News Release

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GROWTH IN TENTH DISTRICT ENERGY ACTIVITY SLOWS
Federal Reserve Bank of Kansas City Releases Third Quarter Energy Survey

KANSAS CITY, Mo. –The Federal Reserve Bank of Kansas City released the third 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 only slight growth in Tenth District energy activity.

"Firms reported much slower but still positive growth in activity in the third quarter, with the hurricanes having only a moderate negative effect," said Wilkerson. "Profitable prices for oil and natural gas were just over $50 per barrel and $3 per million Btu, respectively."

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 third 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

Third quarter energy survey results revealed only slight growth in Tenth District energy firm activity. The future activity outlook remained positive. Firms said that profitable oil and natural gas prices were on average $51 per barrel and $3.05 per million Btu, respectively. Firms also said that Hurricane Harvey had on average a low to medium negative impact on the oil and gas industry, with refineries being affected the longest, for an estimated average of nine weeks.

Summary of Quarterly Indicators

Growth in Tenth District energy activity slowed in the third quarter of 2017, as indicated by firms contacted between September 15 and 29 (Tables 1 & 2). Most indexes fell but remained positive. The drilling and business activity index declined from 43 to 7 (Chart 1). The indexes for employment, employee hours and wages and benefits were moderately lower, and the supplier delivery time index fell into negative territory. However, access to credit climbed back into positive territory, and the revenues index inched higher. The total profits index increased from 3 to 21.

Most year-over-year indexes declined but remained above zero. The drilling and business activity, revenues, and profits indexes fell considerably. Capital expenditures and employment eased somewhat. Furthermore, the supplier delivery time index dropped from 11 to -14. On the other hand, access to credit increased to its highest level since the third quarter of 2014, and wages and benefits increased for the third consecutive quarter.

Expectations were mixed but overall solid. The future wages and benefits, revenues, profits, and capital expenditures indexes increased moderately. The future drilling and business activity and access to credit indexes edged higher. The future employment index was largely unchanged, while employee hours eased slightly. The supplier delivery time index turned negative for the first time since the fourth quarter of 2016.

Most price expectations for oil and gas improved. The expected oil and gas prices indexes increased considerably, indicating that a larger number of respondents expected prices to increase over the next six months. The NGL price index continued to increase modestly.

Summary of Special Questions

Firms were asked what oil and natural gas prices were needed for drilling to be profitable in the areas in which they were active. The average oil price needed was $51 per barrel, with a range of $40 to $75 (Chart 2). This was flat from the first quarter survey. The average natural gas price needed was $3.05 per million Btu, with responses ranging from $2 to $4. This was down from $3.38 per million Btu in the first quarter.

Firms were asked what they expected oil and natural gas prices to be in six months, one year, two years, and five years. Oil and gas price expectations increased modestly since the second quarter. The average expected WTI prices were $52, $55, $58, and $65 per barrel, respectively. The average expected Henry Hub natural gas prices for these periods were $3.01, $3.11, $3.30, and $3.73 per million Btu.

Firms were asked to estimate the impact of Hurricane Harvey on each segment of the oil and gas industry. Refineries were expected to be the most affected. Almost half of respondents estimated a medium impact and a fifth estimated high impact (Chart 3). The impact to trade was estimated at low to medium. Responses were mixed for offshore production, but over a third expected a medium impact. The impact to onshore production and pipelines and transportation was largely expected to be low.

Additionally, firms were asked to give their estimates on the duration of impact from Hurricane Harvey on each segment. The impact was expected to last an average of nine weeks for refineries and almost six weeks for trade (Chart 4). Production and pipelines and transportation were estimated to be affected for four to five weeks.

Firms were asked how they expected the oil rig count to change over the next six months compared to current levels. Three-fourths of respondents expected rig counts to remain close to current levels. Slightly more than a fifth expected an increase, while only a few expected a decrease.

Finally, firms were asked for their year-end 2018 U.S. production forecast. A majority of respondents expected production to increase from current levels, to an average of 9.9 million barrels per day by the end of 2018.

