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Economics Group

Special Commentary

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Lower Oil Prices Will Weigh on Energy States

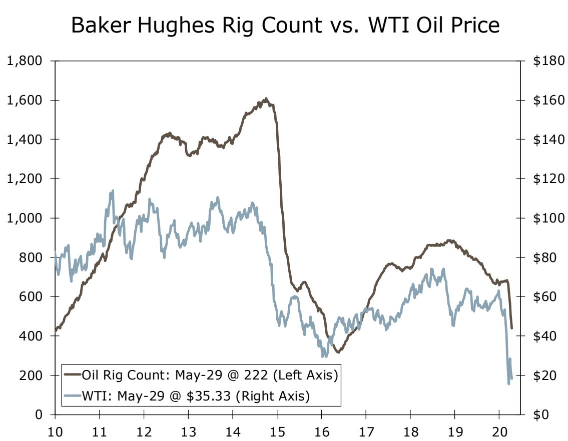
Challenging Times Ahead for States Reliant on Energy Production

The coronavirus pandemic and efforts to contain it continue to wreak havoc on the global economy. The latest International Monetary Fund forecast calls for global GDP to decline 3% in 2020, slightly better than our forecast of -3.8%. U.S. real GDP declined at a 5.0% annual rate during the first three months of this year, and is poised for a much larger drop in Q2. Energy demand is closely correlated with GDP growth, and the International Energy Agency expects world energy demand to decline by 9.6 million barrels per day, or roughly 9%, this year. The sudden loss of demand sent shockwaves through the oil market. The May contract for West Texas Intermediate (WTI) closed at -$37.63 a barrel on April 20, the first time an oil futures contract settled at a negative price.

Energy demand is closely correlated with GDP growth.

After its brief visit into negative territory, WTI rallied and now sits about $36. Prospects for a rebound in energy demand, although still dim, have improved somewhat as states ease stay-at-home orders and lay out plans to gradually re-open businesses. Several measures have been taken to reduce supply, including an agreement by most global producers to cut production. In addition, the U.S. federal government announced it would purchase 75 million barrels of crude to store in the Strategic Petroleum Reserve. That said, it is hard to see supply-demand imbalances correcting anytime soon. Even with the recent rally, oil prices remain below levels many producers need to cover operating costs, which means capital spending budgets are being further slashed and production suspended. The rig count has already declined sharply. After peaking at almost 900 in late 2018, the oil rig count has fallen to just 222 at the end of May. Unfortunately, the rig count will likely fall even further, as diminished cash flow forces the industry into even deeper cutbacks in exploration and production. Ultimately, we expect to see the industry consolidate, with resources focused on the most efficient energy plays. Oil demand will rebound modestly during the second half of the year, as the global economy gradually re-opens.

Figure 1



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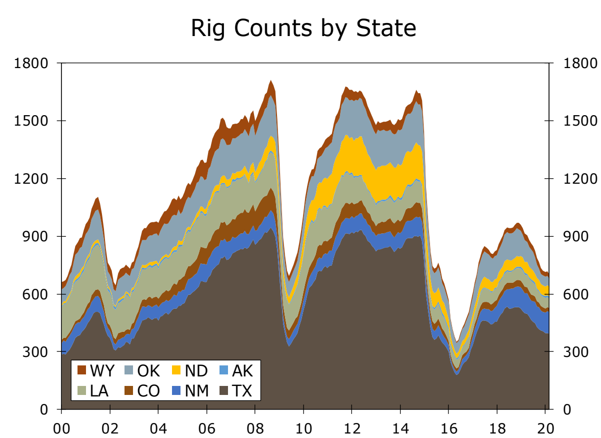

Source: Baker Hughes, Bloomberg LP and Wells Fargo Securities

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The true extent of the economic impact on these states is arguably understated by measures of value added in the oil and gas extraction industry, as the energy value chain runs through multiple industries. In terms of employment, the QCEW data collected by the BLS provide some clarity on the industries which are most directly supported by the energy industry, such as well drilling, support activities for oil and gas operations, pipeline construction and transportation, in addition to extraction. We utilize these categories as a proxy for total employment in the energy industry, as they capture the majority of payrolls most directly affected by oil and gas spending. Admittedly, these industry categories miss many midstream and downstream operations such as processing, refining, storage and non-pipeline transportation. There is also a wide range of jobs which support the industry indirectly, such as materials suppliers, geologists and welders. Furthermore, the income generated by all of these industries bolsters demand for housing, retailers and restaurants.

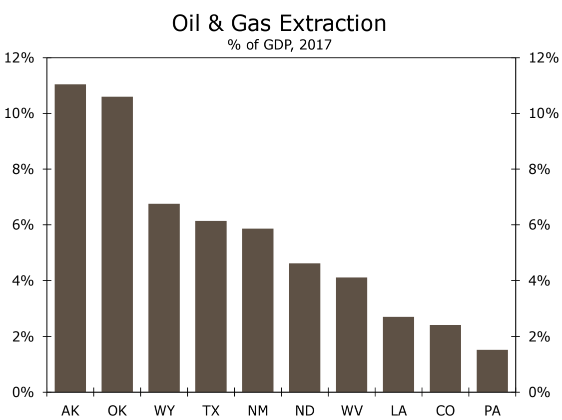
Several states have outsized exposure to energy.

The oil price rout triggered by COVID-19 is having a devastating impact on many energy driven areas. While these aches and pains will be felt all over the country, several states have outsized exposure to the energy industry. Alaska and Oklahoma sit at the top of the list of oil and gas extraction as a share of state GDP. Wyoming also ranks high, which is unsurprising given some form of oil and gas production takes place in 21 of the state's 23 counties and the Powder River Basin has become a top producing shale play. North Dakota also remains one of the nation's top energy producers, although production has waned in the Bakken Formation since the 2015 oil rout. The mid-decade collapse in oil prices diverted capital spending to lower cost wells, which helps explain the rapid production gains in the Permian Basin in Texas and New Mexico.

Oil supports jobs across many different industries.

