News Release
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TENTH DISTRICT ENERGY ACTIVITY ACCELERATED MODERATELY

*Federal Reserve Bank of Kansas City Releases First Quarter Energy Survey*

KANSAS CITY, Mo. –The Federal Reserve Bank of Kansas City released the first quarter Energy Survey today. According to Chad Wilkerson, Oklahoma City Branch executive and economist at the Federal Reserve Bank of Kansas City, the survey revealed that Tenth District energy activity accelerated moderately, and the outlook remained positive but somewhat cautious.

"Regional energy firms reported stronger growth in the first quarter," said Wilkerson. "They expect only moderate negative effects from announced tariffs."

The Kansas City Fed's quarterly Tenth District Energy Survey provides information on current and expected activity among energy firms in the Tenth District. The survey monitors oil and gas-related firms located and/or headquartered in the Tenth District, with results based on total firm activity. Survey results reveal changes in several indicators of energy activity, including drilling, capital spending, and employment. Firms also indicate projections for oil and gas prices. All results are diffusion indexes – the percentage of firms indicating increases minus the percentage of firms indicating decreases. A summary of the first quarter survey is attached. Results from past surveys and release dates for future surveys can be found at https://www.kansascityfed.org/research/indicatorsdata/energy.

The Federal Reserve Bank of Kansas City serves the Tenth Federal Reserve District, encompassing the western third of Missouri; all of Kansas, Colorado, Nebraska, Oklahoma and Wyoming; and the northern half of New Mexico. As part of the nation's central bank, the Bank participates in setting national monetary policy, supervising and regulating numerous commercial banks and bank holding companies, and providing financial services to depository institutions. More information is available online at www.kansascityfed.org.

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# Tenth District Energy Survey

*First quarter energy survey results revealed Tenth District energy activity accelerated moderately. The future activity outlook remained positive but somewhat cautious. Firms said that oil and natural gas prices needed to be on average $52 per barrel and $2.92 per million Btu, respectively to be profitable in the areas where they are active. At the time of the survey, anticipated steel and aluminum tariffs were expected to have low to medium impacts on drilling costs.*

### Summary of Quarterly Indicators

Growth in Tenth District energy activity accelerated moderately in the first quarter of 2018, as indicated by firms contacted between March 15th and March 30th (Tables 1 & 2). All quarterly indexes increased in the first quarter. The drilling and business activity index increased from 13 to 37 (Chart 1). The supplier delivery time index jumped back into positive territory, and total profits and wages and benefits also increased considerably. The revenues index improved moderately, and the employee hours and employment indexes were marginally higher. The access to credit index inched up from zero to three.

Most year-over-year indexes strengthened. The year-over-year capital expenditures index increased to its highest level ever. After two quarters in negative territory, the supplier delivery time index rebounded considerably. The total revenues, profits, and wages and benefits indexes were moderately higher. The employee hours index edged up, while the drilling and business activity index remained flat at high levels. Conversely, the employment index fell modestly, and the access to credit index declined to zero.

Expectations continued to improve. The future drilling and business activity and employee hours indexes rose moderately, while the supplier delivery time index surged back into positive territory from -11 to 15. The employment, profits, capital expenditures, and revenues indexes increased to their highest levels in a year. However, the future wages and benefits and access to credit indexes declined. Price expectations for oil and gas were moderately lower, suggesting that most respondents expected prices to remain close to their levels at the time of the survey.

### Summary of Special Questions

This quarter firms were asked what oil and natural gas prices were needed to be profitable in the areas in which they were active. The average oil price needed was $52 per barrel, with a range of $25 to $80 (Chart 2). This average was similar to the $51 average reported in the first and third quarters of 2017. The average natural gas price needed was $2.92 per million Btu, with responses ranging from $2.00 to $4.00. This average fell to its lowest level since this question has been asked.

Firms were again asked what they expected oil and natural gas prices to be in six months, one year, two years, and five years. Expected oil prices were up slightly since the last quarter. The average expected WTI prices were $63, $64, $66, and $72 per barrel, respectively. Meanwhile natural gas price expectations continued to deteriorate due to the sizeable domestic oversupply and LNG export constraints. The average expected Henry Hub natural gas prices were $2.70, $2.83, $2.98, and $3.33 per million Btu, respectively.

Firms were also asked about the anticipated effects of potential steel and aluminum tariffs on their business. Most respondents expected a low to medium effect (Chart 3). Several said that drilling and pipeline costs would be the most affected, but is a small portion of their total costs.

