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## **Growth in Tenth District Energy Activity Slowed** *Federal Reserve Bank of Kansas City Releases Fourth Quarter Energy Survey*

**KANSAS CITY, Mo.** –The Federal Reserve Bank of Kansas City released the fourth quarter Energy Survey today. According to Chad Wilkerson, senior vice president at the Federal Reserve Bank of Kansas City, the survey revealed that growth in Tenth District energy activity slowed while expectations for future activity remained positive.

“The pace of growth for District drilling and business activity slowed in Q4 as commodity prices eased and input prices remained elevated,” said Wilkerson. “Firms reported a drop in profits for the first time in over two years, but still remained moderately optimistic about 2023.”

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 survey is attached. Results from past surveys and release dates for future surveys can be found at <https://www.kansascityfed.org/surveys/energy-survey>.

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](http://www.kansascityfed.org).

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# TENTH DISTRICT ENERGY SUMMARY

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*Fourth quarter energy survey results revealed that growth in Tenth District energy activity slowed and expectations for future activity remained positive. Firms reported that oil prices needed to be on average \$64 per barrel for drilling to be profitable, and \$89 per barrel for a substantial increase in drilling to occur. Similarly, natural gas prices needed to be \$4.32 per million Btu for drilling to be profitable on average, and \$6.13 per million Btu for drilling to increase substantially.*

## Summary of Quarterly Indicators

The pace of growth in Tenth District energy activity slowed in the fourth quarter of 2022, as indicated by firms contacted between December 15th, 2022, and December 30th, 2022 (Tables 1 & 2). The drilling and business activity index decreased from 44 to 6 (Chart 1). All other indexes decreased from previous readings, except the employee hours index that increased from 37 to 41.

Year-over-year indexes remained mixed. The year-over-year indexes for employee hours and wages and benefits from 50 to 57 and 87 to 89, respectively. The index for wages and benefits maintained record-level highs (since September 2022). However, drilling/business activity, total revenues, total profits, and access to credit indexes decreased moderately.

Expectations for future activity decreased slightly in Q4 2022 but remained positive. The future drilling and business activity index fell from 25 to 19, while expectations for future employee hours and wages and benefits increased slightly. Price expectations for oil decreased slightly, and expectations for natural gas prices also moderated further.

## Summary of Special Questions

Firms were asked what oil and natural gas prices were needed on average for drilling to be profitable across the fields in which they are active. The average oil price needed was \$64 per barrel, while the average natural gas price needed was \$4.32 per million Btu (Chart 2). Firms were also asked what prices were needed for a substantial increase in drilling to occur across the fields in which they are active. The average oil price needed was \$89 per barrel, and the average natural gas price needed was \$6.13 per million Btu, (Chart 3).

Firms reported what they expected oil and natural gas prices to be in six months, one year, two years, and five years. The average expected WTI prices were \$83, \$86, \$88, and \$88 per barrel, respectively. The average expected Henry Hub natural gas prices were \$5.01, \$5.52, \$5.78, and \$6.19 per million Btu, respectively.

Energy firms were also asked by how much they expect prices for their firm's key inputs to change from December 2022 to December 2023 (Chart 4). More than 70% of firms reported they expected prices to increase, 19% reported they expected to remain close to December 2022 levels, and 8% expected a decrease.

In addition, firms were asked what the biggest drag on crude oil and natural gas production growth for their firm is (Chart 5). Nearly 40% of firms reported cost inflation and/or supply chain bottlenecks, 28% reported uncertainty about government regulations, 11% reported a maturing asset base, and a handful of firms noted labor shortages and availability of capital.

## Selected Energy Comments

“Too much supply currently. Will force prices down and activity down. LNG ramp up in 2025 with supply flat to declining will require higher prices.”

“Drilling and completion costs are continuing to increase while forward commodity prices are decreasing, putting pressure on drilling economics.”