Total payrolls in Houston, which is the hub for energy activity in the United States and much of the world, have plummeted by 11% since February, or almost 350,000 jobs. As in most of the country, a large proportion of these layoffs have been at restaurants, but cutbacks in the energy sector have been significant, and announcements continue to mount, with stalwarts such as Chevron, Shell and Halliburton announcing job cuts recently. Economic conditions are also dimming in West Texas. Total employment growth in Midland, which had been one of the fastest growing metro areas in the nation, has shifted into reverse, with 16,000 jobs lost over the past two months. Oklahoma City has also been hit hard and saw total payrolls fall by 62,000 jobs in March and April, while similar payroll declines were registered in the oil and gas driven metros of Baton Rouge, Lake Charles and Anchorage. While many of these areas are well-acquainted with the boom-and-bust nature of the energy industry, never before have they been confronted with the one-two punch of a global pandemic and a significant decline in oil prices, a combination which will challenge their economies for years.

Figure 3



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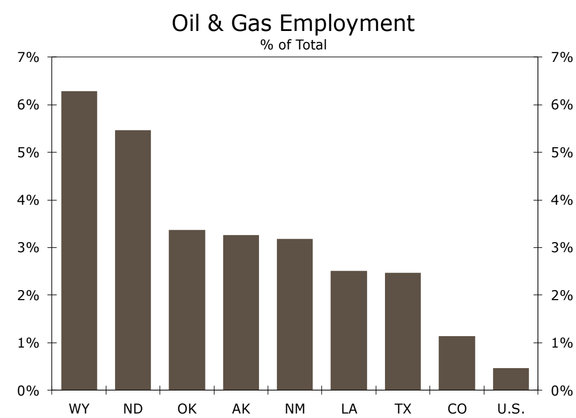


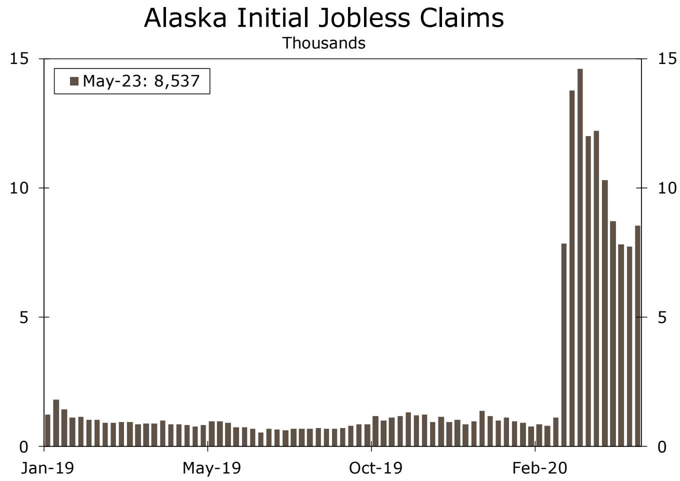
Source: U.S. Department of Commerce, U.S. Department of Labor and Wells Fargo Securities

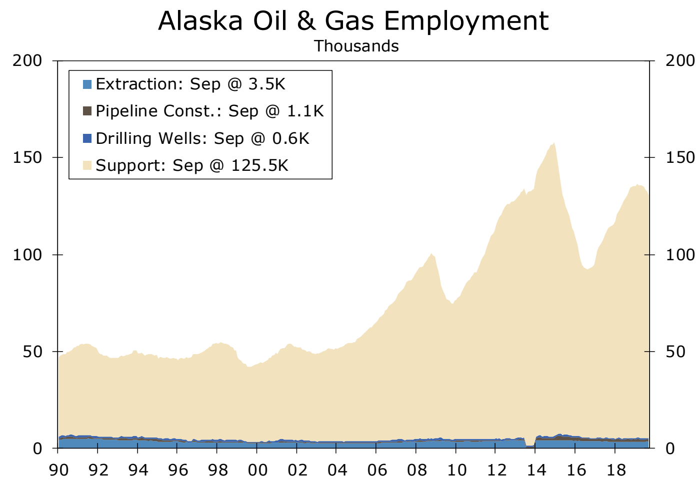
Alaska

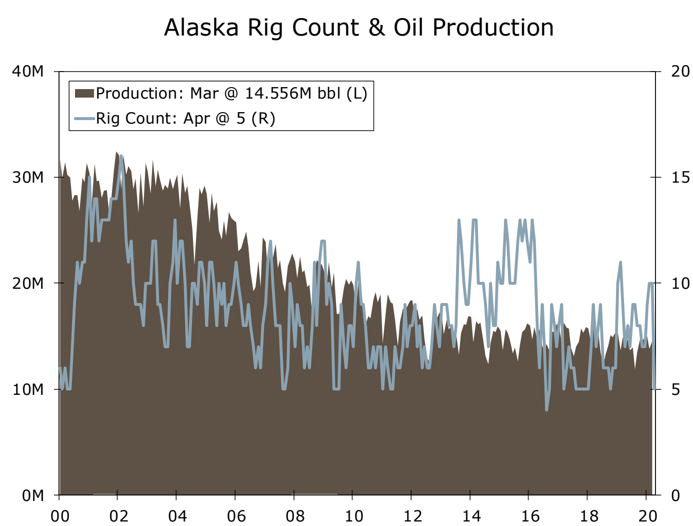
The Alaska economy has a tough road ahead. To date, the state has been one of the least impacted states by the COVID-19 pandemic itself, but an economic crisis is rapidly unfolding. Since February, nonfarm payrolls have fallen 15%, as 48,000 jobs have been eliminated, and more pain is likely. Since the onset of the public health crisis in mid-March, 30% of the state's labor force has applied for unemployment insurance.

The rapid rise in unemployment stems from lockdown orders as well as a sharp decline in oil prices and energy investment, upon which the state is heavily reliant. In response, officials have eased stay-at-home orders and businesses are re-opening with social distancing directives in place. The move to gradually re-open comes in an attempt to preserve some of the economic success the state has recently seen. Employment increased 0.6% in 2019, the first annual gain in four years as the state finally began to shake off the lingering weakness in oil and gas capital spending.

- Alaska's economy is especially vulnerable to swings in commodity prices—oil and gas extraction accounted for roughly 11% of GDP in 2017. Together, drilling, extraction and support activities employ nearly 10,000 in the state, while over 1,000 are employed in pipeline construction and operation.
- The energy sector's influence extends beyond the exploration, production and transportation phases. According to some estimates, about one-third of all the jobs in state are supported by the industry.
- Oil and gas production has been trending lower since 1988, as lower prices and hydraulic fracking have diverted capital investment away from the conventional vertical wells which dominate the state's oil fields. Alaska's oil production accounted for 4% of U.S. production in 2019, down from 14% in 2008.
- Prudhoe Bay remains one of the largest oil fields in North America, and Alaska's waters are thought to contain more than 30% of the nation's known recoverable offshore resources.
- The easing of travel restriction may help the state's energy companies maintain operations through the crisis. Many of Alaska's oil and gas plays are in remote locations and onerous travel restrictions had made it logistically challenging to get much of their workforce to these sites.
- Oil typically accounts for 80% or more of the State of Alaska General Fund revenues, which support a wide array of public services, programs and projects.







