	9	38	100	1,253
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**283**	**884**	**1,916**	**25,491**
Personal Taxes	28	71	127	1,870
Corporate Taxes	187	533	1,019	14,287
Severance Taxes	52	215	593	7,189
Ad Valorem Taxes	16	64	175	2,126
State Royalty Payments	0	1	2	20
State Bonus Payments	0	0	0	0
Total Government Revenue	**483**	**1,435**	**3,085**	**40,939**
Lease Payments to Private Landowners	**9**	**20**	**76**	**782**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

WYOMING

OVERVIEW

Wyoming largely avoided the Great Recession, thanks to the strength of its energy sector, which helped propel job growth in the midst of the national downturn. Exploration and investment in the sector helped boost payrolls, personal income, and government coffers and helped drive Wyoming's economy. However, the recent drop in natural gas prices has forced producers to move resources from the gas-rich areas of Wyoming to more liquids-rich areas such as the Bakken Shale in North Dakota. A further decline in the energy sector could reduce support service employment, and government budgets could come under stress. Any future growth in Wyoming's energy sector will be dependent on developing unconventional formations, particularly those rich in liquid fuels.

Economic activity in Wyoming is expected to moderate over the medium term; from 2012-2017, employment will expand just 1% annually on average, well below the national average of 1.7%. The state's low concentration in some key service sectors, such as professional-business services and healthcare, which are the main drivers of the nation's rebound, will hinder Wyoming's recovery. The mining sector, which has been the main driver of growth in recent years, may be constrained over the medium term as federal permitting issues, land-use policies, and environmental concerns limit new exploration in the state. Because Wyoming has few other growth drivers, a cooling mining sector will inevitably take a toll on the transportation, distribution, construction, and consumer-related industries, which provide goods and services to the mining companies and their employees.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

Wyoming is currently a producer of unconventional oil and gas and a significant producer of tight gas. Wyoming produced 164,000 barrels per day of crude oil in July 2012, which is around 2.6% of total US production, according to the Energy Information Administration (EIA). While gas production has declined from 6.6 bcf/day in 2011 to current levels of 6.0 bcf/day, the state maintains its ranking as the third-largest US gas producer according to the EIA. Most of the unconventional gas activity is centered in the Green River Basin, located in the southwest part of the state; notably the Jonah and Pinedale fields produce a more liquids-rich gas. The Powder River Basin located in northeastern Wyoming has for decades been a primary source of conventional oil production. Producers in these mature areas there are currently experimenting with unconventional technologies, such as horizontal drilling and large scale hydraulic fracturing, to glean additional production. Furthermore, the Niobrara tight oil play located in the Powder River Basin may be the next big tight oil play. Notably, Chesapeake Energy is spending a billion dollars to evaluate and develop this play. In addition, supplier networks, trade flows and income effects from earnings related to unconventional gas also create a significant number of jobs here.

The economic activity associated with unconventional gas directly and indirectly supported nearly 18,000 jobs in the state in 2012, mostly in the drilling of oil and gas wells, and in the manufacturing and support activities that supply drilling.[15] That 18,000 number represents nearly half of the state's total manufacturing jobs. Unconventional gas-related employment is expected to increase to nearly 24,000 jobs by 2020 and to over 34,000 by 2035. These jobs would employ 10% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of nearly $3.3 billion in Wyoming in 2012. We forecast that this contribution will grow to close to $6.8 billion by 2035. As for labor income, the average annual wage in Wyoming in 2012 is $58,244, while the average wage of direct jobs in unconventional gas activity is $124,000, providing a substantial improvement in the quality of life for state residents employed by these industries.

[15] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Wyoming Economic Contribution Summary: Total Unconventional Oil and Gas Activity				
Employment				
(Number of workers)				
	Direct	Indirect	Induced	Total
2012	7,416	4,646	5,772	17,834
2020	9,004	6,479	8,156	23,639
2035	13,896	9,410	11,153	34,459

Value Added				
(2012 $M)				
	Direct	Indirect	Induced	Total
2012	2,340	521	407	3,268
2020	3,520	785	663	4,968
2035	4,799	1,093	907	6,799

Labor Income				
(2012 $M)				
	Direct	Indirect	Induced	Total
2012	923	297	219	1,440
2020	1,340	438	319	2,098
2035	1,896	615	432	2,943

NOTES: Numbers may not sum due to rounding.
Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Wyoming				
($M)				
	2012	2020	2035	2012-2035*
Federal Taxes	**617**	**956**	**886**	**18,533**
Personal Taxes	255	371	522	8,289
Corporate Taxes	110	173	232	3,790
Federal Royalty Payments	233	403	119	6,200
Federal Bonus Payments	19	9	12	253
State and Local Taxes	**609**	**1,035**	**1,343**	**22,644**
Personal Taxes	0	0	0	0
Corporate Taxes	206	317	364	6,613
Severance Taxes	195	350	475	7,798
Ad Valorem Taxes	201	362	491	8,058
State Royalty Payments	2	4	10	112
State Bonus Payments	5	2	3	62
Total Government Revenue	**1,226**	**1,990**	**2,229**	**41,177**
Lease Payments to Private Landowners	**12**	**9**	**37**	**375**

NOTES: *2012-2035 represents the total for all years including those years not reported.
Source: IHS Global Insight

NON-PRODUCING STATES

ALABAMA

OVERVIEW

Alabama reached a turning point in 2012, the state's first year of economic expansion since 2007. This rebound will kick-start strong growth for the next five years. Alabama's economy is expected to add jobs at an average annual rate of 1.5% from 2012-2017, just shy of the national rate. The Yellowhammer State's government sector has been struggling with budget issues in recent years. Government is an important component of Alabama's employment and accounts for about one-fifth of the state's total payrolls, so an ailing government sector has a sizable impact on the overall economy. The tax revenues contributed by the oil and gas sector – 8% of the state's total budget in 2012 – have a substantially positive impact on the state economy.

Alabama's employment recovery will be a broad-based one, mostly fueled by professional-business services. This burgeoning sector is set to return to its pre-recession peak in 2013 and will continue to expand significantly after that. Alabama's all-important manufacturing sector is also expected to post significant payroll gains in coming years, boosted by expansions at the Daimler AG and Hyundai plants and new auto-supply plants opening in the state. Despite this positive employment forecast, it will take years for Alabama to reach pre-recession levels because it must come back from such heavy losses sustained during the great recession. The state is not projected to return to its 2007 peak employment level until 2017, much later than the nation as a whole.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Alabama. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported over 9,000 jobs in the state in 2012.[16] This number represents 0.5% of the state's total nonfarm employment. Employment related to unconventional oil and gas is expected to increase to more than 15,500 by 2020 and double from its current level to 18,600 by 2035. These jobs would employ 0.8% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of $950 million in Alabama in 2012. We forecast that this contribution will grow to $2.1 billion by 2035. As for labor income, the average annual wage in Alabama in 2012 is $52,100, while the average wage of total jobs in unconventional oil and gas activity is significantly higher at $62,400, providing solid a quality of life for state residents employed by the industry.

There is also the contribution of unconventional oil and gas activity to government revenues. In 2012, it generated nearly $280 million in taxes for state and federal coffers. This includes $155 million in state and local taxes, or the equivalent of about 1.8% of the state's $8.6 billion budget for 2012.

[16] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Alabama Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	7	3,303	5,753	9,064
2020	10	5,675	9,827	15,512
2035	17	7,216	11,382	18,615

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	3	400	547	950
2020	4	714	892	1,610
2035	7	945	1,065	2,017

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	256	309	566
2020	1	448	537	986
2035	2	581	639	1,222

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Alabama

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**123**	**212**	**265**	**4,949**
Personal Taxes	100	174	217	4,065
Corporate Taxes	23	38	48	884
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**155**	**244**	**276**	**5,538**
Personal Taxes	20	33	34	726
Corporate Taxes	135	211	242	4,812
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**279**	**456**	**540**	**10,486**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

ARIZONA

OVERVIEW

Arizona's economic growth accelerated markedly in 2012, achieving the third-best performance in the country. Unemployment has fallen toward the 8% mark, just above the US average. The state has been quicker than most to reduce its inventory of unsold or foreclosed homes, with vacancy rates now at 2.0%. As a result, home prices are increasing at a double-digit rate. In our forecast for 2013, Arizona will move up to second in economic growth, behind only North Dakota, with a 2.2% gain in employment. It is important to remember that this growth is off of a very low base in a state hit very hard by the recession. Although Arizona will see payrolls advance at the fastest rate in the country over the next five years, the state will not return to its pre-recession peak employment levels until the end of 2015 (a year later than the nation), evidence of the depth of the recession in a state that was so dependent upon growth and new construction. The main drivers of growth over the medium term are expected to be professional and business services and education and health services.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Arizona. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported approximately 11,700 jobs in the state in 2012.[17] This unconventional gas-related employment is expected to increase to almost 21,000 jobs by 2020, and to more than double to over 26,000 by 2035. These jobs would employ 0.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $1.2 billion in Arizona in 2012. We forecast that this contribution will grow to over $2.7 billion by 2035. As for labor income, the average annual wage in Arizona in 2012 is $53,000, while the average wage of jobs supported by unconventional gas activity is 13% higher, at $60,000.

There is also the contribution of unconventional gas employment to government revenues. In Arizona in 2012, it generated nearly $330 million in taxes for state and federal coffers. This includes over $170 million in state and local taxes, the equivalent of 1.6% of the state's $11 billion dollar budget.

[1717] Direct jobs are those created at the firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Arizona Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	1	3,761	7,936	11,698
2020	1	6,688	14,235	20,924
2035	3	8,390	17,948	26,340

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	472	747	1,219
2020	0	842	1,280	2,123
2035	1	1,078	1,652	2,731

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	281	418	699
2020	0	505	763	1,268
2035	0	643	985	1,628

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Arizona

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**155**	**276**	**355**	**6,457**
Personal Taxes	124	224	289	5,248
Corporate Taxes	31	51	66	1,209
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**171**	**273**	**314**	**6,190**
Personal Taxes	24	40	42	881
Corporate Taxes	148	233	271	5,308
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**327**	**549**	**669**	**12,647**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

CONNECTICUT

OVERVIEW

Connecticut still has not fully recovered from the devastating job losses of 2009 and 2010. The financial crisis was strongly felt here, and financial service is experiencing lingering weakness. While the finance industry makes up only about 8.2% of the state's total jobs, they are on the whole high-paying jobs and an important support for income and spending. Similarly, payroll declines in the reasonably well-paying manufacturing and government sectors this year have limited the funds flowing into other parts of the state economy, contributing significantly to weakness in the services and trade sectors. The recession will linger here longer than in most states. Connecticut's small and diverse economy does not grow quickly, even in the best of times, so a gradual recovery is to be expected. But the recent blow to its finance sector has been especially debilitating. Steady growth in the services industries will help the state achieve a small amount of positive growth again in 2013. In 2014, we expect—finally—a real rebound for the state, followed by several years of steady, modest employment gains. The services industries will buoy the state over the forecast period, with professional and business services leading the way. Construction jobs will rebound sharply in 2014, but the state's financial sector and aerospace will remain in the doldrums through 2017, although other manufacturing will recover more quickly. Connecticut will see average annual job gains of 1.0% during 2013–2017, well below the national rate.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Connecticut. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production indirectly supported nearly 8,300 jobs in the state in 2012.[18] This unconventional gas-related employment is expected to increase to almost 13,400 jobs by 2020 and will reach over 14,100 by 2035. These jobs would employ 0.7% of the state labor force by 2035, helping to reduce unemployment and create a steady source of payroll growth.