“Inflation pressures are currently high and will need to be arrested before [natural gas production] growth can be resumed or accelerated. There are tremendous price increases tied to increased activity today.”

“The proposed EPA methane rules will decimate small producers with older properties if implemented as currently written.”

“While the market price may be increasing and driving inflation through natural gas dependent products, the supply side cannot respond due to lack of infrastructure between growing supply areas and growing domestic and foreign markets. This will continue to be a driver of inflation that cost of funds will have a difficult time effecting.”

“5+ years of underspending will show up on the production side. Demand will be stronger than anticipated. Prices could be higher.”

**Table 1**  
**Summary of Tenth District Energy Conditions, Quarter 4, 2022**

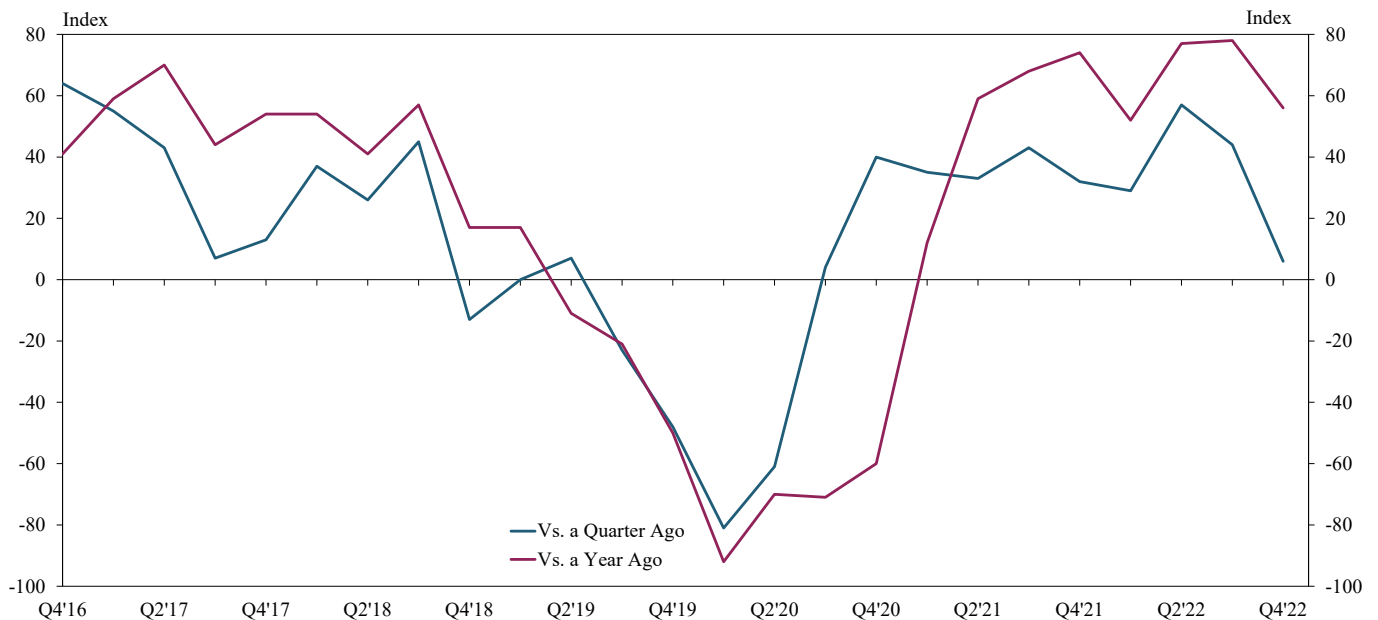
Energy Company Indicators	Quarter 4 vs. Quarter 3 (percent)*				Quarter 4 vs. Year Ago (percent)*				Expected in Six Months (percent)*			
	No		Diff		No		Diff		No		Diff	
	Increase	Change	Decrease	Index^	Increase	Change	Decrease	Index^	Increase	Change	Decrease	Index^
Drilling/Business Activity	23	60	17	6	61	33	6	56	31	58	11	19
Total Revenues	30	32	38	-8	78	11	11	67	42	28	31	11
Capital Expenditures					70	24	5	65	57	34	9	49
Supplier Delivery Time	14	62	24	-11	32	30	38	-5	5	70	24	-19
Total Profits	28	28	44	-17	72	17	11	61	33	39	28	6
Number of Employees	43	51	5	38	58	39	3	56	41	57	3	38
Employee Hours	41	59	0	41	57	43	0	57	32	65	3	30
Wages and Benefits	59	41	0	59	89	11	0	89	70	30	0	70
Access to Credit	17	72	11	6	19	64	17	3	14	75	11	3
Expected Oil Prices									68	27	5	62
Expected Natural Gas Prices									32	32	35	-3
Expected Natural Gas Liquids Prices									39	44	17	22