Firms were also asked about current or anticipated price pressures. Over half of respondents said skilled labor would see medium price pressures (Chart 4). About forty percent reported medium price pressures in logistics and drilling inputs and said services costs were increasing. Equipment and financing were overall expected to see low price pressures. About a fifth of contacts anticipated high price pressures on logistics, equipment and inputs.

**Selected Comments**

"Increasing U.S. light oil production will place downward pressure on the market over the next two years. Export infrastructure and world demand will catch up in two to three years and allow prices to rise with world demand."

"The development of LNG will help raise the price of natural gas as it gets shipped to other parts of the world, lessening the glut in the U.S."

"Domestic steel prices have increased, steel is a large component of compressor skids and will increase overall costs 10 to 15 percent with no assurance of being able to pass on these costs down the supply chain."

"Activity increases are steady ahead, unless an upward price spike occurs, service industry should be able to accommodate any supply cost increases or price pressures with moderate increases in prices. Prices fell 30 percent or more in the downturn and efficiency is up."

"We continue to drill and fracture wells but there is some concern over the political climate in Colorado and what will happen in the November elections."

"We are balancing cash flow and capital spending by continuing to work on efficiencies. At current commodity pricing we are forecasting significant free cash flow over spending for fiscal year 2018."

"Steel tubular goods and flat metal utilized for production tanks and processing equipment will increase our cost of business. Negotiations continue to play out and we anticipate only moderate supply disruption from the announced tariffs. However, the potential for stalled negotiations could have a material effect on U.S. supply resulting in higher costs and lower activity."

"I think we're in a sweet spot right now where the current oil price promotes responsible development, but the price is not high enough to where the industry overheats."

"We do not have that much debt, so a small increase in interest rates would have a minimal impact on us."

**Table 1**
**Summary of Tenth District Energy Conditions, Quarter 1, 2018**

| | Quarter 1 vs. Quarter 4 (percent)* | | | | Quarter 1 vs. Year Ago (percent)* | | | | Expected in Six Months (percent)* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Energy Company Indicators | Increase | No Change | Decrease | Diff Index^ | Increase | No Change | Decrease | Diff Index^ | Increase | No Change | Decrease | Diff Index^ |
| Drilling/Business Activity | 41 | 56 | 4 | 37 | 69 | 15 | 15 | 54 | 58 | 35 | 8 | 50 |
| Total Revenues | 53 | 43 | 3 | 50 | 72 | 24 | 4 | 68 | 56 | 40 | 4 | 52 |
| Capital Expenditures | | | | | 75 | 18 | 7 | 68 | 59 | 37 | 4 | 56 |
| Supplier Delivery Time | 22 | 74 | 4 | 19 | 22 | 74 | 4 | 19 | 22 | 70 | 7 | 15 |
| Total Profits | 57 | 37 | 7 | 50 | 63 | 27 | 10 | 53 | 60 | 33 | 7 | 53 |
| Number of Employees | 30 | 60 | 10 | 20 | 45 | 41 | 14 | 31 | 38 | 59 | 3 | 34 |
| Employee Hours | 28 | 69 | 3 | 24 | 33 | 63 | 3 | 30 | 43 | 57 | 0 | 43 |
| Wages and Benefits | 34 | 66 | 0 | 34 | 48 | 52 | 0 | 48 | 38 | 59 | 3 | 34 |
| Access to Credit | 10 | 83 | 7 | 3 | 10 | 80 | 10 | 0 | 10 | 83 | 7 | 3 |
| Expected Oil Prices | | | | | | | | | 38 | 55 | 7 | 31 |
| Expected Natural Gas Prices | | | | | | | | | 21 | 62 | 17 | 3 |
| Expected Natural Gas Liquids Prices | | | | | | | | | 29 | 50 | 21 | 7 |

*Percentage may not add to 100 due to rounding.
^Diffusion Index. The diffusion index is calculated as the percentage of total respondents reporting increases minus the percentage reporting declines.

Note: The first quarter survey ran from March 15, 2018 to March 30, 2018 and included 32 responses from firms in Colorado, Kansas, Nebraska, Oklahoma, Wyoming, northern New Mexico, and western Missouri.