Selected Comments

"We are moving ahead with the expectation that commodity prices may not materially improve for years. We can grow and be profitable at these levels as long as we watch our cost structure carefully."

"Global market tightening due to continued OPEC production cuts and growing global demand are driving price expectations. Demand growth and reduced investment in long lead offshore developments may also give way to higher long-term prices."

"We continue to balance expenditures and income to maximize growth and avoid additional debt."

"Low worldwide demand growth and resiliency in supply are driving our oil price expectations."

"Due to the large quantities of natural gas that can be produced from the Marcellus and other shale areas, I don't see natural gas prices going up that much in the next couple of years. However, long-term I see natural gas prices going up as these excess quantities can be exported."

"There is ample supply in the U.S. and abroad to keep natural gas prices in the $3.00 to $4.00 per million btu range for years ahead."

"Saudi Arabia will continue to prop up price until after the Saudi Aramco IPO, which appears may still be 18 months out. By that time expectations are that demand will have caught up to supply, and then I expect more natural price inflation."

Table 1
Summary of Tenth District Energy Conditions, Quarter 3, 2017

	Quarter 3 vs. Quarter 2 (percent)*				Quarter 3 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	34	38	28	7	67	11	22	44	48	33	19	30
Total Revenues	47	30	23	23	63	11	26	37	59	26	15	44
Capital Expenditures					68	14	18	50	52	33	15	37
Supplier Delivery Time	3	83	14	-10	4	79	18	-14	4	82	14	-11
Total Profits	45	31	24	21	50	21	29	21	55	17	28	28
Number of Employees	33	50	17	17	43	37	20	23	37	47	17	20
Employee Hours	17	67	17	0	31	48	21	10	28	62	10	17
Wages and Benefits	13	80	7	7	43	50	7	37	37	57	7	30
Access to Credit	17	80	3	13	27	67	7	20	17	77	7	10
Expected Oil Prices									61	32	7	54
Expected Natural Gas Prices									28	69	3	24
Expected Natural Gas Liquids Prices									41	55	3	38

*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 third quarter survey ran from September 15-29, 2017 and included 30 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