\*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, 2022 to December 30, 2022 and included 37 responses from firms in Colorado, Kansas, Nebraska, Oklahoma, Wyoming, northern New Mexico, and western Missouri.

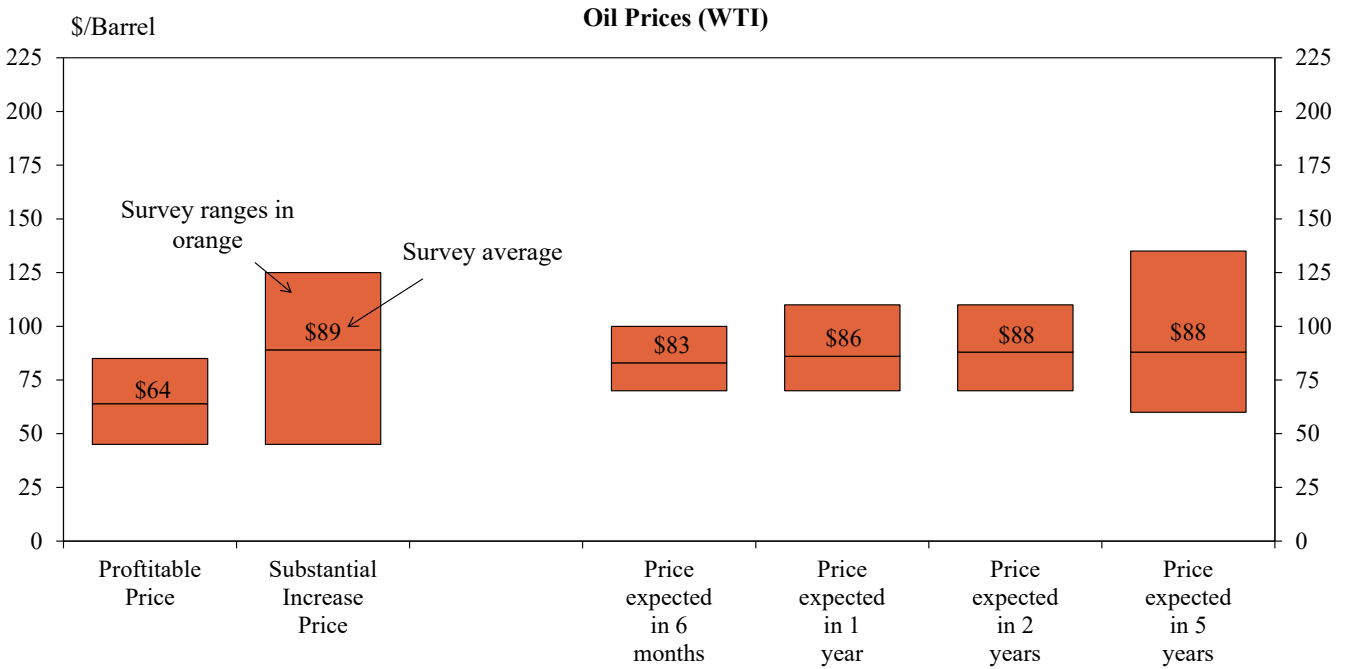
**Chart 1. Drilling/Business Activity Indexes**