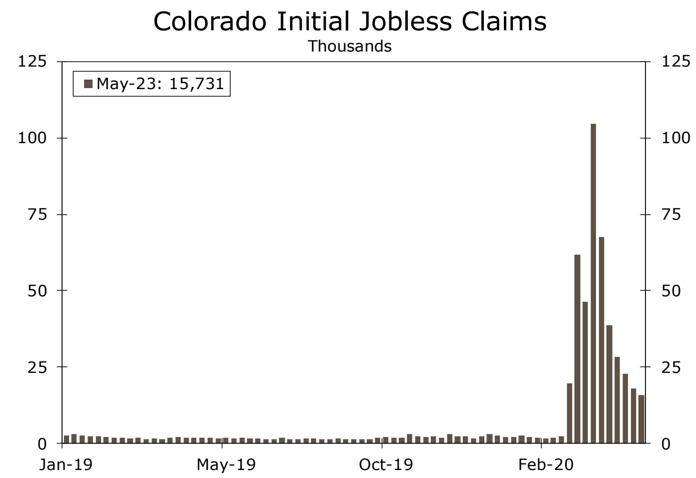
Source: U.S. Department of Labor, U.S. EIA, Baker Hughes and Wells Fargo Securities

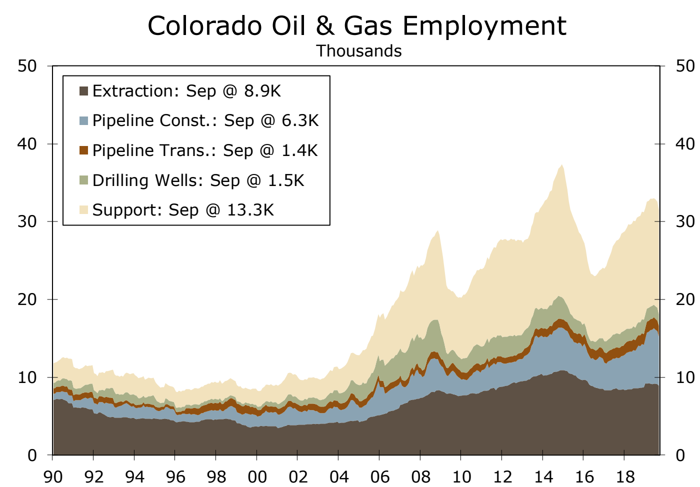
Colorado

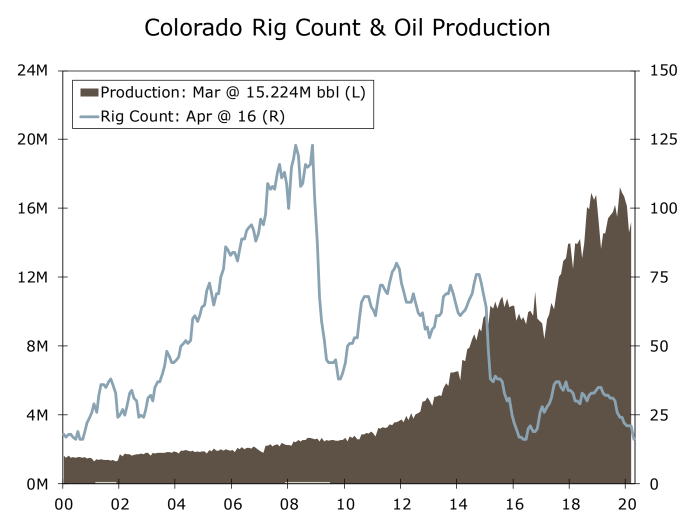
Colorado's economy had strong momentum in the first quarter prior to the COVID-19 outbreak. The state ordered the closure of ski resorts in mid-March, followed by bars and restaurants, schools and assemblies of more than 10 people. The strictest orders have been lifted and many businesses are now allowed to open at limited capacity. Still, the Colorado economy has taken a substantial hit. Since mid-March, there have been approximately 460,000 layoffs, which implies the unemployment rate is well above 15%.

One of the reasons employment is falling so hard in Colorado is that the state's economy has outsized exposure to the travel & leisure and energy sectors, two of the most negatively impacted areas. The plunge in oil prices is a major blow to Colorado. The energy sector was already shedding jobs before COVID-19 cut into energy demand, and now capital spending plans and employment will fall much further.

- Technological advances in horizontal drilling and hydraulic fracturing have led to skyrocketing oil and gas production in the Rocky Mountain state over the past decade. Since 2010, oil production has surged more than 500%, from roughly 33 million barrels per year in 2010 to 188 million barrels in 2019. The vast majority of oil production takes place in just three counties north of Denver (Weld, Larimer and Adams) in the Denver-Julesburg basin, which is part of the Niobrara Shale play.
- A surge in oil and gas employment has accompanied the rise in production. Statewide, the energy industry now directly employs approximately 32,000 workers. While this is a relatively small share of Colorado's total employment (<1%), this understates the true economic impact. A wide range of workers support the industry indirectly, including geologists, welders and service firms.
- Similar to the 2015 oil price rout, oil and gas firms have responded to dramatically lower prices by slashing capital spending. The number of rigs in operation has declined from about 30 this time last year to just 15 at the end of April.
- About 9,000 energy-related jobs were cut over the course of 2015 and 2016 and were only fully recovered in early 2019. We expect sharp declines in oil and gas payrolls in coming months due to low commodity prices. Given the relatively small share, these declines will be overshadowed by broad-based reductions in overall payrolls.







