Energy Survey

Tenth District Energy Activity Declined Moderately

by: Chad Wilkerson and Chase Farha

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First quarter energy survey results revealed that Tenth District energy activity declined moderately and is expected to continue to slow. Firms reported that oil prices needed to be on average $64 per barrel for drilling to be profitable, and $86 per barrel for a substantial increase in drilling to occur. Similarly, natural gas prices needed to be $3.45 per million Btu for drilling to be profitable on average, and $4.74 per million Btu for drilling to increase substantially.

Summary of Quarterly Indicators

Tenth District energy activity declined moderately in the first quarter of 2023, as indicated by firms contacted between March 15th, 2023, and March 31st, 2023 (Tables 1 & 2). The drilling and business activity index decreased from 6 to -13 (Chart 1). All other indexes decreased from previous readings, except the supplier delivery time index increased from -11 to -3.

Year-over-year indexes remained mixed. The year-over-year indexes for drilling/business activity, capital expenditures, total profits, number of employees, employee hours, and wages and benefits all cooled but remained in positive territory. The total revenues index declined substantially from 67 to -10. However, the supplier delivery time and access to credit indexes increased.

Expectations for future activity also decreased moderately in Q1 2023. The future drilling and business activity index fell from 19 to -13, and expectations for future revenues and profits declined significantly. Price expectations for oil fell slightly, and expectations for natural gas prices decreased substantially.

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 $3.45 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 $86 per barrel, and the average natural gas price needed was $4.74 per million Btu, (Chart 3).

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?

