News Release
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TENTH DISTRICT ENERGY ACTIVITY ACCELERATES
Federal Reserve Bank of Kansas City Releases 4th Quarter Energy Survey

KANSAS CITY, Mo. –The Federal Reserve Bank of Kansas City released the 4th 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 an acceleration in Tenth District energy activity.

"Regional oil and gas firms said they returned to profitability in the fourth quarter for the first time in over two years," said Wilkerson. "Companies began hiring again and increased their drilling programs further."

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 4th 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

Tenth District Energy Activity Continued to Increase in the Fourth Quarter

Fourth quarter energy survey results indicated that Tenth District energy firm activity accelerated. The future activity outlook also improved considerably. Still, firms reported that oil and natural gas prices on average needed to be $60 per barrel and $3.98 per million BTU, respectively, to increase drilling substantially. The majority of firms did not expect OPEC to comply with their lower oil production target.

Summary of Quarterly Indicators

District energy activity accelerated in the fourth quarter of 2016, as reported by firms contacted between December 15 and 30 (Tables 1 & 2). The drilling and business activity index increased from 26 to 64, the highest reading in the 3-year history of the survey (Chart 1). The total revenues index climbed from 5 to 62, and the total profits index jumped from -10 to 42, its first positive reading in over two years. The employment, employee hours, and wages and benefits indexes also increased modestly back into positive territory. The access to credit index rose from -5 to 0, while the supplier delivery time index inched higher but remained negative.

The year-over-year indexes improved considerably. The drilling and business activity, revenues, profits, and capital spending indexes climbed back into positive territory for the first time since 2014. The employee hours and wages and benefits indexes also turned positive. The employment and access to credit indexes rose modestly but remained negative, while the supplier delivery time index edged lower.

The future expectations indexes also increased. The future drilling and business activity index increased considerably, from 21 to 73. The future revenues index rose from 6 to 67, and the future total profits index also picked up moderately. The future capital spending index jumped to 79, and the future employment and employee hours indexes were moderately higher. The access to credit index rose from -6 to 3.

Price expectations for oil and gas were mostly higher. The expected oil prices index rose from 49 to 72, and the NGL price index also picked up moderately. Conversely, the expected natural gas prices index fell from 44 to 26.

Summary of Special Questions

Firms were asked what oil and natural gas prices were needed to increase drilling substantially. The average oil price needed was $60 per barrel, and responses ranged from $50 to $70 (Chart 2). This was lower than the $64 average reported in Q2 2016. The average natural gas price needed was $3.97 per million BTU, with responses ranging from $3 to $5.

Firms were also asked what they expected the WTI oil price to be by year-end 2017 and 2018. For year-end 2017, the average expected WTI price was $58 per barrel, up slightly from the $57 per barrel average expected last quarter. The average price for year-end 2018 was $63 per barrel.

Firms were also asked what they expected the Henry Hub natural gas price to be by year-end 2017 and 2018. The year-end 2017 expected price was $3.64 per million BTU, up from the average of $3.33 per million BTU last quarter. The average year-end 2018 expected price was $3.73 per million BTU.

Firms were asked if they believed OPEC would be able to enforce its agreement to limit its crude oil output to a target of 32.5 million barrels per day. The majority of firms did not expect the cartel to produce at the target amount (Chart 3). Several respondents cited previous failed efforts to limit production. On average, firms expected OPEC to produce closer to 33.7 million barrels per day. Those who did believe OPEC would cut its production mentioned OPEC countries needing higher prices as the main reason.

Firms were also asked how their view of the U.S. oil production outlook for 2017 changed following OPEC's announcement. Most respondents revised up their U.S. production forecast because of the somewhat higher prices after the announcement (Chart 4).

Finally, firms were asked about acreage being overvalued in the Permian Basin and elsewhere given reports about recent transactions. Most firms thought that acreage prices were overpriced, and expected the trend to continue for some time.