Unconventional gas activity contributed value-added economic activity of $917 million in Connecticut in 2012. We forecast that this contribution will grow to over $1.5 billion by 2035. As for labor income, the average annual wage in Connecticut in 2012 is $73,000, while the average wage of jobs related to unconventional gas activity is $67,000.

There is also the contribution of unconventional gas employment to government revenues. In Connecticut in 2012, it generated over $246 million in taxes for state and federal coffers. This includes $126 million in state and local taxes, or the equivalent of 0.9% of the state’s current budget.

[18] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Connecticut Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	0	2,661	5,601	8,262
2020	1	4,305	9,086	13,392
2035	3	4,682	9,434	14,119

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	367	550	917
2020	0	605	839	1,444
2035	1	652	876	1,529

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	220	333	554
2020	0	361	542	903
2035	0	390	559	950

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Connecticut

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**120**	**192**	**203**	**4,252**
Personal Taxes	98	160	169	3,527
Corporate Taxes	22	33	35	725
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**126**	**184**	**171**	**3,939**
Personal Taxes	42	63	55	1,330
Corporate Taxes	84	121	116	2,610
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**246**	**376**	**375**	**8,191**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

DELAWARE

OVERVIEW

Delaware continues to struggle. The recession placed severe stress on several major financial institutions that have a large presence in the state. The financial-services sector is one of the largest in Delaware's economy, and Bank of America is the largest employer in the state's financial sector, with a payroll of about 7,000. Bank of America, which is headquartered in North Carolina, plans to cut 30,000 total jobs by 2014. Although it is not yet clear how this will affect the bank's jobs in Wilmington, the sector remains unstable. Over the next five years, professional business services, education-health services, and construction will expand at a moderate pace. Employment growth will average 1.2% annually from 2012-2017, well below the national rate of 1.7%. Delaware does have some significant competitive advantages compared with other states. These include proximity to large metro areas such as New York City, Philadelphia, Baltimore, and Washington, D.C.; an above-average share of highly skilled scientific and technical workers; a critical mass of chemical, pharmaceutical, and biomedical companies; a tradition of technical innovation; significant research and development spending by such companies as DuPont and AstraZeneca; modest but steady population growth; a low cost of living; and a favorable regulatory climate.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Delaware. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported almost 2,200 jobs in the state in 2012.[19] This unconventional gas-related employment is expected to increase to over 3,800 jobs by 2020, and will surpass 4,900 by 2035. These jobs would employ 0.9% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $244 million in Delaware in 2012. We forecast that this contribution will grow to $545 million by 2035. As for labor income, the average annual wage in Delaware in 2012 is $65,000, while the average wage of jobs related to unconventional gas activity is $67,500.

There is also the contribution of unconventional gas employment to government revenues. In Delaware in 2012, it generated $71 million in taxes for state and federal coffers. This includes $39 million in state and local taxes, or the equivalent of 1.3% of the state's 2011 tax revenues.

[19] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Delaware Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	67	651	1,476	2,195
2020	150	1,132	2,559	3,841
2035	333	1,419	3,155	4,907

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	11	86	147	244
2020	26	148	241	415
2035	64	187	294	545

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	7	55	86	148
2020	16	98	151	265
2035	40	123	184	347

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Delaware

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**32**	**56**	**73**	**1,312**
Personal Taxes	26	47	62	1,098
Corporate Taxes	6	9	12	214
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**39**	**61**	**71**	**1,386**
Personal Taxes	9	15	17	342
Corporate Taxes	30	46	54	1,043
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**71**	**117**	**144**	**2,698**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

FLORIDA

OVERVIEW

The clouds that gathered over the Sunshine State's labor market in 2012 have started to clear. The backbone of Florida's economy – private-sector services – has been performing well. Education and health, professional-business and leisure-hospitality services have been the juggernauts so far in the recovery, accounting for virtually all of the 63,500 net new jobs created over the past year. The state's large elderly demographic provides the health-services sector with ample opportunity to expand, and it has done so consistently. The business-services sector is increasing payrolls as the scientific and technical and the cyclical administrative and support components both show strength. More notable, though, is the turnaround in leisure and hospitality payrolls. Tourist activity has improved markedly. Family vacationers are flocking to Orlando, the country's theme park capital, and the weak dollar is attracting more international travelers. Nevertheless, there is a long way to go before Florida fully recovers from the severe recession.

Job growth will further strengthen in 2013, led by strong service sector expansion. In the near term, the lingering correction in the local real estate market will continue to run its course; in the coming years, however, home prices will gain upward momentum and foreclosures will wane, allowing Florida once again to capitalize on its strengths, notably its climate, which along with drastically improved affordability, lure thousands of retirees, vacationers, and new workers each year. Florida is in store for a strong rebound, averaging 2.3% annual growth from 2012-2017, compared to the nation's 1.7%. The primary growth drivers will be professional and business services, trade, and health services, as the state continues to be a popular destination for retirees. But with more than 900,000 job losses during the recession, payrolls will not reaching their 2007 peak until 2016.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Florida. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional energy production directly and indirectly supported over 36,500 jobs in the state in 2012.[20] This unconventional energy-related employment is expected to increase to just over 65,000 jobs by 2020, and will reach 79,500 by 2035. These jobs would employ 0.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional energy activity contributed value-added economic activity of nearly $3.7 billion in Florida in 2012. We forecast that this contribution will grow to over $7.8 billion by 2035. As for labor income, the average annual labor income in Florida in 2012 is $50,400, while average labor income of jobs related to unconventional energy activity is $58,100.

There is also the contribution of unconventional energy employment to government revenues. In Florida in 2012, it generated over $650 million in taxes for state and federal coffers. This includes over $180 million in state and local taxes, or the equivalent of 0.6% of the state's $32 billion in revenues collected in 2011.

[20] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Florida Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	208	10,603	25,721	36,532
2020	291	19,154	45,619	65,063
2035	233	23,635	55,630	79,499

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	15	1,206	2,449	3,669
2020	27	2,224	4,095	6,346
2035	24	2,783	5,007	7,814

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	15	766	1,343	2,124
2020	24	1,402	2,404	3,830
2035	22	1,723	2,933	4,677

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Florida

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**470**	**829**	**1,019**	**19,140**
Personal Taxes	377	677	830	15,614
Corporate Taxes	93	152	189	3,527
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**181**	**284**	**319**	**6,396**
Personal Taxes	0	0	0	0
Corporate Taxes	181	284	319	6,396
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**651**	**1,112**	**1,337**	**25,536**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

GEORGIA

OVERVIEW

Georgia's largest industries are adding to payrolls at a fairly reliable rate. Among the state's four largest sectors -- transportation and trade, government, education and health services, and professional and business services – only government hiring remains depressed. Georgia's manufacturing sector, which had been a major drag on growth for more than a decade, returned to generating solid job gains in 2011, thanks in large part to the influx of auto manufacturers such as Kia and its suppliers. Risks remain, however: several of the state's industries in addition to government employment continue to shed jobs. The construction industry, which drove a lot of the state's growth before the recession, is still recovering -- or attempting to recover. As Georgia's lagging sectors finally recover over the next two years, the state's underlying advantages will return it to robust growth. Housing was a big driver of economic gains here over the last two decades, as the state attracted significant in-migration thanks to its climate, low cost of living, and favorable business costs. The Atlanta area has no significant natural boundaries, which has allowed the metro area to sprawl, keeping land prices low. We forecast that the construction sector will rebound very strongly in 2014, reaping the benefits of pent-up demand. Meanwhile, the rest of the state economy will be growing steadily, including the manufacturing sector, which will expand payrolls at an average rate of 1.4% from 2012-2017. Although this is not a huge gain, it is a welcome change from a loss of 4.2% annually from 2000 to 2010. Professional and business services will also be a growth leader. During 2012-2017, Georgia will average 2.1% annual job growth, compared with 1.7% in the United States, and the Peach State is forecast to enjoy its longest stretch of positive annual job gains since the 1990s.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Georgia. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production indirectly supported just over 18,500 jobs in the state in 2012.[21] This unconventional gas-related employment is expected to increase to over 32,000 jobs by 2020 and to approximately 39,000 by 2035. These jobs would employ 0.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $2 billion in New Jersey in 2012. We forecast that this contribution will grow to just over $4.2 billion by 2035. As for labor income, the average annual wage in Georgia in 2012 is $56,000, while the average wage of jobs related to unconventional gas activity is $63,000.

There is also the contribution of unconventional gas employment to government revenues. In Georgia in 2012, it generated $520 million in taxes for state and federal coffers. This includes $260 million in state and local taxes, or the equivalent of 1.6% of the state's budget.

[2121] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Georgia Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	0	6,017	12,487	18,505
2020	0	10,604	21,855	32,458
2035	0	12,706	26,065	38,771

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	796	1,241	2,037
2020	0	1,445	2,049	3,494
2035	0	1,756	2,447	4,202

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	465	696	1,161
2020	0	825	1,229	2,054
2035	0	996	1,481	2,477

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Georgia

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**259**	**450**	**543**	**10,344**
Personal Taxes	206	363	439	8,356
Corporate Taxes	53	87	104	1,987
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**262**	**418**	**442**	**9,233**
Personal Taxes	68	111	111	2,425
Corporate Taxes	194	306	331	6,808
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**520**	**867**	**985**	**19,577**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

IOWA

OVERVIEW

Iowa is quite familiar with volatility in its farm sector, but the severe drought of 2012 created even more uncertainty than usual. Despite corn and soybean harvests that were 19% and 16% smaller, respectively, than last year's crops, farm revenues are being supported by record-high crop prices and indemnities contained in federally subsidized crop insurance. In addition, the farm-machinery industry, a major employer in Iowa and surrounding states, continues to provide evidence that farm incomes and balance sheets are in good shape. As long as this drought does not linger, the state economy should remain in decent shape. Over the next five years, growth in total nonfarm payroll employment in Iowa will average 1.3% per year, below the national average of 1.7%. As with many Midwestern states, Iowa's job growth in the near future may appear to be weak, but that's because it avoided the deep housing-related losses in the midst of the recession. Iowa is expected to return to its pre-recession peak level of employment in mid-2014, right around the same time as the nation as a whole, while the unemployment rate remains nearly 3 percentage points below the national average.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Iowa. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. For instance, fabricated pipe manufacturers in Iowa provide a significant amount of material to the producing states. The economic activity associated with unconventional gas production directly and indirectly supported almost 9,000 jobs in the state in 2012.[22] This unconventional gas-related employment is expected to increase to over 14,600 jobs by 2020, and will double 2012 levels by 2035, when the industry's employment reaches 18,000. These jobs would employ 0.9% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $850 million in Iowa in 2012. We forecast that this contribution will grow to nearly $1.8 billion by 2035. As for labor income, the average annual wage in Iowa in 2012 is $49,400, while the average wage of jobs related to unconventional gas activity is $58,400.