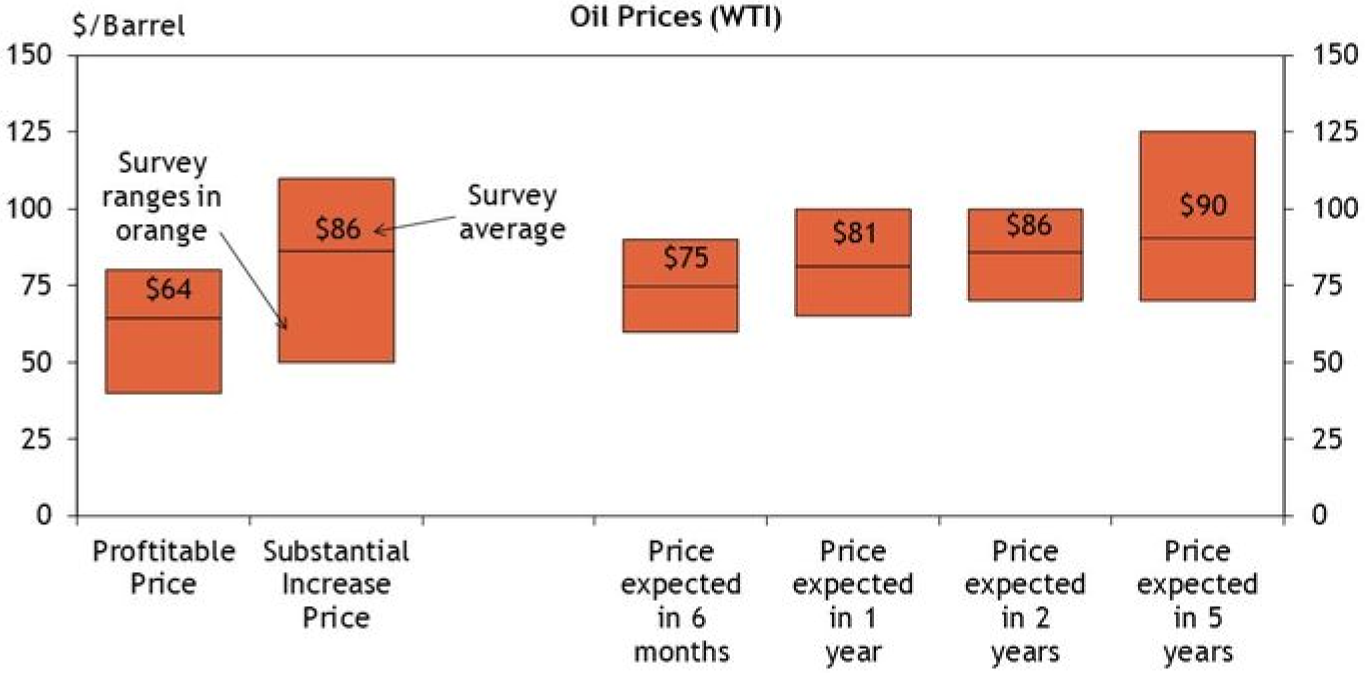
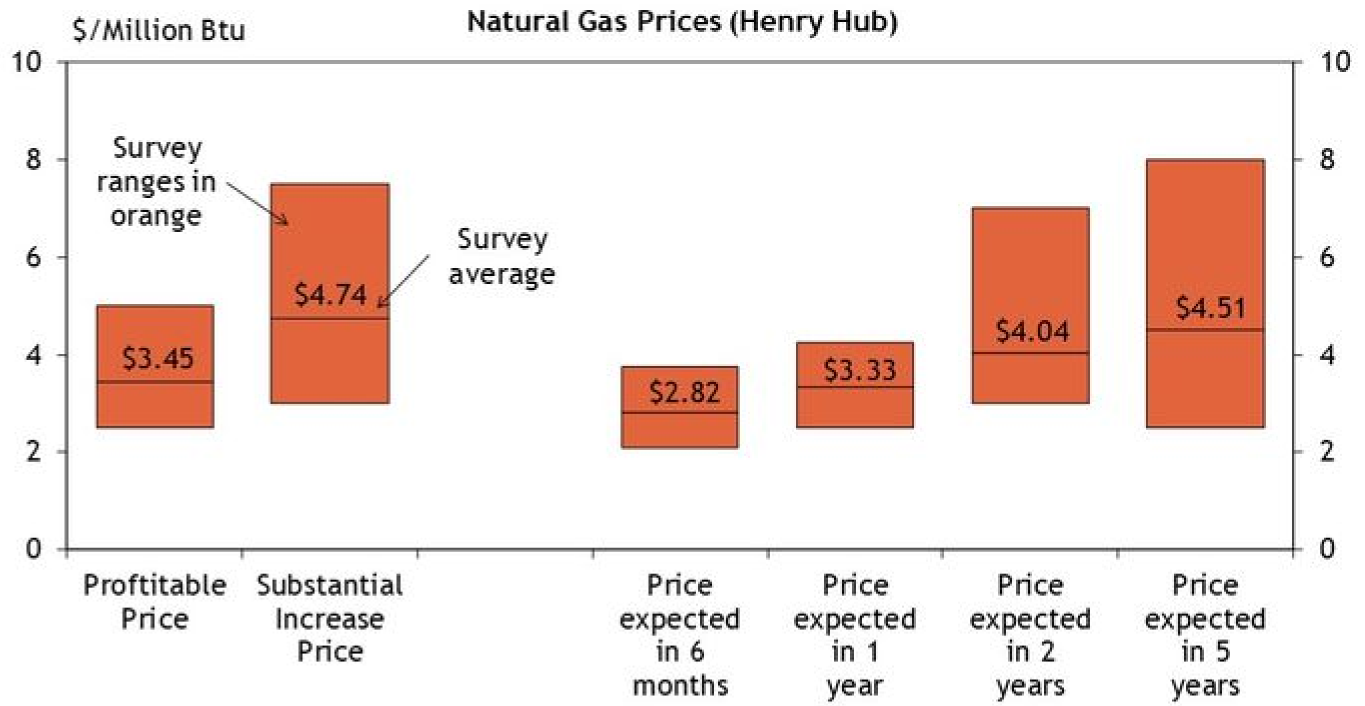
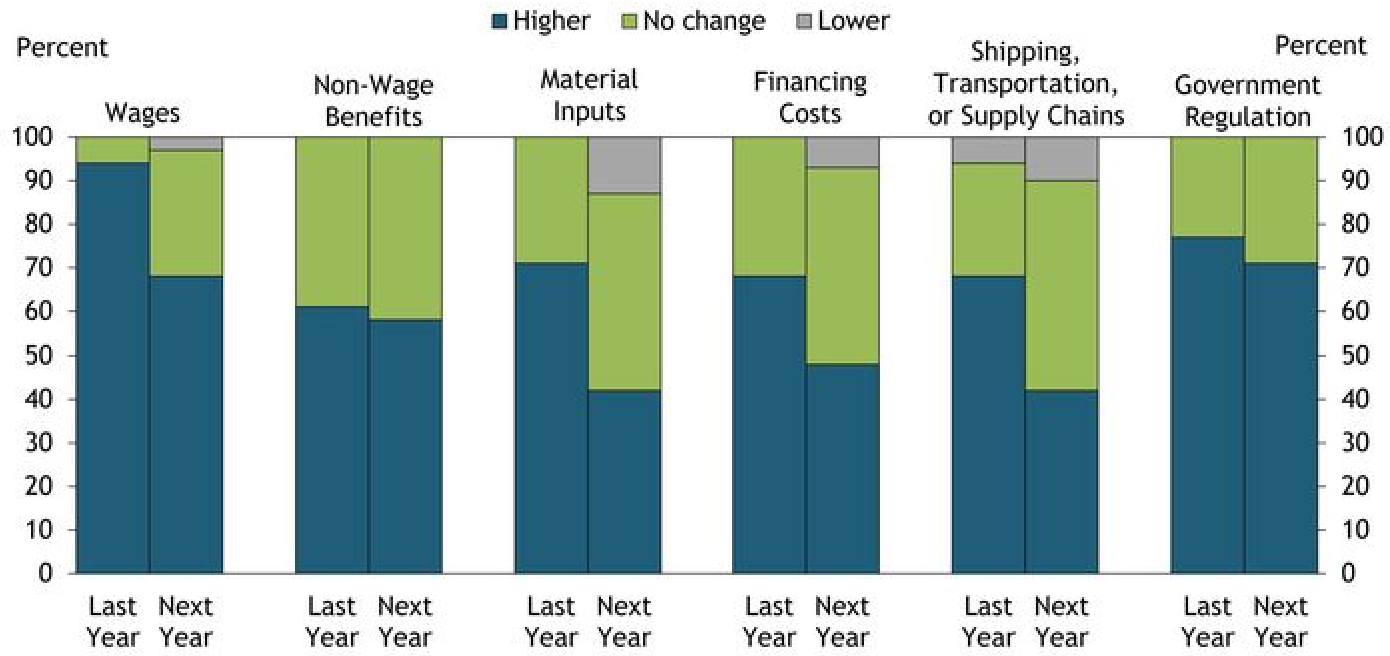