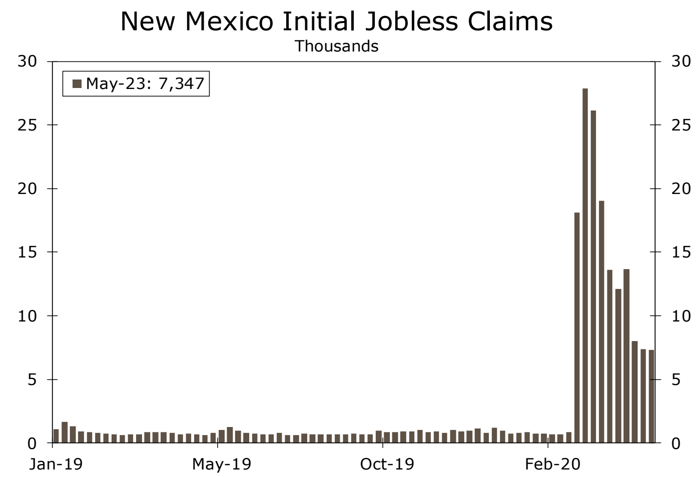
Source: U.S. Department of Labor, U.S. EIA, Baker Hughes and Wells Fargo Securities

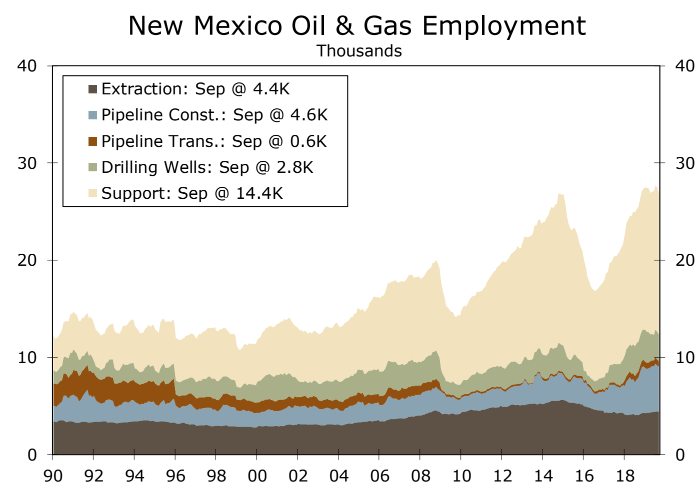
New Mexico

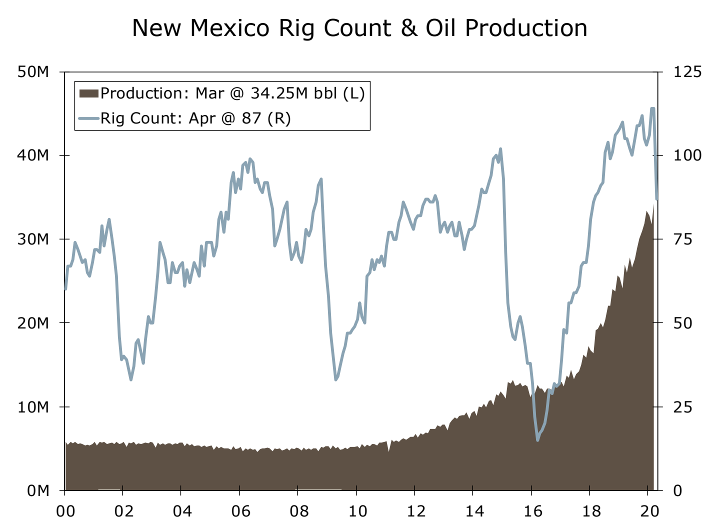
The New Mexico economy is in for some turbulence in coming months. Alongside strict stay-at-home orders and the shuttering of nonessential businesses, the unemployment rate rose from 4.8% to 6.3% during March and then leapt to 11.3% in April. Shutdowns implemented to contain COVID-19 and capex cuts at oil firms will likely cause conditions to deteriorate further. We expect payrolls to slide further in May before efforts to re-open the economy lift net hiring this summer.

The state economy was gaining momentum prior to the COVID-19 crisis and oil rout. The state added almost 13,000 net new jobs in 2019, which is the high watermark of the expansion. Healthcare and tourism had been areas of strength. New Mexico is also fast becoming a film production hub, with Netflix and NBCUniversal making significant investments in the state. Moreover, the 2017 federal budget deal loosened the purse strings at many government facilities, including New Mexico's Los Alamos National Laboratory and numerous military bases. Much of New Mexico's recent success has been due to a flourishing energy industry, which is now at risk due to markedly lower oil prices.

- New Mexico, now the third largest oil producing state in the nation, has seen energy-related hiring flourish over the past few years alongside booming production. The state is one of the few that have seen energy employment return to the levels reached prior to the 2015 oil price collapse. Currently, the oil and gas industry directly employs over 27,600, which is on par with the peak levels in 2014.
- Oil production is centered in the southeastern corner of the state in three counties—Lea, Eddy and Chaves. These counties sit atop the Delaware Basin portion of the Permian Basin and have been home to some of the top producing wells in the world in recent years. Lea County recently surpassed McKenzie, North Dakota as the top oil producing county in the United States
- Compared to the Midland Basin, the Delaware Basin tends to require higher breakeven WTI prices, which means a prolonged period of low oil prices would be particularly damaging to many New Mexico operators.
- During the 2015/2016 oil price rout, the rig count fell from 102 to 15 over the course of about 16 months. Drilling activity quickly recovered and hit a new high of 114 in early 2020, but has since fallen sharply.





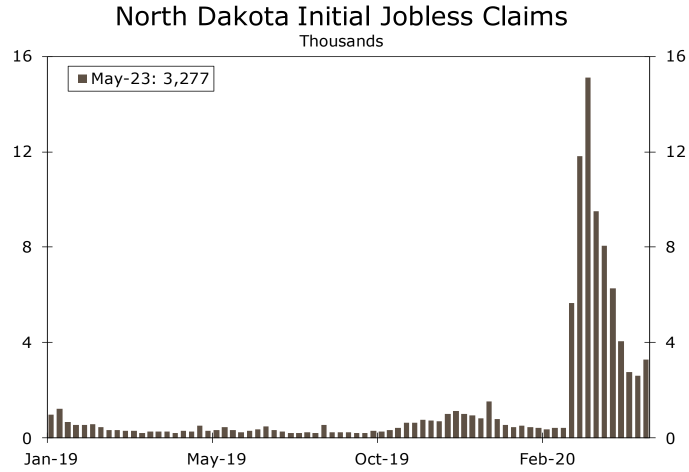


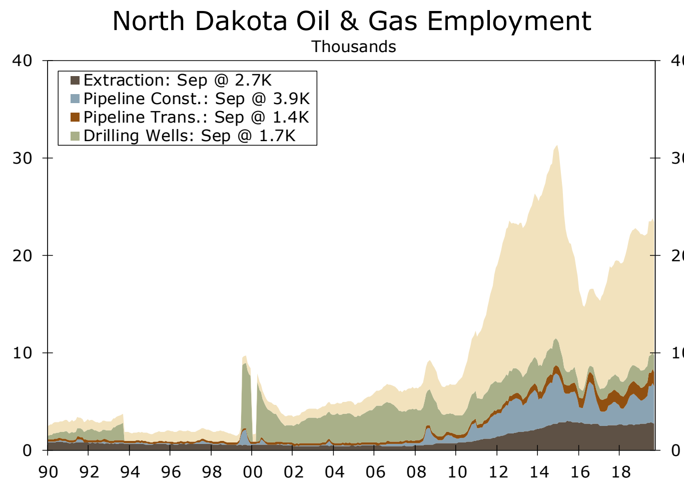
Source: U.S. Department of Labor, U.S. EIA, Baker Hughes and Wells Fargo Securities