Selected Comments

"The OPEC announcement provided a psychological boost to the market. With the increase in active drilling rigs from last summer's low to now over 600, production is destined to increase."

"History is not on the side of the OPEC cuts actually being reality. But the OPEC members need higher prices so maybe this time they will abide by the agreements."

"Permian acreage is overvalued. At near-term oil prices, it would be difficult to pay the prices some are paying today. There has been some slight easing in the Delaware in the past couple of transactions."

"Cuts in the service industry have been so deep that a very small increase in activity will create tight markets for services. There are signs on this already happening."

"With the official OPEC announcement it means some risk has been removed from the minds of some producers. With this removed risk drilling will increase."

"The current NYMEX strip prices for oil and gas has spurred drilling on our acreage. We will participate and lock in these prices over the next year via hedging."

"US producers will continue to produce where economic. As prices rise, there will be more areas that are economic and there will be less infrastructure required to address the growth given that some of the first areas back will be areas where infrastructure is new and relatively underutilized."

"Acreage prices have gotten completely out of hand not only in the Permian Basin, but in the Oklahoma Scoop and Stack plays. Oil and gas prices will have to improve significantly in order to justify the current prices being paid."

Table 1
Summary of Tenth District Energy Conditions, Quarter 4, 2016

	Quarter 4 vs. Quarter 3 (percent)*				Quarter 4 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	71	21	7	64	67	7	26	41	77	19	4	73
Total Revenues	72	17	10	62	54	8	38	15	75	17	8	67
Capital Expenditures					46	21	32	14	79	21	0	79
Supplier Delivery Time	3	86	10	-7	0	86	14	-14	7	79	14	-7
Total Profits	58	26	16	42	50	23	27	23	79	17	3	76
Number of Employees	35	55	10	26	30	33	37	-7	39	54	7	32
Employee Hours	27	67	7	20	20	63	17	3	31	66	3	28
Wages and Benefits	27	63	10	17	37	43	20	17	55	41	3	52
Access to Credit	10	81	10	0	10	63	27	-17	17	69	14	3
Expected Oil Prices									72	28	0	72
Expected Natural Gas Prices									42	42	16	26
Expected Natural Gas Liquids Prices									64	36	0	64

*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 fourth quarter survey ran from December 15-30, 2016 and included 31 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