There is also the contribution of unconventional gas employment to government revenues. In Iowa in 2012, it generated over $160 million in taxes for state and federal coffers. This includes $50 million in state and local taxes, or the equivalent of 0.7% of the state's 2011 tax revenues.

[22] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Iowa Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	536	2,704	5,510	8,751
2020	803	4,571	9,257	14,631
2035	1,239	5,841	11,239	18,320

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	57	300	496	853
2020	101	519	792	1,412
2035	173	666	959	1,798

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	43	190	279	511
2020	69	326	470	865
2035	121	420	570	1,112

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Iowa

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**111**	**186**	**239**	**4,382**
Personal Taxes	91	153	197	3,611
Corporate Taxes	21	33	41	771
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**50**	**78**	**86**	**1,759**
Personal Taxes	22	34	37	769
Corporate Taxes	28	44	49	990
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**161**	**264**	**325**	**6,141**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

IDAHO

OVERVIEW

Idaho is experiencing a moderately paced recovery. Some hurdles remain, but Idaho is expected to take advantage of its high-tech sector in Treasure Valley and to capitalize on a bounce in the housing market. The state will see positive job growth for the next several years. Jobs are expected to grow in Idaho at about the same pace as the nation as a whole. Unfortunately, that's not enough to overcome the huge employment gap caused during the Great Recession. Idaho does not expect to reach pre-recession employment levels until 2015, a year after the nation.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Idaho. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production indirectly supported over 3,050 jobs in the state in 2012.[23] This unconventional gas-related employment is expected to increase to over 5,300 jobs by 2020, and will increase to over 6,300 by 2035. These jobs would employ 0.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of nearly $300 million in Idaho in 2012. This contribution is forecast to more than double to over $630 million by 2035. As for labor income, the average annual wage in Idaho in 2012 is $43,000, while the average wage of jobs related to unconventional gas activity is $58,000.

There is also the contribution of unconventional gas employment to government revenues. In Idaho in 2012, it generated more than $90 million in taxes for state and federal coffers. This includes over $50 million in state and local taxes, or the equivalent of 1.6% of the state's $7.2 billion dollar budget.

[23] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Idaho Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	4	951	2,097	3,052
2020	3	1,662	3,678	5,344
2035	9	1,970	4,349	6,327

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	110	184	296
2020	1	203	307	511
2035	3	257	372	632

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	71	106	178
2020	0	127	189	316
2035	1	154	227	382

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Idaho

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**39**	**68**	**83**	**1,566**
Personal Taxes	32	56	68	1,289
Corporate Taxes	7	12	15	277
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**52**	**83**	**94**	**1,889**
Personal Taxes	8	14	14	299
Corporate Taxes	44	70	81	1,589
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**91**	**151**	**177**	**3,455**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

ILLINOIS

OVERVIEW

IHS Global Insight's forecast over the next year for Illinois anticipates growth that is slightly below the national pace across employment, personal income, and real gross product. Illinois' economy is not as heavily leveraged in manufacturing and, therefore, will not receive as big a boost from that burgeoning sector as other neighboring states such as Indiana, Michigan, and Ohio. Despite slower than average employment growth, IHS Global Insight does expect the unemployment rate to fall below 8.3% by the end of 2013, as the state relies heavily on professional-business and health-education services for economic gains. Looking further down the road, Illinois – like much of the country – has a long path to recovery. The state is plagued by stubbornly high unemployment and lukewarm employment growth. Job growth through 2017 will average 1.4% per year, ranking Illinois 35th in the nation.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Illinois. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported more than 38,600 jobs in the state in 2012.[24] This unconventional gas-related employment is expected to increase to just over 66,600 jobs by 2020, and will more than double relative to 2012 to almost 83,000 by 2035. These jobs would employ 1.1% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $4.2 billion in Illinois in 2012. We forecast that this contribution will grow to over $9.4 billion by 2035. As for labor income, the average annual wage in Illinois in 2012 is $65,000, while the average wage of jobs related to unconventional oil and gas activity is $68,000.

There is also the contribution of unconventional gas employment to government revenues. In Illinois in 2012, it generated over $1 billion in taxes for state and federal coffers. This includes $450 million in state and local taxes, or the equivalent of 1.5% of the state budget.

[24] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Illinois Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	3,421	12,563	22,668	38,652
2020	6,023	21,779	38,802	66,604
2035	9,180	26,581	47,056	82,817

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	480	1,538	2,211	4,228
2020	999	2,692	3,624	7,315
2035	1,717	3,325	4,391	9,434

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	355	991	1,276	2,623
2020	705	1,734	2,193	4,632
2035	1,233	2,142	2,643	6,018

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Illinois

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**562**	**981**	**1,273**	**22,940**
Personal Taxes	465	819	1,067	19,176
Corporate Taxes	97	162	206	3,763
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**450**	**729**	**826**	**16,392**
Personal Taxes	100	165	179	3,667
Corporate Taxes	351	564	647	12,726
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**1,012**	**1,710**	**2,099**	**39,332**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

INDIANA

OVERVIEW

Indiana is making its way to recovery, but there is still much work to be done. More than 227,000 jobs were lost here from the peak to the trough of the recession, and these jobs are not expected to be recouped until late in 2014. The healing economy has, however, been boosted by the manufacturing and professional business services sectors, with each adding significant numbers of jobs recently. Our forecast indicates that manufacturing will provide employment growth in a variety of subsectors over the next two years, with wood products and transportation equipment leading the way. Nonmanufacturing sectors will also be a source of growth, with professional and business services spearheading this surge. By the end of 2013, IHS Global Insight forecasts the unemployment rate to fall below 7.5%.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Indiana. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported about 16,000 jobs in the state in 2012.[25] This unconventional gas-related employment is expected to increase to just over 27,000 jobs by 2020, and will more than double current levels by 2035, reaching over 33,300. These jobs would employ 1% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of just over $1.7 billion in Indiana in 2012. We forecast that this contribution will grow to over $3.4 billion by 2035. As for labor income, the average annual wage in Indiana in 2012 is $54,000, while the average wage of jobs related to unconventional gas and oil activity is $63,000.

There is also the contribution of unconventional gas employment to government revenues. In Indiana in 2012, it generated nearly $380 million in taxes for state and federal coffers. This includes nearly $160 million in state and local taxes, or the equivalent of 1.1% of the state budget.

[25] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Indiana Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	141	6,114	9,718	15,973
2020	369	10,279	16,655	27,303
2035	915	12,836	19,615	33,366

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	17	732	918	1,667
2020	50	1,247	1,470	2,768
2035	139	1,547	1,727	3,414

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	11	468	531	1,010
2020	31	791	912	1,734
2035	87	980	1,073	2,140

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Indiana

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**219**	**369**	**456**	**8,576**
Personal Taxes	179	306	380	7,127
Corporate Taxes	40	62	77	1,449
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**159**	**244**	**265**	**5,471**
Personal Taxes	46	74	76	1,627
Corporate Taxes	113	170	189	3,844
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**377**	**613**	**721**	**14,046**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

KENTUCKY

OVERVIEW

Employment growth in Kentucky was strong in 2012. Tourist activity in the Bluegrass State is picking up, resulting in hiring by the leisure and hospitality sector. The business-services sector is also expanding rapidly, particularly the administrative and support component and the professional and technical services component. Outside of services, the manufacturing sector is churning along, aided by gains in the transportation equipment, machinery, and other durable goods manufacturing. The transportation and warehousing sector has also been a major job creator, thanks in part to the heightened manufacturing activity, and the increase in orders at its distribution centers. The recovery in the labor market has been encouraging, and we expect it to continue at a moderate pace. Business services, leisure and hospitality, and manufacturing are leading the way and setting the foundation for a solid, multi-year recovery. During 2012-2017, as economic recovery in the United States becomes more robust, Kentucky will also see better times. Unemployment rates should continue to decline slowly over the medium term. Over the next five years, the state has good, though not great, prospects for growth. Employment will expand by 1.7% annually from 2012-2017, which is on a par with the national average.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Kentucky. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional energy production directly and indirectly supported almost 10,000 jobs in the state in 2012.[26] This unconventional energy-related employment is expected to increase to more than 16,500 jobs by 2020, and more than 20,000 by 2035. These jobs would employ 0.9% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional energy activity contributed value-added economic activity of $1 billion in Kentucky in 2012. We forecast that this contribution will grow to over $2.1 billion by 2035. As for labor income, the average annual wage in Kentucky in 2012 is $53,000, while the average wage of jobs related to unconventional energy activity is $62,000.

There is also the contribution of unconventional energy employment to government revenues. In Kentucky in 2012, it generated more than $280 million in taxes for state and federal coffers. This includes over $150 million in state and local taxes, or the equivalent of 1.5% of the state's $10.2 billion of revenue collections in 2011.

[26] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Kentucky Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	81	3,455	6,078	9,614
2020	229	5,868	10,498	16,595
2035	506	7,361	12,376	20,243

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	10	433	585	1,028
2020	27	735	955	1,717
2035	65	916	1,130	2,111

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	6	266	325	598
2020	16	453	567	1,035
2035	39	564	672	1,275

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Kentucky

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**132**	**224**	**276**	**5,203**
Personal Taxes	106	183	226	4,249
Corporate Taxes	26	41	50	954
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**151**	**233**	**253**	**5,222**
Personal Taxes	31	50	51	1,089
Corporate Taxes	120	183	203	4,133
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**283**	**457**	**530**	**10,425**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

MAINE

OVERVIEW

It is our assessment that Maine's recession ended in early 2010. Yet the state's job growth here has been very slow and, not until the second half of 2016, will all of the jobs lost in the recession be regained. When that occurs, the unemployment rate will still exceed 5% by a significant margin. Over the longer term, Maine's economy will be one of the slowest-growing states, ranking 49th in employment growth over the next decade. This will be due in large part to demographics – namely, weak population and labor-force growth -- constraining the state's growth potential. Our overall assessment is that the state is in the midst of a fragile recovery. The housing market is improving, which is a very good sign -- housing starts and home prices are rising. But Maine's share of total loans in foreclosure remains among the highest in the nation.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Maine. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas supported slightly fewer than 2,800 jobs in the state in 2012.[27] This unconventional gas-related employment is expected to increase to over 4,500 jobs by 2020, and expand further to over 5,000 by 2035. These jobs will employ an estimated 0.7% of the state labor force by 2035.