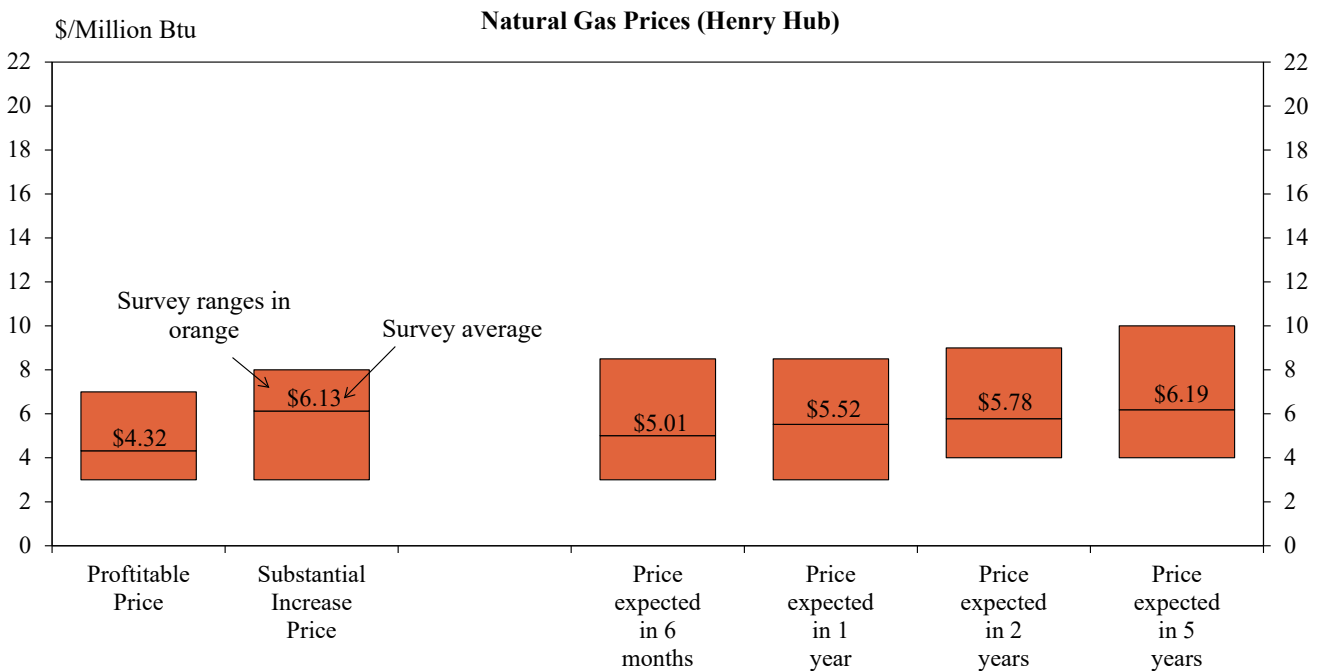
**Table 2**  
**Historical Energy Survey Indexes**