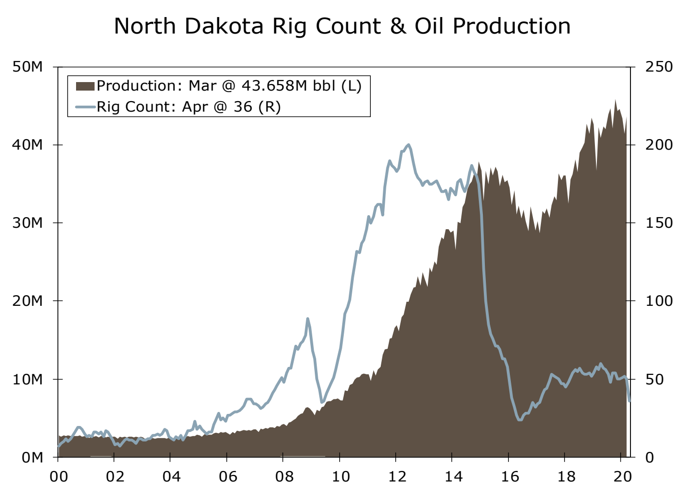
North Dakota

Compared to other states, North Dakota has remained near the bottom of the list of COVID-19 cases, hospitalizations and deaths. State officials never issued stay-at-home orders and many businesses have remained open, although personal care services and recreational facilities were directed to close. Even so, the state economy will likely not be able to escape the economic damage from the public health crisis, which has caused global energy demand to evaporate and oil prices to sink. After falling to just 2.0% in March, North Dakota's unemployment rate shot up to 8.5% in April, and is likely headed even higher. Over the past ten weeks, over 69,000 initial jobless claims have been processed, which translates to about 17% of the state's labor force and implies the unemployment rate is substantially higher. The state also attracts a large number of transitory oil and gas 'roustabout' workers who are often not captured by estimates of the labor force. Overall, the state economy has seen some success outside of the energy industry, but the recent slide in oil prices will be a major setback.

- Oil and gas extraction accounts for roughly 11% of state GDP. Over the past two decades, oil production has surged throughout the state, primarily in Williams County, which sits atop the Bakken shale formation.
- Outside of Texas, North Dakota produces more barrels of oil per year (512 million in 2019) than any other state. The rapid rise in oil production has led to rapid employment, income and population growth over the past decade. In 2014, Williams County was estimated to have the lowest unemployment rate in the country (1.2%).
- The oil price collapse in 2015-2016 brought a swift end to the economic gains experienced earlier in the decade. The rig count declined sharply from around 180 at the start of 2015 to 24 in the summer of 2016. The decline in oil production led to a 4.2% decline in total employment in 2016, the sharpest annual drop in payrolls in the state's history dating back to 1940.
- Even as prices rose, the rig count and overall employment growth were slow to recover. The energy industry, which includes extraction, well drilling, pipeline construction and support activities, currently employs roughly 24,500 in the state, well below the 2014 peak of 34,000.
- The rig count has already fallen back to the lows seen in 2016, while payrolls in the oil and gas industry are down almost 7%.







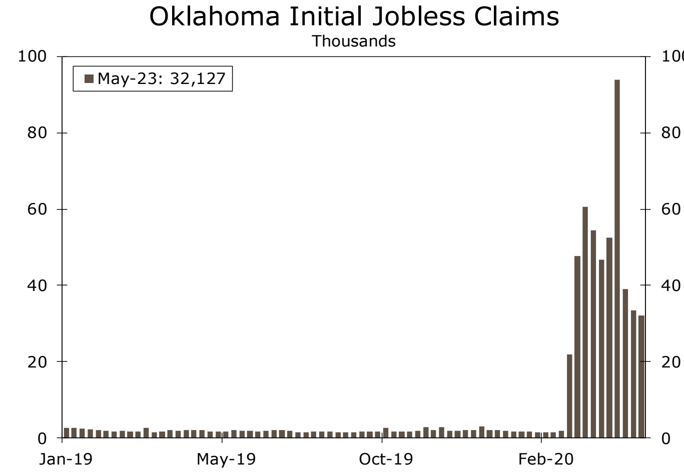
U.S. Department of Labor, U.S. EIA, Baker Hughes and Wells Fargo Securities