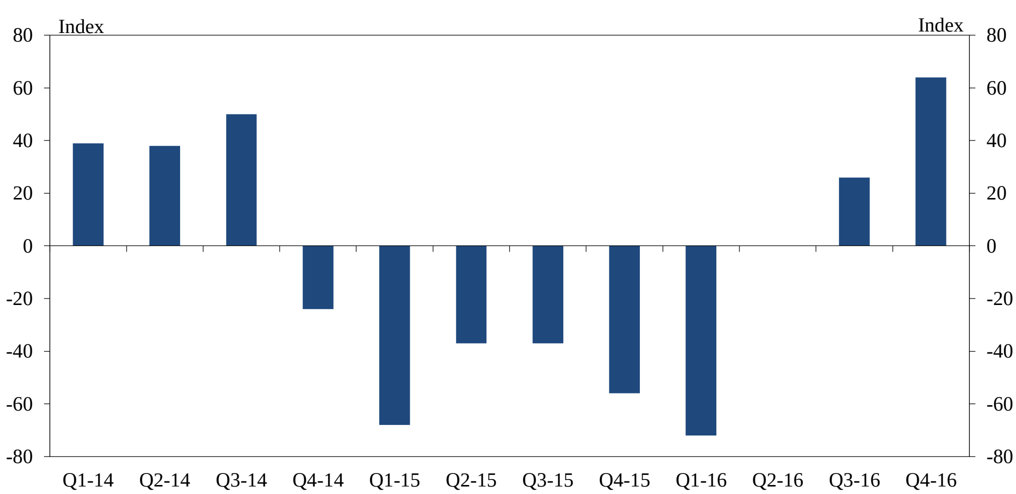

Table 2
Historical Energy Survey Indexes

	Q1'14	Q2'14	Q3'14	Q4'14	Q1'15	Q2'15	Q3'15	Q4'15	Q1'16	Q2'16	Q3'16	Q4'16
Versus a Quarter Ago												
(not seasonally adjusted)												
Drilling/Business Activity	39	38	50	-24	-68	-37	-37	-56	-72	0	26	64
Total Revenues	33	57	72	-42	-81	-45	-58	-86	-67	-31	5	62
Supplier Delivery Time	-3	12	-15	4	-3	11	6	-6	-9	-3	-8	-7
Total Profits	31	34	50	-44	-86	-53	-61	-76	-78	-22	-10	42
Number of Employees	42	28	41	0	-26	-37	-41	-49	-69	-59	-11	26
Employee Hours	20	14	34	-19	-43	-19	-39	-39	-54	-52	-10	20
Wages and Benefits	48	34	45	12	0	-16	-30	-33	-50	-37	-22	17
Access to Credit	6	15	14	-12	-17	-10	-41	-49	-39	-17	-5	0
Versus a Year Ago												
Drilling/Business Activity	26	19	56	-23	-63	-84	-91	-89	-84	-65	-21	41
Total Revenues	53	63	71	-4	-70	-77	-88	-92	-81	-69	-31	15
Capital Expenditures	19	30	52	-11	-67	-62	-84	-76	-73	-84	-58	14
Supplier Delivery Time	-3	12	-15	8	11	-4	-18	-3	-6	-14	-11	-14
Total Profits	38	46	62	-16	-74	-90	-89	-92	-81	-71	-49	23
Number of Employees	35	28	67	35	-13	-32	-47	-56	-78	-67	-50	-7
Employee Hours	20	11	33	4	-43	-38	-54	-40	-66	-48	-37	3
Wages and Benefits	59	38	67	38	3	-28	-25	-26	-47	-42	-33	17
Access to Credit	3	11	26	-25	-43	-32	-40	-56	-53	-47	-30	-17
Expected in Six Months												
(not seasonally adjusted)												
Drilling/Business Activity	34	58	46	-83	-53	20	-26	-43	-31	39	21	73
Total Revenues	59	74	69	-60	-42	19	-36	-56	-17	26	6	67
Capital Expenditures	20	33	44	-64	-67	-3	-41	-67	-50	17	9	79
Supplier Delivery Time	-3	4	-11	15	10	-10	-3	-9	-3	-3	-8	-7
Total Profits	47	59	61	-76	-52	-3	-38	-63	-22	23	5	76
Number of Employees	42	50	59	-23	-29	-7	-34	-51	-39	6	-22	32
Employee Hours	29	26	39	-48	-26	0	-24	-42	-39	6	-8	28
Wages and Benefits	34	32	69	-8	-26	7	-14	-27	-38	-3	3	52
Access to Credit	13	29	23	-40	-21	0	-31	-40	-35	0	-6	3
Expected Oil Prices	3	24	-23	-52	3	32	20	-9	41	58	49	72
Expected Natural Gas Prices	22	30	37	-26	-19	16	11	-15	18	61	44	26
Expected Natural Gas Liquids Prices	26	26	-4	-42	-13	10	6	-15	29	59	31	64
Special Price Questions												
(averages)												
Profitable WTI Oil Price (per barrel)			$79		$62		$60		$51		$53	
WTI Price to Significantly Increase Drilling						$73		$60		$64		$60
Current Year-End Expected WTI Price*					$56	$63	$48		$45	$53	$49	$58
Next Year-End Expected WTI Price**						$70	$58	$50	$56	$62	$57	$63
Profitable Natural Gas Price (per million BTU)									$3.29		$3.45	
Henry Hub Price to Significantly Increase Drilling										$3.65		$3.97
Current Year-End Expected Henry Hub Price*										$2.84	$2.97	$3.64
Next Year-End Expected Henry Hub Price**										$3.18	$3.33	$3.73

* In Q4 of each year, these numbers reflect price expectations at the end of the following year
** In Q4 of each year, these numbers reflect year-end price expectations two years out

Chart 2. Special Question - What price is currently needed for a substantial increase in drilling to occur, and what do you expect the WTI and Henry Hub prices to be at the end of 2017 and 2018?