**Chart 1. Drilling/Business Activity Index vs. a Quarter Ago**

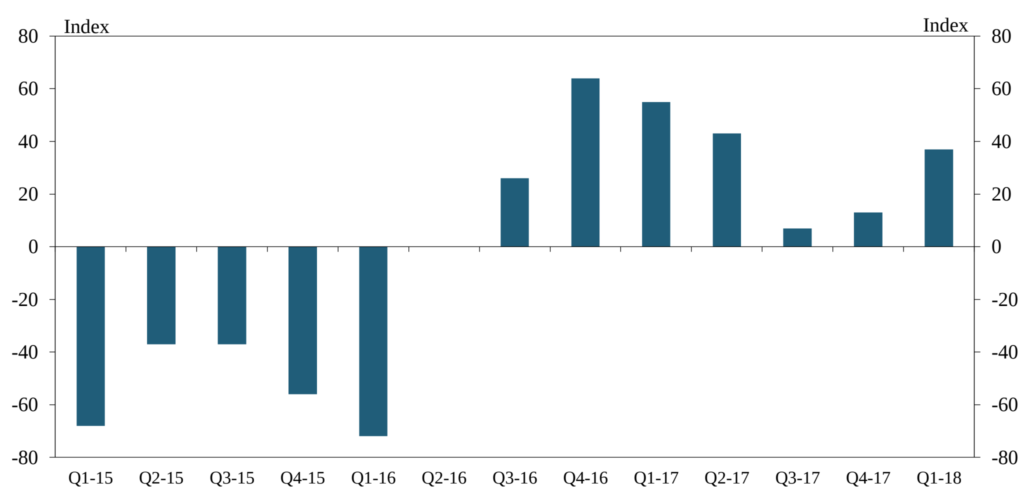


**Table 2**
**Historical Energy Survey Indexes**

| | Q1'15 | Q2'15 | Q3'15 | Q4'15 | Q1'16 | Q2'16 | Q3'16 | Q4'16 | Q1'17 | Q2'17 | Q3'17 | Q4'17 | Q1'18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Versus a Quarter Ago* | | | | | | | | | | | | | |
| (not seasonally adjusted) | | | | | | | | | | | | | |
| Drilling/Business Activity | -68 | -37 | -37 | -56 | -72 | 0 | 26 | 64 | 55 | 43 | 7 | 13 | 37 |
| Total Revenues | -81 | -45 | -58 | -86 | -67 | -31 | 5 | 62 | 52 | 20 | 23 | 39 | 50 |
| Capital Expenditures | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Supplier Delivery Time | -3 | 11 | 6 | -6 | -9 | -3 | -8 | -7 | 4 | 11 | -10 | -4 | 19 |
| Total Profits | -86 | -53 | -61 | -76 | -78 | -22 | -10 | 42 | 41 | 3 | 21 | 29 | 50 |
| Number of Employees | -26 | -37 | -41 | -49 | -69 | -59 | -11 | 26 | 31 | 23 | 17 | 19 | 20 |
| Employee Hours | -43 | -19 | -39 | -39 | -54 | -52 | -10 | 20 | 16 | 20 | 0 | 19 | 24 |
| Wages and Benefits | 0 | -16 | -30 | -33 | -50 | -37 | -22 | 17 | 13 | 20 | 7 | 16 | 34 |
| Access to Credit | -17 | -10 | -41 | -49 | -39 | -17 | -5 | 0 | 3 | -3 | 13 | 0 | 3 |
| | | | | | | | | | | | | | |
| *Versus a Year Ago* | | | | | | | | | | | | | |
| Drilling/Business Activity | -63 | -84 | -91 | -89 | -84 | -65 | -21 | 41 | 59 | 70 | 44 | 54 | 54 |
| Total Revenues | -70 | -77 | -88 | -92 | -81 | -69 | -31 | 15 | 52 | 62 | 37 | 56 | 68 |
| Capital Expenditures | -67 | -62 | -84 | -76 | -73 | -84 | -58 | 14 | 43 | 59 | 50 | 50 | 68 |
| Supplier Delivery Time | 11 | -4 | -18 | -3 | -6 | -14 | -11 | -14 | -4 | 11 | -14 | -7 | 19 |
| Total Profits | -74 | -90 | -89 | -92 | -81 | -71 | -49 | 23 | 55 | 59 | 21 | 38 | 53 |
| Number of Employees | -13 | -32 | -47 | -56 | -78 | -67 | -50 | -7 | 13 | 31 | 23 | 40 | 31 |
| Employee Hours | -43 | -38 | -54 | -40 | -66 | -48 | -37 | 3 | 0 | 28 | 10 | 27 | 30 |
| Wages and Benefits | 3 | -28 | -25 | -26 | -47 | -42 | -33 | 17 | 9 | 31 | 37 | 34 | 48 |
| Access to Credit | -43 | -32 | -40 | -56 | -53 | -47 | -30 | -17 | 13 | -3 | 20 | 7 | 0 |
| | | | | | | | | | | | | | |
| *Expected in Six Months* | | | | | | | | | | | | | |
| (not seasonally adjusted) | | | | | | | | | | | | | |
| Drilling/Business Activity | -53 | 20 | -26 | -43 | -31 | 39 | 21 | 73 | 57 | 26 | 30 | 33 | 50 |
| Total Revenues | -42 | 19 | -36 | -56 | -17 | 26 | 6 | 67 | 52 | 18 | 44 | 44 | 52 |