	Q4'19	Q1'20	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22	Q3'22	Q4'22
<i>Versus a Quarter Ago</i>													
(not seasonally adjusted)													
Drilling/Business Activity	-48	-81	-61	4	40	35	33	43	32	29	57	44	6
Total Revenues	6	-73	-78	-7	31	44	82	82	63	38	87	25	-8
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	-6	-24	-13	-21	0	5	-3	-3	6	-9	10	-3	-11
Total Profits	-21	-81	-88	-24	14	36	70	69	34	44	68	29	-17
Number of Employees	0	-54	-56	-39	-14	12	25	26	34	39	42	47	38
Employee Hours	-12	-54	-55	-38	3	17	42	38	28	41	39	37	41
Wages and Benefits	9	-24	-38	-17	9	21	39	33	53	56	58	61	59
Access to Credit	-21	-32	-31	-28	-6	5	9	16	10	25	16	6	6
<i>Versus a Year Ago</i>													
Drilling/Business Activity	-50	-92	-70	-71	-60	12	59	68	74	52	77	78	56
Total Revenues	-19	-81	-74	-79	-77	20	88	92	88	72	90	87	67
Capital Expenditures	-13	-68	-69	-66	-57	14	30	54	59	63	71	71	65
Supplier Delivery Time	-13	-22	-26	-10	-9	7	3	8	9	-3	23	6	-5
Total Profits	-30	-83	-84	-83	-69	5	91	82	84	75	81	84	61
Number of Employees	-18	-62	-61	-59	-60	-17	12	31	32	66	55	61	56
Employee Hours	-18	-62	-53	-62	-46	-7	30	45	29	63	55	50	57
Wages and Benefits	3	-30	-16	-24	-32	0	45	56	77	84	77	87	89
Access to Credit	-16	-44	-35	-28	-46	-12	24	29	23	38	19	27	3
<i>Expected in Six Months</i>													
(not seasonally adjusted)													
Drilling/Business Activity	-16	-78	0	0	26	41	41	45	45	42	50	25	19
Total Revenues	13	-78	-16	-7	51	54	76	58	50	53	55	27	11
Capital Expenditures	-13	-73	-35	-14	9	36	33	31	53	63	52	52	49
Supplier Delivery Time	-23	-32	-19	3	-3	10	18	8	9	9	16	-10	-19
Total Profits	0	-81	-10	-3	51	37	79	59	44	38	35	39	6
Number of Employees	-16	-68	-26	-38	-9	24	30	31	42	47	42	42	38
Employee Hours	-18	-59	-33	-31	-3	36	27	26	23	41	32	27	30
Wages and Benefits	-6	-49	-19	-28	12	36	36	46	71	72	63	65	70
Access to Credit	-9	-44	-13	-10	6	7	12	13	6	19	6	7	3
Expected Oil Prices	28	-19	28	28	51	24	55	33	34	-16	-6	20	62
Expected Natural Gas Prices	-6	16	38	34	37	31	59	31	3	0	10	-10	-3
Expected Natural Gas Liquids Prices	10	-8	45	31	40	36	63	34	13	19	0	21	22
<i>Special Price Questions</i>													
(averages)													
Profitable WTI Oil Price (per barrel)		\$47		\$49		\$53		\$57		\$62	\$65	\$61	\$64
WTI Price to Substantially Increase Drilling	\$65		\$51		\$56		\$72		\$73	\$86	\$98	\$102	\$89
WTI Price Expected in 6 Months	\$60	\$33	\$41	\$43	\$48	\$62	\$74	\$73	\$75	\$96	\$109	\$88	\$83
WTI Price Expected in 1 Year	\$62	\$42	\$47	\$47	\$52	\$65	\$76	\$75	\$78	\$89	\$102	\$89	\$86
WTI Price Expected in 2 Years	\$65	\$50	\$53	\$53	\$56	\$67	\$76	\$75	\$78	\$83	\$88	\$90	\$88
WTI Price Expected in 5 Years	\$71	\$58	\$60	\$60	\$61	\$70	\$78	\$76	\$80	\$84	\$86	\$93	\$88
Profitable Natural Gas Price (per million BTU)		\$2.65		\$3.12		\$2.94		\$3.88		\$3.72	\$4.64	\$4.42	\$4.32
Natural Gas Price to Substantially Increase Drilling	\$3.66		\$2.88		\$3.28		\$3.82		\$4.27	\$4.53	\$6.34	\$7.65	\$6.13
Henry Hub Price Expected in 6 Months	\$2.38	\$2.02	\$2.17	\$2.62	\$2.68	\$2.72	\$3.19	\$4.72	\$3.66	\$4.45	\$7.06	\$7.46	\$5.01
Henry Hub Price Expected in 1 Year	\$2.49	\$2.34	\$2.41	\$2.71	\$2.88	\$2.94	\$3.21	\$4.22	\$3.92	\$4.32	\$6.65	\$6.48	\$5.52
Henry Hub Price Expected in 2 Years	\$2.69	\$2.57	\$2.64	\$2.87	\$3.03	\$3.14	\$3.34	\$4.31	\$3.97	\$4.29	\$6.06	\$6.16	\$5.78
Henry Hub Price Expected in 5 Years	\$3.09	\$2.94	\$3.02	\$3.28	\$3.23	\$3.50	\$3.71	\$4.79	\$4.29	\$4.74	\$5.77	\$6.51	\$6.19