Unconventional gas related activity contributed value-added economic activity of just over $260 million in Maine in 2012. We forecast that this contribution will rise to over $460 million by 2035. As for labor income, the average annual wage in Maine in 2012 is $46,700, while the average wage of jobs supported by unconventional gas activity is $57,200. We expect this wage gap to persist into the future.

There is also the contribution of unconventional gas related activity to government revenues. In Maine in 2012, it generated nearly $70 million in taxes for state and federal coffers. This includes over $30 million in state and local taxes, or the equivalent of 0.9% of state revenue.

[27] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Maine Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	0	766	2,003	2,769
2020	0	1,264	3,307	4,571
2035	0	1,409	3,598	5,007

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	84	176	261
2020	0	143	274	417
2035	0	162	300	462

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	56	102	158
2020	0	94	171	265
2035	0	107	190	297

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Maine

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**34**	**56**	**63**	**1,262**
Personal Taxes	28	47	53	1,057
Corporate Taxes	6	9	10	206
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**34**	**50**	**48**	**1,074**
Personal Taxes	9	15	14	313
Corporate Taxes	24	35	34	762
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**68**	**105**	**110**	**2,337**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

MARYLAND

OVERVIEW

The recession is over, and Maryland's economy is in the recovery phase. Employment growth in most sectors began to accelerate in 2012. Over the next five years, strong payroll expansion in the professional sectors will improve the state's overall economic environment, and nonfarm payroll growth will average 1.5% per year. The unemployment rate peaked in January 2010 at 7.7%, but dropped below 7% in the final months of 2011 and will continue to decline, dipping below 6% by 2015. Given its proximity to the Washington DC metropolitan area, the federal government is a major player in Maryland's economy. Many local private-sector employers are dependent on federal contracts, and the ongoing deterioration in the federal government's fiscal balance may have a disproportionately negative effect on Maryland; we expect the federal government to steadily reduce payrolls in the near term. The state's biotechnology cluster, which largely focuses on research to combat bioterrorism, and its high concentration of defense industries make Maryland vulnerable to shifting fiscal priorities.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Maryland. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The current drilling moratorium is most likely not going to have a material effect on the state's economy. While a minor portion of the Marcellus Shale does extend across the western most extension of the state, the play consists here of low potential dry gas and it situated in a geologically risky portion of the play. Even if the moratorium were lifted, drilling activity here is likely to be minimal. The economic activity associated with unconventional gas production indirectly supported almost 11,800 jobs in the state in 2012.[28] This unconventional gas-related employment is expected to increase to 20,700 jobs by 2020, and will nearly double 2012 levels by 2013, surpassing 22,200. These jobs would employ 0.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $1.2 billion in Maryland in 2012. We forecast that this contribution will grow to over $2.2 billion by 2035. As for labor income, the average annual wage in Maryland in 2012 is $66,000, while the average wage of indirect and induced jobs in unconventional gas activity is slightly lower at $63,200.

There is also the contribution of unconventional gas employment to government revenues. In Maryland in 2012, it generated more than $400 million in taxes for state and federal coffers. This includes $240 million in state and local taxes, or the equivalent of 1.5% of the state's 2011 tax revenues.

[28] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Maryland Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	2	3,750	7,997	11,749
2020	3	6,479	13,578	20,059
2035	6	6,929	15,306	22,241

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	473	755	1,228
2020	1	834	1,207	2,042
2035	3	911	1,355	2,269

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	300	442	743
2020	0	525	753	1,279
2035	1	559	833	1,393

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Maryland

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**161**	**272**	**300**	**6,045**
Personal Taxes	132	226	247	5,005
Corporate Taxes	29	46	53	1,040
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**240**	**369**	**367**	**8,000**
Personal Taxes	69	110	99	2,318
Corporate Taxes	171	259	267	5,682
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**401**	**641**	**667**	**14,044**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

MASSACHUSETTS

OVERVIEW

The sectors that have performed best in 2012 are healthcare, administrative support services, professional, scientific, and technical services. Robust growth in the latter is indicative of strength in the Bay State's invaluable high-tech and knowledge economy. Meanwhile, the state's housing market has also been improving, albeit gradually. Housing starts are increasing in both the single-family and multifamily segments of the market. Home prices also appear to be stabilizing. We forecast that private-sector payrolls will expand 1.4% between the third quarter of 2012 and the third quarter of 2013, ranking Massachusetts 44th among states. The unemployment rate will descend gradually, finally landing below the 6% threshold during the second half of 2013. Not until early 2014 will all of the jobs lost in the recession be regained, at which time the unemployment rate will still exceed 5.5%. In the longer term, the Massachusetts economy will continue to be one of the slowest-growing in the nation, due in large part to unfavorable demographics – weak population and labor-force growth -- though a strong high-tech economy will be a bright spot.

CONTRIBUTION OF UNCONVENTIONAL OIL &AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Massachusetts. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported close to 16,000 jobs in the state in 2012. This unconventional gas-related employment is expected to increase to over 26,400 jobs by 2020, and expand further, to over 28,000 by 2035. These jobs would employ an estimated 0.7% of the state labor force by 2035.

Unconventional gas related activity contributed value-added economic activity of $1.7 billion in Massachusetts in 2012.[29] We forecast that this contribution will nearly double to over $3 billion by 2035. As for labor income, the average annual wage in Massachusetts in 2012 is $76,500, while the average wage of jobs related to unconventional gas activity is $67,200. Although wages in the unconventional gas-related industries will be below the state average, they will nevertheless pay more than many other industries in the state. The Bay State's overall average wage is elevated by its concentration of exceptionally high-paying information, high-tech, and financial-services jobs.

There is also the contribution of unconventional gas related activity to government revenues. In Massachusetts in 2012, it generated over $400 million in taxes for state and federal coffers. This includes nearly $190 million in state and local taxes, or the equivalent of 0.9% of state revenue.

[29] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Massachusetts Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	24	5,048	10,824	15,896
2020	94	8,437	17,915	26,446
2035	244	8,798	19,048	28,090

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	3	671	1,050	1,723
2020	12	1,172	1,634	2,818
2035	34	1,296	1,745	3,075

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	3	430	636	1,068
2020	11	726	1,058	1,794
2035	32	769	1,129	1,930

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Massachusetts

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**229**	**379**	**411**	**8,414**
Personal Taxes	189	317	342	7,030
Corporate Taxes	40	62	69	1,385
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**188**	**287**	**274**	**6,159**
Personal Taxes	85	132	118	2,783
Corporate Taxes	103	155	156	3,376
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**417**	**666**	**685**	**14,574**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

MICHIGAN

OVERVIEW

Michigan still has a long road ahead to recovery but it has made positive strides over the past two years, reaping the benefits of a rebounding manufacturing sector. Short inventories and increased demand for goods have caused firms to call back furloughed workers and expand their payrolls. Manufacturing has not been the only sector to contribute to job growth recently; the professional and business services sector has also aided in Michigan's journey to recovery. However, some aspects of the economy have deteriorated. Low tax revenues have led to budget issues and public-sector layoffs. Also, the fragile regional economy has had obvious effects on local consumer spending, and retail trade employment has suffered. Michigan's recovery will continue to be driven by employment growth in manufacturing and professional and business services. In 2013, Michigan will add jobs at a rate similar to the national average, while lagging in real income and real gross state product (GSP) growth. Michigan's economy will experience a similar pattern during the next five years as state employment, real incomes and real GSP will grow slower than the national average. The muted long-term outlook for the manufacturing sector, combined with Michigan's heavy reliance on the automotive industry, will pose an obstacle for the state economy in the future.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Michigan. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. For example, Michigan manufacturers supply a significant amount of machine tool accessories to the oil and gas industry in producing states. The economic activity associated with unconventional gas production directly and indirectly supported almost 38,000 jobs in the state in 2012.[30] This unconventional gas-related employment is expected to increase to over 64,000 jobs by 2020, and will double current levels by 2035, reaching over 78,500. These jobs would employ 1.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $3.6 billion in Michigan in 2012. We forecast that this contribution will grow to $8.3 billion by 2035. As for labor income, the average annual wage in Michigan in 2012 is $56,000, while the average wage of jobs related to unconventional gas and oil activity is much higher, at $84,000.

There is also the contribution of unconventional gas employment to government revenues. In Michigan in 2012, it generated almost $920 million in taxes for state and federal coffers. This includes over $420 million in state and local taxes, or the equivalent of 1.8% of state revenue.

[30] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Michigan Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	8,017	10,551	19,280	37,848
2020	13,359	18,601	32,590	64,551
2035	15,418	24,114	39,101	78,632

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	718	1,230	1,710	3,658
2020	1,502	2,231	2,837	6,570
2035	1,970	2,968	3,425	8,363

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	600	778	988	2,365
2020	1,155	1,390	1,676	4,220
2035	1,547	1,832	2,014	5,393

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Michigan

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**497**	**888**	**1,135**	**20,880**
Personal Taxes	419	746	956	17,568
Corporate Taxes	78	142	179	3,312
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**421**	**724**	**813**	**16,365**
Personal Taxes	104	173	182	3,840
Corporate Taxes	317	552	631	12,525
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**919**	**1,612**	**1,948**	**37,244**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

MINNESOTA

OVERVIEW

Minnesota's economy is doing well. Post-recession, Minnesota has significantly outperformed the nation in construction job growth. While the national construction sector continues to be volatile, Minnesota construction jobs are already more than 7% above their lowest level, set in the third quarter of 2010. The state still has a long way to go before recovering all of the construction employment lost during the recession, but this is certainly a strong start. Strong increases in construction spending, particularly in the residential sector, are fueling demand for workers. Indeed, Minnesota ranked first among all states in year-over-year increases in housing starts in late 2012. Payroll growth in Minnesota will average 1.6% per year through 2017, putting the state almost on a par with the 1.7% national average during that time period. Manufacturing employment will expand strongly – the state has highly-educated workforce that will prove beneficial as manufacturers struggle to find well-trained employees for high-tech manufacturing. This will be a draw to manufacturing firms looking to build new facilities in the United States.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Minnesota. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. For example, unconventional oil and gas extraction using hydraulic fracturing requires special sand, some of which comes from Minnesota. The economic activity associated with unconventional gas production directly and indirectly supported over 19,000 jobs in the state in 2012.[31] This unconventional gas-related employment is expected to increase to nearly 35,000 jobs by 2020 and will reach well over 42,000 by 2035. These jobs would employ 1.2% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of nearly $2 billion in Minnesota in 2012. We forecast that this contribution will grow to over $4.7 billion by 2035. As for labor income, the average annual wage in Minnesota in 2012 is $59,000, while the average wage of jobs related to unconventional gas and oil activity is $64,000.