| Capital Expenditures | -67 | -3 | -41 | -67 | -50 | 17 | 9 | 79 | 37 | 19 | 37 | 43 | 56 |
| Supplier Delivery Time | 10 | -10 | -3 | -9 | -3 | -3 | -8 | -7 | 11 | 4 | -11 | -11 | 15 |
| Total Profits | -52 | -3 | -38 | -63 | -22 | 23 | 5 | 76 | 45 | 12 | 28 | 43 | 53 |
| Number of Employees | -29 | -7 | -34 | -51 | -39 | 6 | -22 | 32 | 16 | 21 | 20 | 21 | 34 |
| Employee Hours | -26 | 0 | -24 | -42 | -39 | 6 | -8 | 28 | 16 | 21 | 17 | 27 | 43 |
| Wages and Benefits | -26 | 7 | -14 | -27 | -38 | -3 | 3 | 52 | 23 | 7 | 30 | 50 | 34 |
| Access to Credit | -21 | 0 | -31 | -40 | -35 | 0 | -6 | 3 | 0 | 4 | 10 | 14 | 3 |
| Expected Oil Prices | 3 | 32 | 20 | -9 | 41 | 58 | 49 | 72 | 3 | 4 | 54 | 50 | 31 |
| Expected Natural Gas Prices | -19 | 16 | 11 | -15 | 18 | 61 | 44 | 26 | 6 | 3 | 24 | 28 | 3 |
| Expected Natural Gas Liquids Prices | -13 | 10 | 6 | -15 | 29 | 59 | 31 | 64 | 14 | 21 | 38 | 30 | 7 |
| | | | | | | | | | | | | | |
| *Special Price Questions* | | | | | | | | | | | | | |
| (averages) | | | | | | | | | | | | | |
| Profitable WTI Oil Price (per barrel) | $62 | | $60 | | $51 | | $53 | | $51 | | $51 | | $52 |
| WTI Price to Substantially Increase Drilling | | $73 | | $60 | | $64 | | $60 | | $56 | | $62 | |
| WTI Price Expected in 6 Months | | | | | | | | | $51 | $47 | $52 | $58 | $63 |
| WTI Price Expected in 1 Year | | | | | | | | | $54 | $49 | $55 | $60 | $64 |
| WTI Price Expected in 2 Years | | | | | | | | | $60 | $54 | $58 | $62 | $66 |
| WTI Price Expected in 5 Years | | | | | | | | | $69 | $61 | $65 | $70 | $72 |
| | | | | | | | | | | | | | |
| Profitable Natural Gas Price (per million BTU) | | | | | $3.29 | | $3.45 | | $3.38 | | $3.05 | | $2.92 |
| Natural Gas Price to Substantially Increase Drilling | | | | | | $3.65 | | $3.97 | | $3.65 | | $3.59 | |
| Henry Hub Price Expected in 6 Months | | | | | | | | | $2.85 | $3.05 | $3.01 | $2.88 | $2.70 |
| Henry Hub Price Expected in 1 Year | | | | | | | | | $3.01 | $3.06 | $3.11 | $3.10 | $2.83 |
| Henry Hub Price Expected in 2 Years | | | | | | | | | $3.22 | $3.25 | $3.30 | $3.30 | $2.98 |
| Henry Hub Price Expected in 5 Years | | | | | | | | | $3.64 | $3.51 | $3.73 | $3.65 | $3.33 |

**Chart 2. Special Question - What price is currently needed for drilling to be profitable for oil and natural gas, and what do you expect the WTI and Henry Hub prices to be in six months, one year, two years, and five years?**