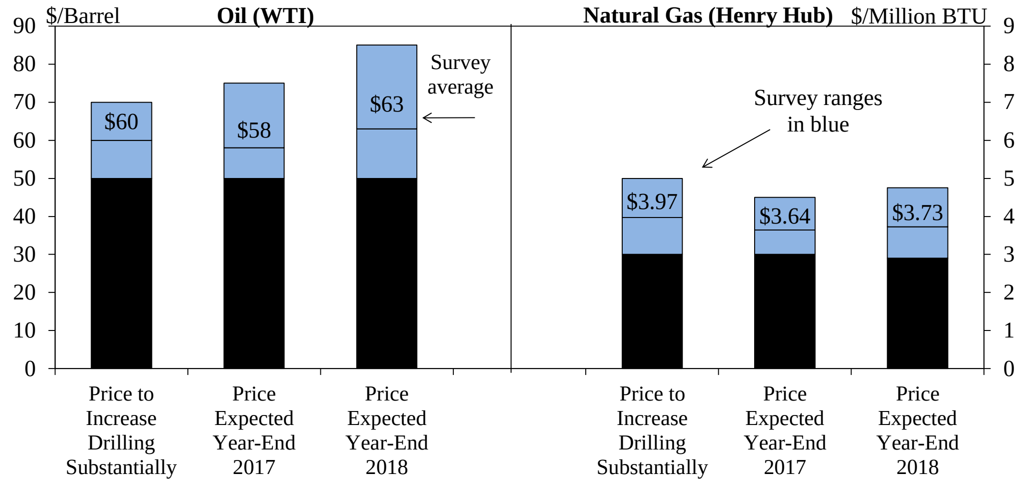

Chart 3. Special Question - OPEC reached an agreement to limit its crude oil output at its meeting on November 30. Their confirmed target was 32.5 million b/d effective January 2017 Do you believe OPEC will be able to enforce its agreement?

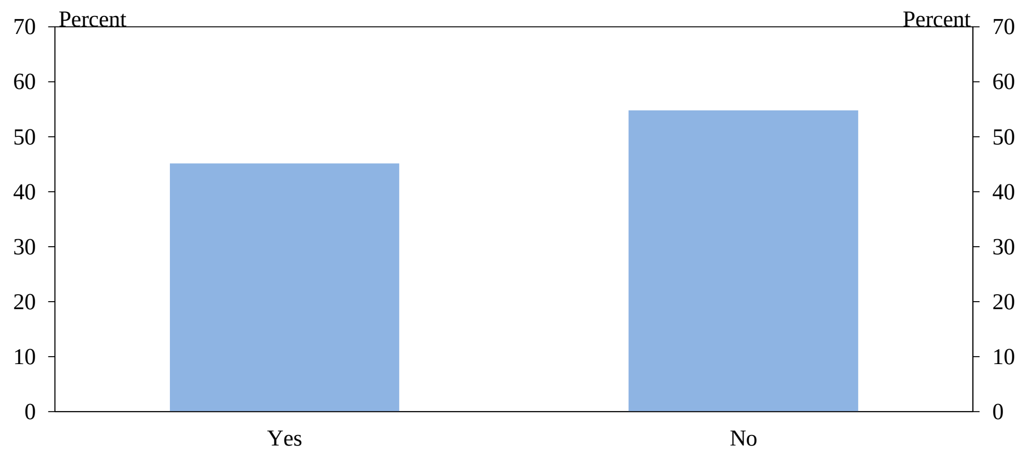

Chart 4. Special Question - How has your view on the U.S. oil production outlook for 2017 changed following the OPEC announcement?