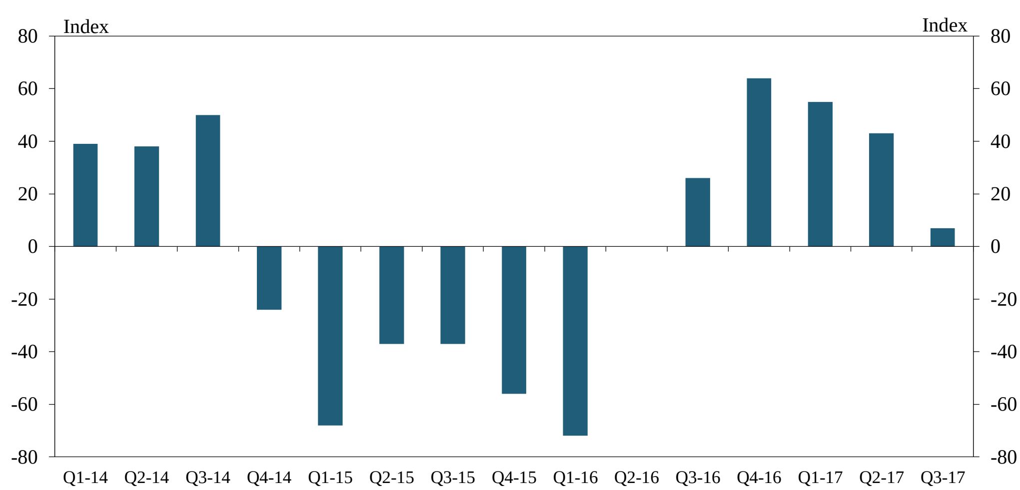

Table 2
Historical Energy Survey Indexes

	Q1'14	Q2'14	Q3'14	Q4'14	Q1'15	Q2'15	Q3'15	Q4'15	Q1'16	Q2'16	Q3'16	Q4'16	Q1'17	Q2'17	Q3'17
Versus a Quarter Ago															
(not seasonally adjusted)															
Drilling/Business Activity	39	38	50	-24	-68	-37	-37	-56	-72	0	26	64	55	43	7
Total Revenues	33	57	72	-42	-81	-45	-58	-86	-67	-31	5	62	52	20	23
Supplier Delivery Time	-3	12	-15	4	-3	11	6	-6	-9	-3	-8	-7	4	11	-10
Total Profits	31	34	50	-44	-86	-53	-61	-76	-78	-22	-10	42	41	3	21
Number of Employees	42	28	41	0	-26	-37	-41	-49	-69	-59	-11	26	31	23	17
Employee Hours	20	14	34	-19	-43	-19	-39	-39	-54	-52	-10	20	16	20	0
Wages and Benefits	48	34	45	12	0	-16	-30	-33	-50	-37	-22	17	13	20	7
Access to Credit	6	15	14	-12	-17	-10	-41	-49	-39	-17	-5	0	3	-3	13
Versus a Year Ago															
Drilling/Business Activity	26	19	56	-23	-63	-84	-91	-89	-84	-65	-21	41	59	70	44
Total Revenues	53	63	71	-4	-70	-77	-88	-92	-81	-69	-31	15	52	62	37
Capital Expenditures	19	30	52	-11	-67	-62	-84	-76	-73	-84	-58	14	43	59	50
Supplier Delivery Time	-3	12	-15	8	11	-4	-18	-3	-6	-14	-11	-14	-4	11	-14
Total Profits	38	46	62	-16	-74	-90	-89	-92	-81	-71	-49	23	55	59	21
Number of Employees	35	28	67	35	-13	-32	-47	-56	-78	-67	-50	-7	13	31	23
Employee Hours	20	11	33	4	-43	-38	-54	-40	-66	-48	-37	3	0	28	10
Wages and Benefits	59	38	67	38	3	-28	-25	-26	-47	-42	-33	17	9	31	37
Access to Credit	3	11	26	-25	-43	-32	-40	-56	-53	-47	-30	-17	13	-3	20
Expected in Six Months															
(not seasonally adjusted)															
Drilling/Business Activity	34	58	46	-83	-53	20	-26	-43	-31	39	21	73	57	26	30
Total Revenues	59	74	69	-60	-42	19	-36	-56	-17	26	6	67	52	18	44
Capital Expenditures	20	33	44	-64	-67	-3	-41	-67	-50	17	9	79	37	19	37
Supplier Delivery Time	-3	4	-11	15	10	-10	-3	-9	-3	-3	-8	-7	11	4	-11
Total Profits	47	59	61	-76	-52	-3	-38	-63	-22	23	5	76	45	12	28
Number of Employees	42	50	59	-23	-29	-7	-34	-51	-39	6	-22	32	16	21	20
Employee Hours	29	26	39	-48	-26	0	-24	-42	-39	6	-8	28	16	21	17
Wages and Benefits	34	32	69	-8	-26	7	-14	-27	-38	-3	3	52	23	7	30
Access to Credit	13	29	23	-40	-21	0	-31	-40	-35	0	-6	3	0	4	10
Expected Oil Prices	3	24	-23	-52	3	32	20	-9	41	58	49	72	3	4	54
Expected Natural Gas Prices	22	30	37	-26	-19	16	11	-15	18	61	44	26	6	3	24
Expected Natural Gas Liquids Prices	26	26	-4	-42	-13	10	6	-15	29	59	31	64	14	21	38
Special Price Questions															
(averages)															
Profitable WTI Oil Price (per barrel)			$79		$62		$60		$51		$53		$51		$51
WTI Price to Significantly Increase Drilling						$73		$60		$64		$60		$56	
WTI Price Expected in 6 Months													$51	$47	$52
WTI Price Expected in 1 Year													$54	$49	$55
WTI Price Expected in 2 Years													$60	$54	$58
WTI Price Expected in 5 Years													$69	$61	$65
Profitable Natural Gas Price (per million BTU)									$3.29		$3.45		$3.38		$3.05
Natural Gas Price to Significantly Increase Drilling										$3.65		$3.97		$3.65	
Henry Hub Price Expected in 6 Months													$2.85	$3.05	$3.01
Henry Hub Price Expected in 1 Year													$3.01	$3.06	$3.11
Henry Hub Price Expected in 2 Years													$3.22	$3.25	$3.30
Henry Hub Price Expected in 5 Years													$3.64	$3.51	$3.73

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?