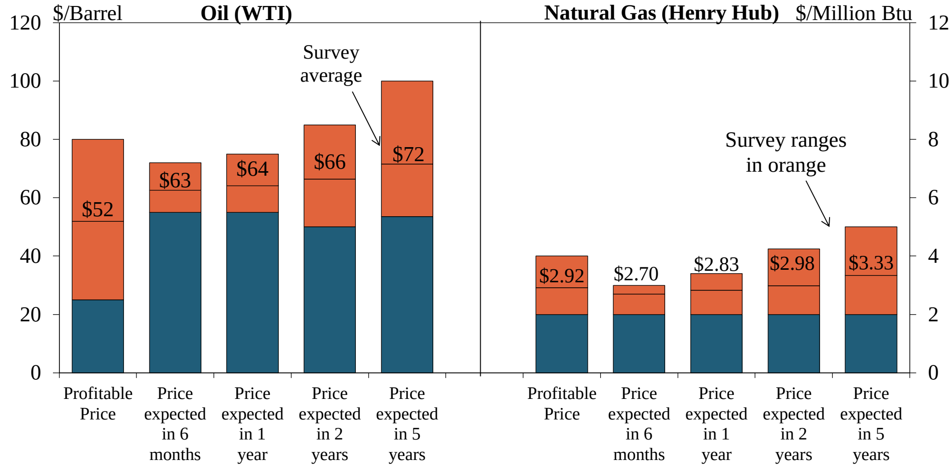



**Chart 3. Special Question - What is the anticipated effect of the potential steel (25%) and aluminum (10%) tariffs on your business?**

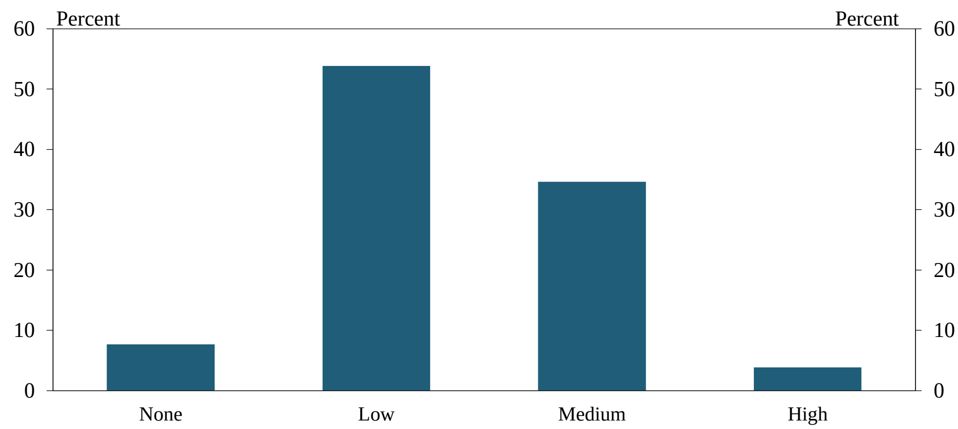
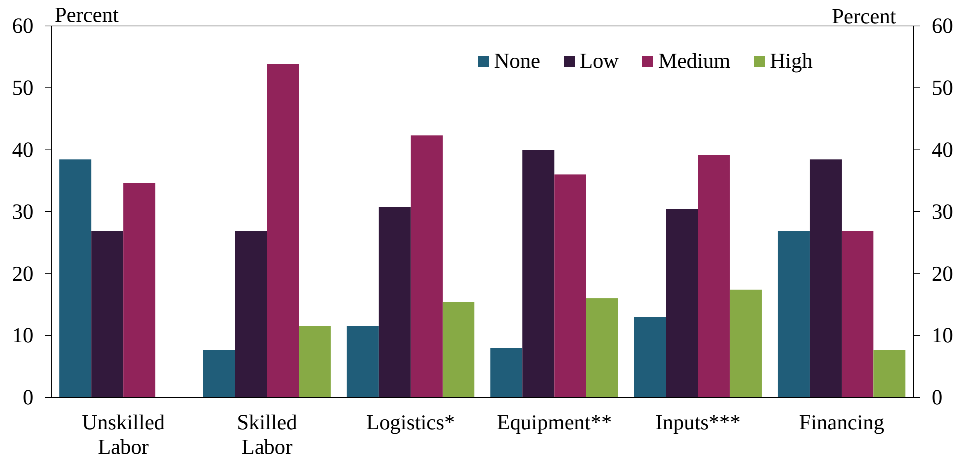



**Chart 4. Special Question - Are you currently seeing or do you anticipate over the next year any price pressures in the following areas of your business?**




Notes: *Transportation, pipelines, etc.; **Rigs, fracking equipment, etc.; ***Frack sand, proppant, casing material, water, etc.