There is also the contribution of unconventional oil and gas employment to government revenues. In Minnesota in 2012, it generated over $525 million in taxes for state and federal coffers. This includes over $260 million in state and local taxes, or the equivalent of 1.4% of the state's $19 billion dollar budget.

[31] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Minnesota Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	2,327	5,518	11,258	19,103
2020	4,794	9,866	20,155	34,815
2035	6,269	12,004	24,417	42,691

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	253	706	1,037	1,996
2020	699	1,259	1,784	3,743
2035	1,002	1,535	2,180	4,717

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	193	430	597	1,220
2020	472	769	1,066	2,307
2035	717	939	1,289	2,946

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Minnesota

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**263**	**494**	**629**	**11,562**
Personal Taxes	216	408	523	9,556
Corporate Taxes	47	87	107	2,006
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**263**	**462**	**503**	**10,307**
Personal Taxes	91	157	164	3,457
Corporate Taxes	173	305	340	6,851
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**526**	**956**	**1,133**	**21,870**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

MISSOURI

OVERVIEW

The employment situation in Missouri has been volatile over the past two years, as payrolls have shifted from periods of growth to periods of decline. The professional and business services sectors have added jobs consistently, but manufacturing and state and local government payrolls have contracted recently. In the medium term, manufacturing will continue to grow as a result of lowered inventories and payrolls during the recession. As the economy heals, demand will grow and firms will be forced to call back workers. Professional and business services will be a keystone of the service economy moving forward, and the wide scope of this sector will incorporate job growth from temporary workers to highly skilled scientific workers. The necessity of education and health services creates a fairly inelastic demand for the sector and points to continued job growth. That said, Missouri's road to recovery will be marked by below-average job gains, due in part to weak population growth. Employment, personal income, and real gross state product will lag the national economy through 2017.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Missouri. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. For example, Missouri manufacturers supply a significant amount of machine tool accessories to the oil and gas industry in producing states. And sand mining operations in the state also export necessary materials to the industry. The economic activity associated with unconventional gas production directly and indirectly supported almost 38,000 jobs in the state in 2012.[32] This unconventional gas-related employment is expected to increase to over 64,000 jobs by 2020 and to nearly 71,000 by 2035. These jobs would employ 1.9% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $3.3 billion in Missouri in 2012. We forecast that this contribution will grow to almost $6.9 million by 2035. As for labor income, the average annual wage in Missouri in 2012 is $54,000, while the average wage of jobs supported by unconventional gas and oil activity is $59,000.

There is also the contribution of unconventional gas employment to government revenues. In Missouri in 2012, it generated over $780 million in taxes for state and federal coffers. This includes almost $290 million in state and local taxes, or the equivalent of 2.8% of state tax revenue.

[32] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Missouri Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	12,404	8,574	16,739	37,716
2020	20,661	14,874	28,693	64,228
2035	21,057	17,240	32,498	70,794

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	997	941	1,384	3,322
2020	2,023	1,649	2,363	6,035
2035	2,302	1,918	2,666	6,886

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	824	607	788	2,219
2020	1,577	1,060	1,350	3,988
2035	1,836	1,228	1,523	4,588

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Missouri

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**495**	**846**	**980**	**19,326**
Personal Taxes	423	724	839	16,550
Corporate Taxes	71	122	141	2,775
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**287**	**475**	**490**	**10,491**
Personal Taxes	103	168	164	3,665
Corporate Taxes	185	307	327	6,825
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**782**	**1,321**	**1,470**	**29,817**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

NEBRASKA

OVERVIEW

The labor market is almost back to prerecession levels, having regained 99% of the jobs lost since the beginning of 2008. Nebraska's unemployment rate of 3.9% was also the second-lowest state unemployment rate in the nation. Due to this low rate of joblessness, the state's labor force has grown rapidly compared with other states, as favorable prospects here attract outside job seekers. Payroll growth, at a 1.6% average annual rate over the next five years, will generally keep pace with that of the United States, at 1.7%. Every sector of the state economy will create jobs during that period. Manufacturing will expand, fueled mainly by growth in the durables sector. As business costs remain low, the Cornhusker State will continue to be an attractive place for firms to locate production facilities. Services will be the biggest source of new jobs, led by professional and business services and education and health services.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Nebraska. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. For instance, steel product manufacturers in Nebraska provide a significant amount of material to the producing states. The economic activity associated with unconventional gas production directly and indirectly supported over 6,200 jobs in the state in 2012.[33] This unconventional oil and gas-related employment is expected to increase to almost 10,500 jobs by 2020 and over 11,200 by 2035. These jobs would employ 0.9% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of nearly $620 million in Nebraska in 2012. We forecast that this contribution will grow to almost $1.2 billion by 2035. As for labor income, the average annual wage in Nebraska in 2012 is $51,900, while the average wage of jobs related to unconventional gas and oil activity is $58,400.

There is also the contribution of unconventional gas employment to government revenues. In Nebraska in 2012, it generated nearly $120 million in taxes for state and federal coffers. This includes nearly $40 million in state and local taxes, or the equivalent of 0.9% of the state's $4.2 billion budget.

[33] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Nebraska Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	581	2,030	3,650	6,261
2020	825	3,404	6,254	10,483
2035	574	3,730	6,983	11,287

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	42	242	335	619
2020	80	430	547	1,056
2035	60	498	617	1,175

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	28	146	192	366
2020	46	256	334	637
2035	36	301	384	721

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Nebraska

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**80**	**138**	**155**	**3,116**
Personal Taxes	65	113	128	2,551
Corporate Taxes	15	25	27	564
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**38**	**61**	**58**	**1,307**
Personal Taxes	16	26	24	554
Corporate Taxes	22	35	34	753
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**118**	**198**	**213**	**4,423**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

NEVADA

OVERVIEW

Job levels in Nevada have at last reached the bottom and are edging up slowly. However, the unemployment rate remains stubbornly high, at around 12%, the highest in the country. The housing sector continues to impede a recovery, with foreclosure rates also the highest in the nation, and a substantial supply of homes for sale that are depressing prices. Nevada, one of the fastest-growing states in the country for most of the last two decades, was hit hardest of all by the housing bust and Great Recession. Employment began to rise again in 2011 and 2012, as gaming activity picked up, but the state will see a much stronger 2013 employment growth of 1.5%, 18th among states. The state's medium-term outlook is brighter, but Nevada will not regain its 2007 employment levels until the end of this decade. The unemployment rate will not fall below double-digit levels until late in 2015, with rates above 9% persisting until nearly the end of the decade.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Nevada. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported nearly 6,300 jobs in the state in 2012.[34] This unconventional gas-related employment is expected to increase to over 11,000 jobs by 2020 and to almost 14,000 by 2035. These jobs would employ 0.7% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $670 million in Nevada in 2012. We forecast that this contribution will grow to over $1.4 billion by 2035. As for labor income, the average annual wage in Nevada in 2012 is $54,000, while the average wage of jobs supported by unconventional gas activity is $56,000.

There is also the contribution of unconventional gas employment to government revenues. In Nevada in 2012, it generated almost $140 million in taxes for state and federal coffers. This includes almost $60 million in state and local taxes, or the equivalent of 0.9% of the state's $6 billion dollar budget.

[34] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Nevada Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	29	2,248	4,019	6,295
2020	39	3,896	7,335	11,270
2035	46	4,750	9,071	13,867

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	5	305	364	674
2020	9	535	626	1,170
2035	12	657	773	1,442

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2	158	191	351
2020	4	275	348	627
2035	5	336	430	771

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Nevada

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**82**	**144**	**177**	**3,300**
Personal Taxes	62	111	137	2,546
Corporate Taxes	19	33	40	754
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**57**	**93**	**103**	**2,075**
Personal Taxes	0	0	0	0
Corporate Taxes	57	93	103	2,075
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**139**	**237**	**281**	**5,375**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

NEW HAMSPHIRE

OVERVIEW

New Hampshire is in the midst of a gradual recovery. Payrolls bottomed out in January 2010, and New Hampshire to date has recovered only 4,700 of the 31,400 jobs lost during the recession. The housing market is improving, though: single-family housing starts have been trending upward over the past year, aided by a pickup in household formation. Also, home prices have finally appeared to have stabilized. We forecast that private-sector payrolls will expand 1.4% between the third quarter of 2012 and the third quarter of 2013, ranking 40th among states. Meanwhile, the unemployment rate will decline gradually, closing out 2013 with a reading still above 5%. Not until the second half of 2015 will all of the jobs lost in the recession be regained. Over the longer term, New Hampshire will have one of the slower-growing state economies in the nation, ranking 37th in employment growth over the next decade. This will be due in large part to demographics -- weak population and labor-force growth – that constrain the state's growth potential. But New Hampshire it is still projected to be the fastest-growing New England state.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of New Hamsphire. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas supported nearly 3,100 jobs in the state in 2012.[35] This unconventional gas-related employment is expected to increase to nearly 5,200 jobs by 2020 and will expand to nearly 5,700 by 2035. These jobs will employ an estimated 0.7% of the state labor force by 2035.

Unconventional gas related activity contributed value-added economic activity of just over $300 million in New Hampshire in 2012. We forecast that this contribution will rise to over $550 million by 2035. As for labor income, the average annual wage in New Hampshire in 2012 is $53,000, while the average wage of jobs supported by unconventional gas activity is $61,100. We expect a similar gap to persist into the future.

There is also the contribution of unconventional gas related activity to government revenues. In New Hampshire in 2012, it generated $56 million in taxes for state and federal coffers. This includes approximately $16 million in state and local taxes, or the equivalent of 0.7% of state tax revenue.