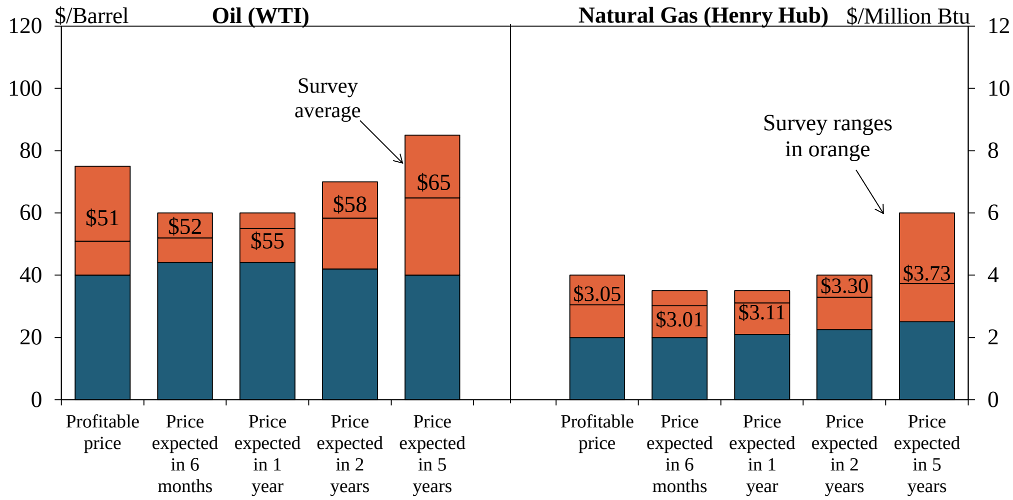

Chart 3. Special Question - What is your estimated severity of impact from Hurricane Harvey on each segment of the oil and gas industry?

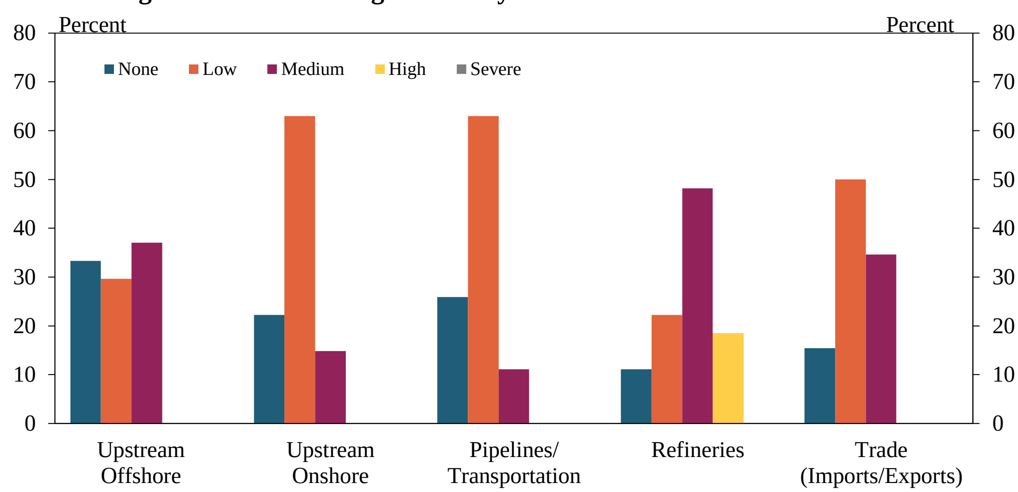

Chart 4. Special Question - What is your estimated duration of impact (in weeks) from the start of Hurricane Harvey (8/25/17) for the following segments of the oil and gas industry?