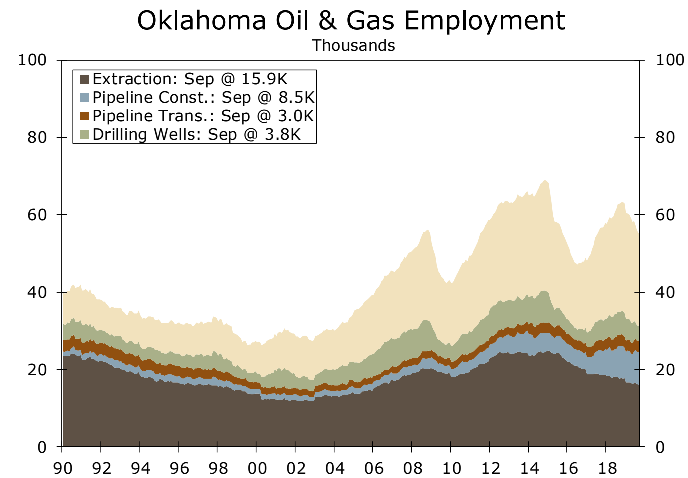
Oklahoma

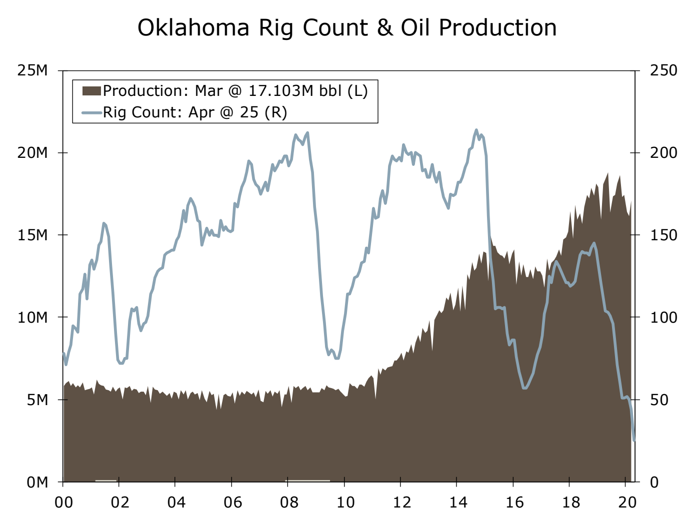
The coronavirus crisis and the plunge in oil prices are major tests for the Oklahoma economy. Alongside stay-at-home orders and the closing of many businesses since mid-March, more than 480,000 of the state's residents have filed for unemployment insurance. Perhaps in response to the historic rise in unemployment, some restrictions have now been lifted. While social distancing guidelines will remain in place, nonessential businesses, such as retailers, sporting venues and even bars and restaurants are now re-opening in phases.

Rubbing salt into the wound, the collapse in oil prices is wreaking havoc on the state's influential oil and gas industry. The Oklahoma economy has diversified somewhat in recent years but still has deep energy roots. The state has long been considered the largest energy hub outside of Texas, due to its dense concentration of energy company headquarters. Nearly every Fortune 500 company in the state is energy-related.

- Payrolls in the state have fallen by more than 140,000 over the past two months, while employment in the mining & logging industry is now down almost 25% over the year.
- Oklahoma is the nation's fourth largest oil producer. The rig count, which hit a peak of around 210 in 2014, recently fell to a modern era low of just 20 at the end of April.
- Oil and gas production is spread throughout the state, but production has ramped up in the SCOOP (South Central Oklahoma Oil Province) and STACK (Sooner Trend, Anadarko, Canadian and Kingfisher) shale plays in recent years.
- The relatively heavy reliance on oil and gas extraction (about 11% of GDP) makes the state economy particularly sensitive to swings in commodity prices. In 2016, real GDP in the state declined 3% and total payrolls fell almost 1% in 2016 as the oil rout unfolded.
- The oil and gas industry directly supports 54,900 jobs in the state, down from 69,000 in 2014.
- The city of Cushing received renewed attention recently as oil storage capacity has been stretched. Cushing is known as the "Pipeline Crossroads of the World," a designation owed to the various intersecting pipelines, storage facilities and refiners which make it a vital transshipment point connecting the Gulf Coast suppliers with northern consumers. Cushing's position as a major hub led to WTI's status as a pricing benchmark and the underlying commodity for New York Mercantile Exchange oil futures contracts.







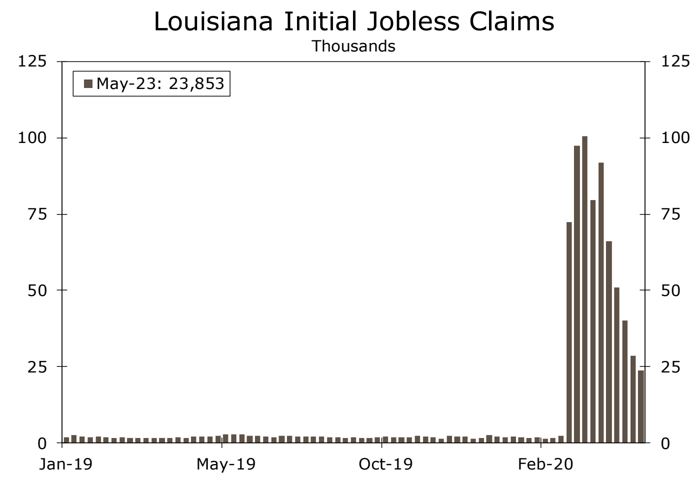
U.S. Department of Labor, U.S. EIA, Baker Hughes and Wells Fargo Securities

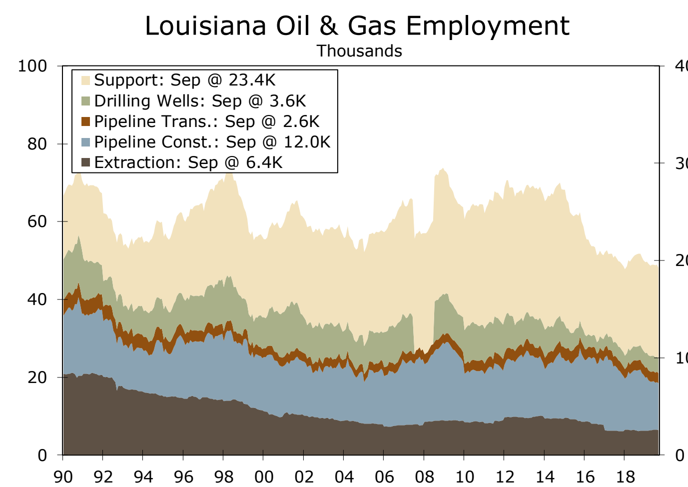
Louisiana

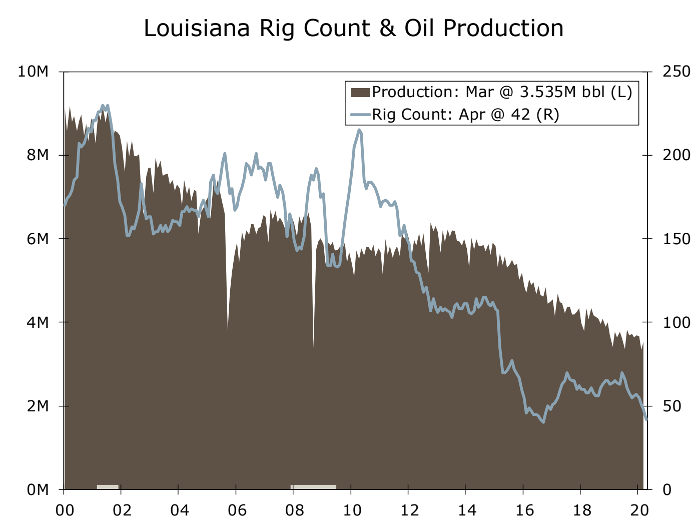
Recent COVID-19-related business closures have hit the Louisiana economy particularly hard. Over the past ten weeks, more than 650,000 jobless claims have been filed, which amounts to almost 31% of the labor force. The state unemployment rate shot up to 6.7% in March and surged to 14.5% in April. Job losses were widespread, with casinos, hotels, restaurants and bars hit particularly hard. New Orleans, which was an early coronavirus hotspot, has been severely impacted. The metro is highly dependent on tourism, and hotel occupancy rates have plummeted to 24%, vs 79% a year ago.