[35] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

New Hampshire Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	7	1,019	2,044	3,070
2020	13	1,691	3,434	5,138
2035	37	1,833	3,823	5,693

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	116	185	302
2020	1	199	294	494
2035	4	222	329	554

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	78	109	187
2020	1	130	184	315
2035	4	142	205	351

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: New Hampshire

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**40**	**67**	**75**	**1,493**
Personal Taxes	33	56	62	1,249
Corporate Taxes	7	11	12	243
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**16**	**25**	**25**	**540**
Personal Taxes	1	1	1	22
Corporate Taxes	16	24	24	518
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**56**	**91**	**100**	**2,032**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

NEW JERSEY

OVERVIEW

New Jersey's growth stalled in 2012, and the unemployment rate surged above the US average, back to nearly 10%. Its unemployment rate is exceeded only by Nevada, California, and Rhode Island. The state's housing market has also been slow to recover from the recession, with mortgage delinquency rates exceeded only by those in Florida, and a large pipeline of home foreclosure activity to come. Home vacancy rates have increased to 2.8% of all single-family homes. Job losses ended in 2011, and growth has resumed, albeit slowly. We forecast that payrolls in New Jersey will continue to expand at a modest rate in 2013, and will average 1.4% over the next five years, 33nd among states in a muted US recovery. Not until the second half of 2015 will all of the jobs lost in the recession be regained. The unemployment rate has peaked, but will remain above 8% into 2015. Restructuring in the pharmaceutical and financial sectors, and a huge fiscal deficit, pose long-term risks to the state's base of high-income jobs.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of New Jersey. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported nearly 20,000 jobs in the state in 2012.[36] This unconventional gas-related employment is expected to increase to over 34,000 jobs by 2020 and will double to over 40,000 by 2035. These jobs would employ 0.8% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $2.3 billion in New Jersey in 2012. We forecast that this contribution will grow to over $5.4 billion by 2035. As for labor income, the average annual wage in New Jersey in 2012 is $67,800, while the average wage of jobs related to unconventional gas and oil activity is $68,000.

There is also the contribution of unconventional gas employment to government revenues. In New Jersey in 2012, it generated over $560 million in taxes for state and federal coffers. This includes over $260 million in state and local taxes, or the equivalent of 1% of the state's $27 billion dollar budget

[36] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

New Jersey Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	195	6,251	13,308	19,753
2020	726	10,914	22,815	34,455
2035	1,632	12,547	26,358	40,537

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	36	913	1,403	2,353
2020	144	1,766	2,273	4,184
2035	360	2,393	2,677	5,430

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	26	522	795	1,344
2020	101	921	1,365	2,388
2035	261	1,086	1,579	2,925

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: New Jersey

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**299**	**530**	**670**	**12,317**
Personal Taxes	238	422	519	9,719
Corporate Taxes	61	108	151	2,598
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**262**	**444**	**526**	**10,127**
Personal Taxes	80	133	135	2,901
Corporate Taxes	182	311	391	7,226
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**561**	**975**	**1,196**	**22,443**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

NEW YORK

OVERVIEW

New York regained its pre-recession peak employment level in 2012. But although the state has recouped all of its 325,000 recessionary job losses, labor-force growth has left the unemployment rate elevated at 8.9%, the 10th highest among states. A new round of job cutbacks at the large banks, coupled with reduced variable compensation, threatens to impede growth in 2013. The state's modest rebound will continue in 2013, with a 1.4% job gain that will rank New York 21st among states. Gross state product growth will be 1.8% in real terms in 2013 and will average 2.2% over the next five years. The jobless rate will not fall below 8% until 2015.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of New York. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. Activity in the northernmost tier of Pennsylvanian counties is robust, with some of the best performing Marcellus wells being drilled there.. However, although Governor Cuomo has expressed support for drilling into the Marcellus Shale, activity has been held up on environmental grounds. Development of the shale plays located in these southern New York counties has the potential to benefit the state in much the same way as the industry has had an economic impact in northeastern Pennsylvania. But with permitting and drilling moratoria well-entrenched, it is uncertain whether unconventional production will be forthcoming from this state within the foreseeable future. Consequently, no unconventional production from the state is being included within the forecast period.

While New York does not directly produce unconventional gas, supplier networks, trade flows and income effects from earnings related to the industry support jobs here. The economic activity associated with unconventional gas production directly and indirectly supported over 44,000 jobs in the state in 2012.[37] This unconventional gas-related employment is expected to increase to 74,000 jobs by 2020 and to nearly 79,000 by 2035. These jobs would employ 0.8% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of just over $5 billion in New York in 2012. We forecast that this contribution will grow to just over $8.8 billion by 2035.

There is also the contribution of unconventional gas employment to government revenues. In New York in 2012, it generated over $1.6 billion in taxes for state and federal coffers. This includes almost $1.0 billion in state and local taxes, or the equivalent of 1.5% of the state's $68 billion dollar budget.

[37] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

New York Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	94	13,144	31,191	44,429
2020	288	21,663	52,056	74,007
2035	679	22,487	55,479	78,645

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	10	1,787	3,236	5,033
2020	33	3,047	5,092	8,171
2035	86	3,274	5,476	8,836

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	8	1,152	1,889	3,049
2020	26	1,934	3,168	5,128
2035	71	2,037	3,357	5,465

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: New York

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**660**	**1,090**	**1,172**	**24,227**
Personal Taxes	541	907	969	20,102
Corporate Taxes	120	183	203	4,125
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**988**	**1,483**	**1,426**	**32,048**
Personal Taxes	303	473	418	9,980
Corporate Taxes	685	1,009	1,008	22,067
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**1,648**	**2,573**	**2,598**	**56,274**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

NORTH CAROLINA

OVERVIEW

North Carolina started off 2012 well, but persistent losses in several sectors weighed down gains in the second half of the year. The good news is that the state's two largest sectors, government and education-health services, have generated fairly consistent job growth, and the manufacturing sector appears to be clinging to its recovery. Not surprisingly, the state's long-struggling manufacturing sector lost many jobs during the recession, contracting 4.2% in 2008, 13.1% in 2009, and 3.7% in 2010. North Carolina's traditional industries continue to remain depressed, with textiles, textile mills, and apparel leaving the state *en masse* in favor of cheaper locations in Asia and Latin America. However, since 2011, the rest of the manufacturing sector has been gradually recovering and generating jobs. The slowdown that affected much of the country in 2012 is lingering in North Carolina, because its economic foundation was still weak. But in 2013-2014, the state's lagging sectors will fully return to economic health. During the next several years, the large and important manufacturing sector will maintain a positive payroll trend, thanks mostly to high-tech and pharmaceutical manufacturing. The state's growth will be led by professional and business services, which will be boosted in 2013 by the national economic rebound. Overall, North Carolina can expect to record solid 2% annual job growth from 2012-2017, better than the nation's 1.7%.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of North Carolina. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. Recently, the governor announced incentives for oil and gas production within the state, but the geologic potential for oil and gas in the state is quite limited. Two possibilities may include several narrow-deep basins trending north and south through the center of the state and the Atlantic Coastal plain. The economic activity associated with unconventional gas production indirectly supported over 18,000 jobs in the state in 2012.[38] This unconventional gas-related employment is expected to increase to 32,500 jobs by 2020 and will more than double to 37,000 by 2035. These jobs would employ 0.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth.

Unconventional gas activity contributed value-added economic activity of $2 billion in North Carolina in 2012. We forecast that this contribution will grow to $3.8 billion by 2035. As for labor income, the average annual wage in North Carolina in 2012 is $56,000, while the average wage of jobs related to unconventional gas activity is $62,000.

There is also the contribution of unconventional gas employment to government revenues. In North Carolina in 2012, it generated over $486 million in taxes for state and federal coffers. This includes almost $230 million in state and local taxes, or the equivalent of 1.0% of the state's current budget.

[38] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

North Carolina Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	0	5,949	12,716	18,665
2020	0	10,359	22,118	32,477
2035	0	11,598	25,841	37,439

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	688	1,322	2,010
2020	0	1,214	2,146	3,360
2035	0	1,365	2,490	3,855

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	458	698	1,155
2020	0	802	1,222	2,024
2035	0	896	1,428	2,325

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: North Carolina

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**256**	**438**	**504**	**9,921**
Personal Taxes	205	358	412	8,094
Corporate Taxes	51	81	92	1,826
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**230**	**354**	**356**	**7,734**
Personal Taxes	72	117	112	2,515
Corporate Taxes	158	237	244	5,219
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**486**	**792**	**860**	**17,655**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

OREGON

OVERVIEW

Oregon's job market has been weighed down by a weak construction sector and large public-sector budget cuts. The services and manufacturing sectors are keeping the economy afloat, particularly the retail, wholesale, and transportation-utilities sectors. Much of the manufacturing growth has been driven by the durable goods segment, specifically machinery and fabricated metal products. Both industries are important supply-chain components for Boeing in the north. We expect the Oregon economy to pick up in 2013. The manufacturing sector will lead growth: Intel is hiring more than 4,000 in Oregon in 2012-2013 to construct and renovate production plants in Hillsboro and for other manufacturing jobs. Many other manufacturing firms will benefit from the improving national outlook and increased international demand. This should help service sectors throughout the Oregon economy that aim to support manufacturing's growth. Oregon will fully recover in 2015. We expect employment growth to average 2% annually in 2013-2018. While unemployment peaked in 2010, the rate will decline slowly and not reach pre-recession levels in the short term.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Oregon. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported over 8,900 jobs in the state in 2012.[39] This unconventional gas-related employment is expected to increase to just over 15,600 jobs by 2020 and will edge upward to over 18,400 by 2035. These jobs would employ 0.8% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of over $890 million in Oregon in 2012. We forecast that this contribution will double to $1.8 billion by 2035. As for labor income, the average annual wage in Oregon in 2012 is $53,200, while the average wage of jobs supported by unconventional gas activity is $58,400.

There is also the contribution of unconventional gas employment to government revenues. In Oregon in 2012, it generated over $280 million in taxes for state and federal coffers. This includes almost $170 million in state and local taxes, or the equivalent of 2.1% of the state's $8.1 billion dollar budget.

[39] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Oregon Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	195	2,928	5,789	8,912
2020	291	5,159	10,170	15,620
2035	246	6,084	12,142	18,472

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	20	336	535	891
2020	39	604	889	1,533
2035	38	727	1,081	1,846

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	12	215	293	520
2020	21	385	518	924
2035	23	454	619	1,096

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Oregon

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**115**	**200**	**240**	**4,593**
Personal Taxes	92	163	194	3,740
Corporate Taxes	22	37	45	853
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**168**	**267**	**288**	**5,958**
Personal Taxes	43	71	69	1,531
Corporate Taxes	125	196	218	4,427
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**282**	**467**	**527**	**10,551**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

RHODE ISLAND

OVERVIEW

Rhode Island's employment growth weakened in 2012, coinciding with the slowdown in the US economy. Results across sectors were mixed, but the key take-away is that the state is in the midst of an anemic recovery. The housing market has made little progress. Single-family housing starts have risen gradually, while multifamily construction remains largely unchanged from its 2009-2010 lows. Home prices have also been declining. Payrolls bottomed out in late 2009, and Rhode Island has recovered only about 1,000 of the 39,400 jobs lost during the recession. We forecast that private-sector payrolls will grow 1.8% between the third quarter of 2012 and the third quarter of 2013, but the unemployment rate will remain in double-digits until the end of 2013. Looking beyond that, the Ocean State economy will be one of the slowest-growing in the nation, which is particularly troubling given its poor progress so far. The manufacturing sector's inability to generate a significant rebound in payrolls will be a significant drag on the Rhode Island economy, as will state demographics, namely sluggish population and labor force growth.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Rhode Island. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production supported over 2,200 jobs in the state in 2012.[40] This unconventional gas-related employment is expected to increase to just over 3,700 jobs by 2020 and expand further to 3,800 by 2035. These jobs will employ 0.7% of the state labor force by 2035.