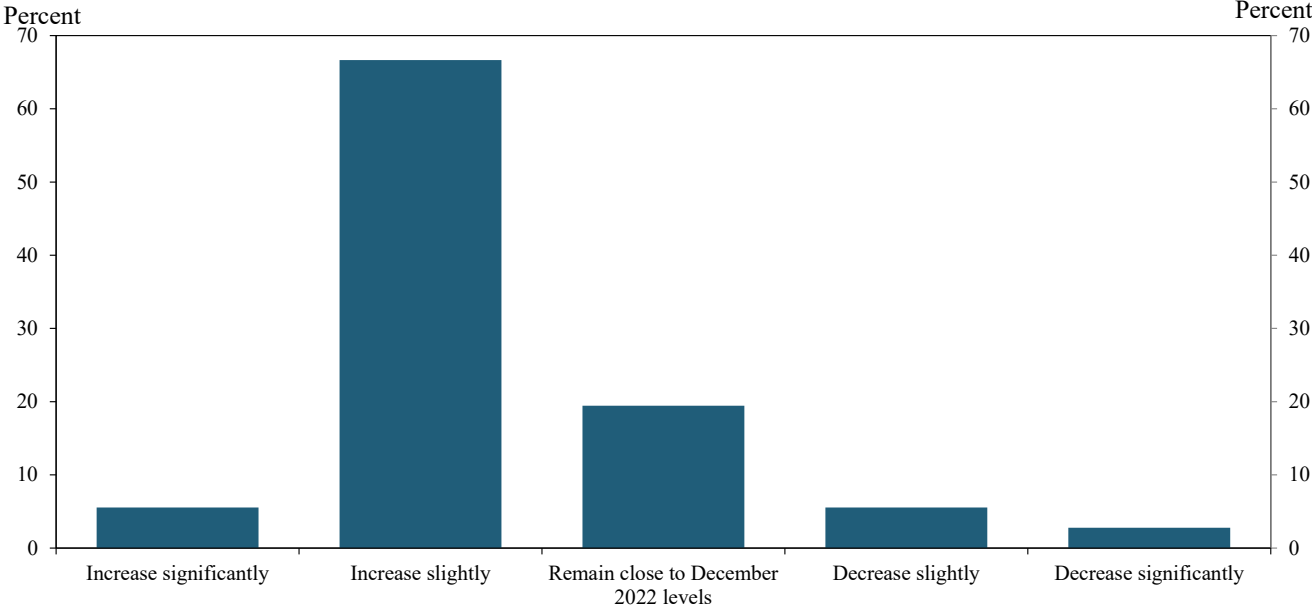
**Chart 2. Special Question - What price is currently needed for a drilling to be profitable and for a substantial increase in drilling to occur for oil? What do you expect WTI prices to be in six months, one year, two years, and five years?**



**Chart 3. Special Question - What price is currently needed for a drilling to be profitable and for a substantial increase in drilling to occur for natural gas? What do you expect Henry Hub prices to be in six months, one year, two years, and five years?**



**Chart 4. Special Question - By how much do you expect prices for your firm's key inputs to change from December 2022 to December 2023?**



**Chart 5. Special Question - Which of the following is the biggest drag on crude oil and natural gas production growth for your firm?**