Even before the pandemic, employment growth in the state had been lagging the rest of the country. Louisiana's energy sector, which is a massive economic driver, has struggled to regain traction following the oil rout. New Orleans, which has a more diverse and services-oriented employment base, has performed slightly better. Baton Rouge and Shreveport, however, have struggled for much of the past decade. Lake Charles, which had blossomed into one of the fastest growing metros thanks to a wave of investment in natural gas and petrochemical manufacturing, has also weakened significantly. Overall, the Pelican State economy has a tough road ahead as it battles the one-two punch of the COVID-19 crisis and markedly lower commodity prices.

- While on-shore production has fallen in the state itself, Louisiana is still the country's second largest producer of crude oil and third largest producer of natural gas, when including federal outer continental shelf production.
- Roughly 48,000 jobs in the state are directly supported by the oil and gas industry, or about 2.5% of total employment. The true economic impact, however, is much greater, with some studies estimating over 200,000 jobs supported by the energy value chain.
- The number of oil rigs in operation has fallen sharply since the start of the year, both onshore and offshore.
- Louisiana is the pipeline capital of the nation. Some studies have estimated that there are enough miles of pipeline carrying petrochemical products, gasoline, jet fuel and refined products, both onshore Louisiana and in the Gulf of Mexico, to circle the Earth four times.
- Baton Rouge and Lake Charles have a huge base of petrochemical manufacturing and refining facilities. A new wave of industrial construction had been planned in the region, but the slump in global economic activity has put much of that investment at risk, and many projects have been shelved.







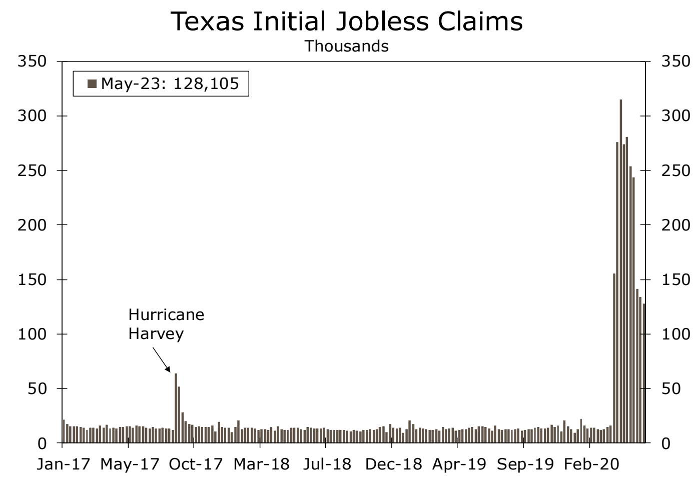
U.S. Department of Labor, U.S. EIA, Baker Hughes and I Wells Fargo Securities

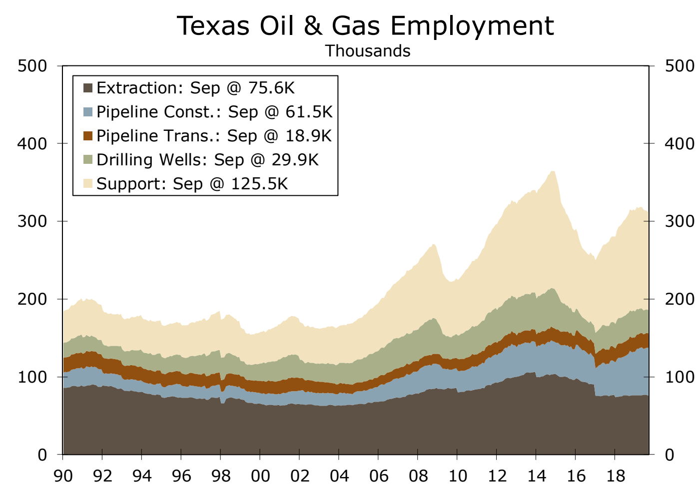
Texas

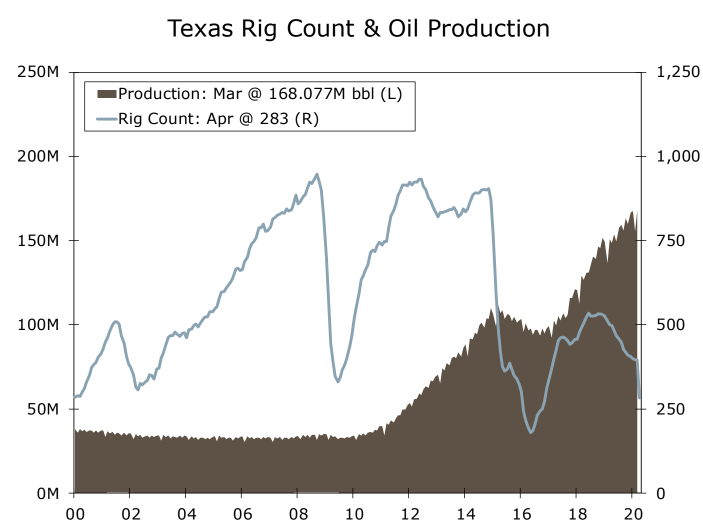
Texas is no stranger to the boom-and-bust periods from commodity price swings. However, the unprecedented combination of the COVID-19 crisis and dramatic decline in oil prices stands to significantly derail what had become one of the nation's great economic success stories. A 31-month string of Texas job gains ended in March when nonfarm payrolls fell by 89,900. Payrolls subsequently tumbled by a record 1,300,000 in April and the unemployment rate shot up to 12.8%.