Unconventional gas related activity contributed value-added economic activity of nearly $230 million in Rhode Island in 2012. We forecast that this contribution will rise to $375 million by 2035. As for labor income, the average annual wage in the Ocean State in 2012 is $57,500, while the average wage of jobs related to unconventional gas activity is $62,200.

There is also the contribution of unconventional gas related activity to government revenues. In Rhode Island in 2012, it generated $56 million in taxes for state and federal coffers. This includes $26 million in state and local taxes, or the equivalent of 1.0% of state tax revenue.

[40] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Rhode Island Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	0	703	1,554	2,257
2020	0	1,161	2,547	3,708
2035	0	1,155	2,649	3,804

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	84	143	227
2020	0	141	221	362
2035	0	144	230	375

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	56	85	140
2020	0	93	139	232
2035	0	93	145	238

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Rhode Island

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**30**	**49**	**50**	**1,072**
Personal Taxes	25	41	42	899
Corporate Taxes	5	8	8	173
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**26**	**39**	**35**	**821**
Personal Taxes	8	12	10	250
Corporate Taxes	18	27	25	572
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**56**	**87**	**86**	**1,893**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

SOUTH CAROLINA

OVERVIEW

South Carolina was one of the first states to recover from the recession, and it continues to generate solid, if modest, employment growth. The bulk of the state's industries are steadily adding jobs. Only construction is lagging, but that is true almost everywhere. The state's manufacturing sector has struggled mightily over the last decade, and particularly through the recent recession, losing an astonishing 11.9% of its total jobs in 2009 alone. South Carolina has been modestly successful at drawing manufacturers to its low-cost business environment, but new jobs are just starting to balance the losses in traditional industries. Up until 2007, manufacturing was South Carolina's second-largest sector. Since the recession, manufacturing has ceded its position to retail trade, professional-business services, and education-health services. The good news is that the manufacturing sector recovered in 2011 and saw solid job growth again in 2012. South Carolina's burgeoning healthcare sector, rebounding professional and business-services sector, and strong export trade will help it continue to grow and prosper over the forecast horizon. Although the state's construction sector will not fully return to health until 2014, overall job growth will be solid over the next several years, as other industries pick up the slack. Professional and business services will the largest average job creation during 2012-2017, with health services employment also projected to advance robustly, thanks to 4.5% growth in the size of the age 65–69 population and 3% growth in the age 70 and older population. Employment gains will average 2% annually during 2012–17, which places the Palmetto State solidly in the top half of state economies and well ahead of the national growth forecast of 1.7%.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of South Carolina. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production indirectly supported over 9,100 jobs in the state in 2012.[41] This unconventional gas-related employment is expected to increase to nearly 16,000 jobs by 2020 and will double relative to 2012 to just over 19,000 by 2035. These jobs would employ 0.7% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of nearly $930 million in South Carolina in 2012. We forecast that this contribution will grow to over $1.9 billion by 2035. As for labor income, the average annual wage in South Carolina in 2012 is $51,000, while the average wage of jobs related to unconventional gas activity is $60,000.

There is also the contribution of unconventional gas employment to government revenues. In South Carolina in 2012, it generated $251 million in taxes for state and federal coffers. This includes $132 million in state and local taxes, or the equivalent of 1.7% of the state's budget.

[41] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

South Carolina Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	3	3,266	5,861	9,131
2020	5	5,700	10,201	15,905
2035	4	6,963	12,065	19,032

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	373	552	927
2020	2	661	905	1,567
2035	1	831	1,083	1,915

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	236	310	546
2020	1	416	546	962
2035	1	519	658	1,177

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: South Carolina

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**120**	**207**	**253**	**4,776**
Personal Taxes	97	170	209	3,931
Corporate Taxes	23	36	44	845
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**132**	**203**	**221**	**4,551**
Personal Taxes	21	34	35	745
Corporate Taxes	111	169	186	3,806
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**251**	**410**	**474**	**9,327**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

SOUTH DAKOTA

OVERVIEW

South Dakota saw very little employment growth during 2012, and payrolls slipped in the second half of the year. This reflects what is happening in many parts of the country, but especially the Midwest. The national housing market is finally showing solid signs of recovery, which are being reflected in modest increases in housing starts in South Dakota, but this has not yet translated into more construction employment. Manufacturing employment remains steady, thanks partly to ongoing strength in the agriculture sector despite a severe drought of 2012. The farm-machinery sector in particular appears to have weathered the drought well, with sales of tractors going strong. This may partly reflect orders being made prematurely due to uncertainty about tax law changes, but it also indicates that farmers still have money to spend. From 2012-2017, the state's nonfarm payroll employment growth will average 1.4% annually, which is a little below the national average for the same period. In mid-2013, state employment is expected to return to its pre-recession peak. The state's unemployment rate remains among the lowest in the country, which may hinder its economic growth. The low jobless rate and lack of growth in the labor force may be viewed negatively by companies considering locating or expanding in the state. Employers may prefer to locate in areas with more available workers.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of South Dakota. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional oil and gas production directly and indirectly supported over 2,000 jobs in the state in 2012.[42] This unconventional oil- and gas-related employment is expected to increase to close to 3,500 jobs by 2020 and will nearly double relative to 2012 to nearly 4,000 by 2035. These jobs would employ 0.8% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of nearly $200 million in South Dakota in 2012. We forecast that this contribution will grow to nearly $375 million by 2035. As for labor income, the average annual wage in South Dakota in 2012 is $46,100, while the average wage of jobs related to unconventional gas activity is $56,000.

There is also the contribution of unconventional gas employment to government revenues. In South Dakota in 2012, it generated $47 million in taxes for state and federal coffers. This includes $22 million in state and local taxes, or the equivalent of 1.6% of the state’s 2011 tax revenues.

[42] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

South Dakota Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	19	575	1,419	2,013
2020	26	985	2,466	3,477
2035	21	1,098	2,819	3,937

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	4	66	126	197
2020	8	114	204	327
2035	7	131	235	373

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	41	71	113
2020	2	70	122	195
2035	2	79	140	222

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: South Dakota

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**25**	**42**	**48**	**959**
Personal Taxes	20	34	39	778
Corporate Taxes	5	8	9	181
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**22**	**33**	**34**	**732**
Personal Taxes	0	0	0	0
Corporate Taxes	22	33	34	732
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**47**	**75**	**83**	**1,691**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

TENNESSEE

OVERVIEW

Tennessee's post-recession recovery picked up steam in 2012, powered by strong hiring in the government and the automobile manufacturing sectors. Unlike most of the country, Tennessee's public sector fared well during the past year. Most of the government growth was due to increases in federal government employment in the state, which was boosted by the presence of agencies such as the Tennessee Valley Authority. Manufacturing also posted a nice turnaround, thanks in large part to transportation equipment manufacturing. With Volkswagen ramping up production at its new Chattanooga plant and expansion plans under way for General Motors' Spring Hill plant, the automobile industry will remain a key component of Tennessee manufacturing for years to come. The manufacturing sector, which reversed course in 2011 – effectively breaking a 15-year streak of declines – will trend higher over the next five years. Within the manufacturing sector, transportation equipment manufacturing is expected to grow the fastest in coming years and become an increasingly more significant component of the state's manufacturing. Indeed, the upcoming expansions in Tennessee by Volkswagen, General Motors and also Nissan will provide a significant boost, adding thousands of jobs directly and supporting thousands more from nearby suppliers as production picks up. Much of Tennessee's future employment growth will also be driven by the professional-business services sector and a rebound in the construction sector. The Volunteer State's economy is poised for a strong recovery, as US growth picks up steam. From 2012-2017, employment growth will equal the nation’s growth, averaging 1.7% annually. However, because Tennessee has more jobs to recover than many other states, Tennessee will not return to its prerecession peak employment until 2015, slightly later than the country as a whole.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Tennessee. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported well over 13,000 jobs in the state in 2012.[43] This number represents 0.5% of the state’s total nonfarm employment. The unconventional oil- and gas-related employment is expected to soar to over 23,000 by 2020 and increase to almost 28,000 by 2035. These jobs would employ 0.7% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional oil and gas activity contributed value-added economic activity of nearly $1.4 billion in Tennessee in 2012. We forecast that this contribution will grow to $2.7 billion by 2035. As for labor income, the average annual wage in Tennessee in 2012 is $52,700, while the average wage of total jobs in unconventional oil and gas activity is significantly higher at $60,500, providing a solid quality of life for state residents employed by the industry.

There is also the contribution of unconventional oil and gas activity to government revenues. In 2012, it generated $223 million in taxes for state and federal coffers. This includes $45 million in state and local taxes, or the equivalent of 0.4% of the state’s $43 billion budget for 2012.

[43] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Tennessee Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	36	4,484	8,997	13,516
2020	43	7,733	15,534	23,310
2035	86	9,386	18,230	27,702

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	4	501	846	1,351
2020	5	880	1,381	2,266
2035	11	1,076	1,636	2,722

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	2	329	487	818
2020	3	577	848	1,428
2035	6	709	1,004	1,720

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Tennessee

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**177**	**303**	**365**	**6,962**
Personal Taxes	145	252	305	5,802
Corporate Taxes	32	50	60	1,160
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**45**	**69**	**74**	**1,532**
Personal Taxes	1	2	2	52
Corporate Taxes	44	66	71	1,480
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**223**	**372**	**439**	**8,494**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

VIRGINIA

OVERVIEW

Virginia's economy has had a bumpy recovery from the Great Recession. While many of the private service sectors posted gains (professional-business, education-health, financial, and "other" services) in 2012, there were large government sector cuts associated with a budget shortfall at the state and local levels. Economic growth is expected to continue in 2013, and Virginia's employment growth will average around 1.5% from 2012 to 2017, just below the national average of 1.7%. Employment in the construction sector will expand slightly throughout 2013, before fully rebounding in 2014. Among the services sectors, professional and business services will recover fastest and expand vigorously. Real gross state product will not resume more typical growth patterns until 2014.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Virginia. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported over 18,000 jobs in the state in 2012.[44] This unconventional gas-related employment is expected to increase to nearly 32,000 jobs by 2020 and will more than double 2012 levels by 2035, reaching almost 39,000. These jobs would employ 0.8% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $2 billion in Virginia in 2012. We forecast that this contribution will grow to nearly $4.3 billion by 2035. As for labor income, the average annual wage in Virginia in 2012 is $64,600, while the average wage of jobs supported by unconventional gas activity is $64,900.