The dramatic fall in payrolls comes as little shock, as state officials issued stay-at-home orders and many businesses shut down. Having fewer coronavirus cases than initially expected, Texas is now beginning to gradually re-open. Given the state's massive population and economically diverse metro areas, Texas has been a test case for other states looking to also re-open. Even as economic conditions begin to improve, the slide in oil prices has put immense pressure on the nation's largest energy-producing state.

- If Texas were a sovereign nation, it would be the third largest energy producer in the world. Total output in the state's mining sector, which includes oil & gas extraction, was over $153 billion and 8.1% of state GDP in 2019.
- The oil and gas industry directly supports 311,000 jobs and has sizable spillover effects on a wide array of industries such construction, fabricated metal manufacturing, engineering and other professional support services.
- Texas energy producers have quickly reacted to falling oil prices. The rig count in the state started the year at almost 400, but has already plunged well below 300.
- Cutbacks in oil production are likely to be concentrated in West Texas, where the bulk of the rise in energy production has been.
- In an effort to help rebalance oil markets, the federal government has announced it will attempt to purchase 75 million barrels of oil for the Strategic Petroleum Reserve (SPR). Texas has two of the four U.S. SPR crude oil storage facilities, which are located in giant salt caverns along the Gulf Coast.







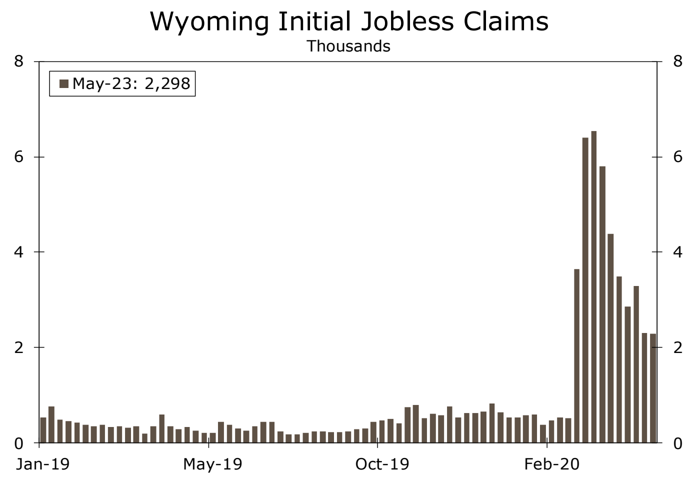
Source: U.S. Department of Labor, U.S. EIA, Baker Hughes and Wells Fargo Securities

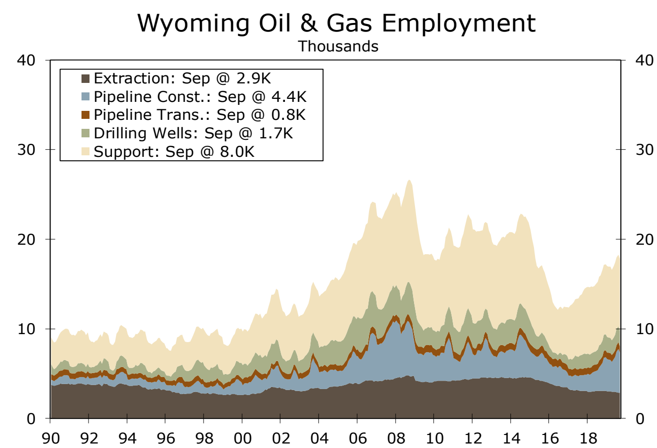
Wyoming

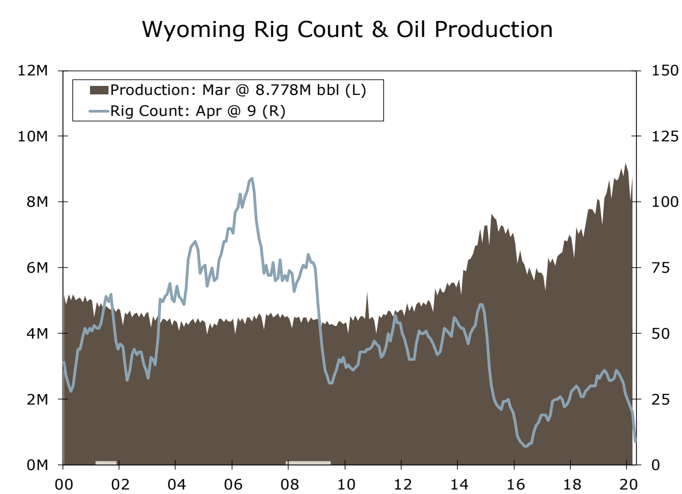
Wyoming is another state that has been less directly impacted by the coronavirus but is suffering greatly from the downshift in global economic growth. While Wyoming has seen a relatively light caseload, the state's economy is heavily reliant on tourism and energy production, two areas which have been hit particularly hard. The leisure and hospitality industry is one of the largest employment sectors, with Yellowstone and Grand Teton National Parks attracting nearly nine million tourists in 2018.

Furthermore, not only is the state heavily reliant on oil and gas extraction, it is also a top coal producer, accounting for about 40% of total U.S. production. The recent collapse in demand combined with the shift to renewable energy sources has created a long-term decline in Wyoming coal production, which fell to the lowest level since the early 1990s in April. Together, the mining, quarrying and oil & gas extraction sector comprises nearly 17% of state GDP, more than any other state. The ebbs and flows of the energy industry have been readily apparent in hiring across the state. At the beginning of 2019, total payrolls were growing at an above-average 2% pace. However, employment growth has since slipped into negative territory alongside a pullback in oil and gas investment.

- Following the drop in oil production in 2015 and 2016, oil production has steadily risen and reached a 30-year high in 2019.
- Crude oil and natural gas production is spread across the state, with production taking place in 21 of the state's 23 counties. Southwestern Wyoming sits atop the Green River oil shale, but most of the recent upshift in oil production has taken place in the Niobrara Shale in the southeastern corner of the state and the Powder River Basin in the northeastern corner.
- There were less than 10 rigs in operation throughout the state at the end of May, compared to more than 30 in May of last year.
- Over 17,800 jobs in the state are directly supported by the energy industry, or roughly 6.1% of nonfarm payrolls. Oil and gas extraction alone accounts for almost 7% of state GDP, the third highest share of any state.
- Wyoming is the nation's largest net energy supplier, producing 15 times more energy than it consumes, a result of the state's relatively small population and massive oil and gas reserves.







Source: U.S. Department of Labor, U.S. EIA, Baker Hughes and Wells Fargo Securities

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