There is also the contribution of unconventional gas employment to government revenues. In Virginia in 2012, it generated over $4445 million in taxes for state and federal coffers. This includes almost $190 million in state and local taxes, or the equivalent of 1.1% of the state's 2011 tax revenues.

[44] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Virginia Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	128	6,167	11,732	18,028
2020	349	10,940	20,516	31,806
2035	764	13,448	24,748	38,961

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	30	810	1,151	1,991
2020	80	1,452	1,893	3,426
2035	197	1,813	2,288	4,298

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	17	508	644	1,169
2020	45	918	1,132	2,095
2035	112	1,151	1,372	2,635

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Virginia

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**257**	**451**	**567**	**10,447**
Personal Taxes	207	370	467	8,588
Corporate Taxes	50	80	100	1,859
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**189**	**303**	**331**	**6,752**
Personal Taxes	78	131	136	2,871
Corporate Taxes	111	172	194	3,881
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**446**	**754**	**898**	**17,199**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

VERMONT

OVERVIEW

Vermont's economic gains have been mixed, with healthy growth in business services, healthcare, and leisure-hospitality services and losses in construction and manufacturing. The important takeaway from 2012's employment data is that recovery continues in the Green Mountain State, though at a moderate pace, as is the case across much of the country. The housing market is improving; home construction activity has been accelerating, driven by a steady upward trend in single-family starts over the past year. Vermont's home value data have also shown clear signs of strengthening, with prices on the rise. Payrolls bottomed out in late 2009, and Vermont has recovered over half of the 13,600 jobs lost during the recession. We forecast that private-sector payrolls will expand 1.2% between the third quarter 2012 and the third quarter of 2013, ranking 48th among states. Meanwhile, the unemployment rate will decline gradually, finally falling below 5% during the second half of 2013. Not until the latter part of 2014 will all of the jobs lost in the recession be regained. Over the longer term, the Vermont economy will be one of the slower-growing in the nation, ranking 47th in employment growth over the next decade. This will be due in large part to demographics – weak population and labor-force growth – that constrain the state's growth potential, as will also be the case with many of its New England neighbors.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Vermont. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas supported more than 1,400 jobs in the state in 2012.[45] This unconventional gas-related employment is expected to increase to nearly 2,500 jobs by 2020, and expand to almost 2,600 by 2035. These jobs will employ an estimated 0.7% of the state labor force by 2035.

Unconventional gas related activity contributed value-added economic activity of nearly $145 million in Vermont in 2012. We forecast that this contribution will rise to more than $250 million by 2035. As for labor income, the average annual wage in Vermont in 2012 is $46,700, while the average wage of jobs supported by unconventional gas activity is $61,000.

There is also the contribution of unconventional gas related activity to government revenues. In Vermont in 2012, it generated $32 million in taxes for state and federal coffers. This includes $13 million in state and local taxes, or the equivalent of 0.5% of state tax revenue.

[45] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Vermont Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	0	407	1,050	1,458
2020	0	690	1,766	2,456
2035	0	725	1,858	2,583

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	47	97	144
2020	0	82	156	238
2035	0	88	165	253

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	0	32	57	89
2020	0	56	99	155
2035	0	59	105	163

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Vermont

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**19**	**32**	**34**	**714**
Personal Taxes	16	27	29	602
Corporate Taxes	3	5	5	112
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**13**	**19**	**18**	**406**
Personal Taxes	4	7	6	138
Corporate Taxes	9	12	12	268
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**32**	**51**	**52**	**1,120**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

WASHINGTON

OVERVIEW

Washington's economy has been expanding at a solid clip, thanks in large part to its manufacturing sector, which has seen a payroll boost from increased 737 production at Boeing's Renton plant. The retail and wholesale trade sector, benefiting from Washington's ports, has also been growing steadily. Housing starts have been on an uptick, which has been driving residential construction employment. Indeed, in late 2012, housing starts hit their highest point since the housing bubble burst. Housing sales and prices have begun to follow. The construction sector is expected to explode in 2013, due to the large construction projects on the horizon. Unemployment has nevertheless slowly crept upward as discouraged workers re-enter the labor force. Thanks to a strong port system, a diversified economy, and a burgeoning high-tech sector, Washington has led the national recovery from 2010 to the present. Employment growth will outpace the US average in 2013 and will fully recover to pre-recession levels around the same time as the nation does, in early 2014). The state's job growth will average 1.7% annually through 2017. Unemployment will continue to fall, hovering around 6% by the end of 2017. Real output growth will heat up in 2015, reaching 3.5% before cooling down to a six-year average of 2.6% through 2018. Real personal income growth will follow output growth, closing 2018 with a six-year average of 3.2%.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Washington. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. The economic activity associated with unconventional gas production directly and indirectly supported over 13,000 jobs in the state in 2012.[46] This unconventional gas-related employment is expected to increase to 23,000 jobs by 2020 and will edge upward to nearly 27,000 by 2035. These jobs would employ 0.6% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of $1.3 billion in Washington in 2012. We forecast that this contribution will grow to $2.7 billion by 2035. As for labor income, unconventional gas activity contributed nearly $790 million in 2012.

There is also the contribution of unconventional gas employment to government revenue. In Washington in 2012, it generated over $210 million in taxes for state and federal coffers. This includes over $40 million in state and local taxes, or the equivalent of 0.2% of the state's $17 billion dollar budget.

[46] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Washington Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	20	4,088	9,109	13,217
2020	29	7,124	15,847	23,000
2035	108	8,549	18,118	26,775

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	469	849	1,319
2020	3	844	1,399	2,245
2035	10	1,045	1,634	2,689

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	1	311	476	789
2020	2	554	838	1,395
2035	9	673	974	1,656

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Washington

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**172**	**298**	**356**	**6,828**
Personal Taxes	140	247	294	5,642
Corporate Taxes	32	51	62	1,186
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**41**	**63**	**69**	**1,413**
Personal Taxes	0	0	0	0
Corporate Taxes	41	63	69	1,413
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**213**	**361**	**425**	**8,241**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight

WISCONSIN

OVERVIEW

Wisconsin was plagued by job losses and a rising unemployment rate in 2012, a year in which the national jobless rate has moved in the opposite direction and the national economy has strengthened. Most troubling for Wisconsin is recent losses of manufacturing jobs. Despite a declining share, factory jobs still represent an outsized proportion of the labor market here. Canada is Wisconsin's largest export market, and a plunge in demand, both domestic and from Canada, has taken its toll on the Badger State. Weak demand from the Eurozone, the next-largest destination for goods manufactured in Wisconsin, also softened orders. The service-producing side of the state economy, meanwhile, is producing mixed results. The medium-term forecast for Wisconsin remains modest. Total employment is expected to increase 1.4% on average through 2017, lagging the national rate of 1.7%. Most sectors of the state economy will expand, with only a few exceptions. Growth in manufacturing will be fueled almost entirely by expansion in the durables sector. Nondurables production will remain flat. The beleaguered Wisconsin construction will finally see a strong recovery in 2013-2017. Professional and business services gains will also be strong. But leisure and hospitality services will continue to suffer, and the shock to finance payrolls from the housing bust will continue to be felt for years to come.

CONTRIBUTION OF UNCONVENTIONAL OIL AND GAS

For purposes of this study, the 20 plays examined do not fall within the geographic boundaries of Wisconsin. However, supplier networks and trade flows related to unconventional oil and gas activity resulting from the plays covered in this study support jobs within the state. For example, unconventional gas extraction using hydraulic fracturing requires special sand, much of which is made in Wisconsin.

Machinery manufacturers in the state also provide significant oil and gas field machinery to the producing states. The economic activity associated with unconventional gas production directly and indirectly supported nearly 20,000 jobs in the state in 2012.[47] This unconventional gas-related employment is expected to increase to just over 33,000 jobs by 2020 and will reach almost 36,000 by 2035. These jobs would employ 1% of the state labor force by 2035, helping to reduce unemployment and creating a steady source of payroll growth for the next two decades.

Unconventional gas activity contributed value-added economic activity of nearly $2 billion in Wisconsin in 2012. We forecast that this contribution will grow to nearly $3.8 billion by 2035. As for labor income, the average annual wage in Wisconsin in 2012 is $53,000, while the average wage of jobs related to unconventional gas and oil activity is $61,500.

There is also the contribution of unconventional gas employment to government revenue. In Wisconsin in 2012, it generated $590 million in taxes for state and federal coffers. This includes almost $330 million in state and local taxes, or the equivalent of 2.1% of the state's $17 billion dollar budget.

[47] Direct jobs are those created by firms that comprise the oil and gas industry, or by the capital expenditures of related industries; indirect jobs are those created by suppliers of goods and services to industry. Induced jobs are those that meet the new demand for consumer goods created by the increased income generated by the direct and indirect jobs.

Wisconsin Economic Contribution Summary: Total Unconventional Oil and Gas Activity

Employment

(Number of workers)

	Direct	Indirect	Induced	Total
2012	2,280	6,360	11,120	19,760
2020	3,488	10,749	18,876	33,112
2035	2,662	12,290	21,024	35,976

Value Added

(2012 $M)

	Direct	Indirect	Induced	Total
2012	250	723	987	1,960
2020	519	1,271	1,620	3,410
2035	431	1,498	1,837	3,766

Labor Income

(2012 $M)

	Direct	Indirect	Induced	Total
2012	191	457	567	1,215
2020	347	790	978	2,115
2035	306	928	1,117	2,352

NOTES: Numbers may not sum due to rounding.

Source: IHS Global Insight

Contribution of Total Unconventional Oil and Gas Activity to Government Revenue and Private Lease Payments: Wisconsin

($M)

	2012	2020	2035	2012-2035*
Federal Taxes	**260**	**452**	**502**	**10,233**
Personal Taxes	215	374	417	8,477
Corporate Taxes	45	78	85	1,755
Federal Royalty Payments	0	0	0	0
Federal Bonus Payments	0	0	0	0
State and Local Taxes	**329**	**541**	**526**	**11,786**
Personal Taxes	76	120	109	2,573
Corporate Taxes	254	421	416	9,212
Severance Taxes	0	0	0	0
Ad Valorem Taxes	0	0	0	0
State Royalty Payments	0	0	0	0
State Bonus Payments	0	0	0	0
Total Government Revenue	**590**	**993**	**1,028**	**22,018**
Lease Payments to Private Landowners	**0**	**0**	**0**	**0**

NOTES: *2012-2035 represents the total for all years including those years not reported.

Source: IHS Global Insight