Chart 3. Special Question - What price is currently needed for a drilling to be profitable and for a substantial increase in drilling to occur for natural gas? What do you expect Henry Hub prices to be in six months, one year, two years, and five years?



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 $75, $81, $86, and $90 per barrel, respectively. The average expected Henry Hub natural gas prices were $2.82, $3.33, $4.04, and $4.51 per million Btu, respectively. Energy firms were also asked how their input costs changed over the last year, and how they anticipate they will change over the next year (Chart 4). A majority of firms reported their costs increased in all categories (wages; non-wage benefits; material inputs; financing costs; shipping, transportation, or supply chains; and government regulation) over the last year. However, a majority of firms anticipate that material inputs, financing costs, and shipping, transportation, or supply chain costs will either be lower or the same in the coming year.

Chart 4. Special Question - How have your firms costs changed in the following categories over the last year, and how do you anticipate they will change over the next year?



In addition, firms were asked how they expect their number of employees to change from December 2022 to December 2023 (Chart 5). Slightly over half of firms reported they expect the number of employees to remain the same, 39% expect a slight increase, 6% expect a slight decrease, and 3% expect the number to increase significantly.

Table 1

Table 1
Summary of Tenth District Energy Conditions, Quarter 1, 2023

	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	10	67	23	-13	37	43	20	17	17	53	30	-13
Total Revenues	16	26	58	-42	35	19	45	-10	26	23	52	-26
Capital Expenditures					55	16	29	26	23	48	29	-6
Supplier Delivery Time	13	71	16	-3	29	52	19	10	13	52	35	-23
Total Profits	23	29	48	-26	42	19	39	3	16	45	39	-23
Number of Employees	23	61	16	6	39	48	13	26	23	68	10	13
Employee Hours	19	68	13	6	35	55	10	26	23	68	10	13
Wages and Benefits	45	52	3	42	81	16	3	77	48	48	3	45
Access to Credit	13	74	13	0	19	68	13	6	10	74	16	-6
Expected Oil Prices									52	26	23	29
Expected Natural Gas Prices									38	38	24	14
Expected Natural Gas Liquids Prices									43	33	23	20

*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, 2023 to March 31, 2023 and included 31 responses from firms in Colorado, Kansas, Nebraska, Oklahoma, Wyoming, northern New Mexico, and western Missouri.

Table 2

Table 2
Historical Energy Survey Indexes

	Q1'20	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22	Q3'22	Q4'22	Q1'23
Versus a Quarter Ago													
(not seasonally adjusted)													
Drilling/Business Activity	-81	-61	4	40	35	33	43	32	29	57	44	6	-13
Total Revenues	-73	-78	-7	31	44	82	82	63	38	87	25	-8	-42
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	-24	-13	-21	0	5	-3	-3	6	-9	10	-3	-11	-3
Total Profits	-81	-88	-24	14	36	70	69	34	44	68	29	-17	-26
Number of Employees	-54	-56	-39	-14	12	25	26	34	39	42	47	38	6
Employee Hours	-54	-55	-38	3	17	42	38	28	41	39	37	41	6
Wages and Benefits	-24	-38	-17	9	21	39	33	53	56	58	61	59	42
Access to Credit	-32	-31	-28	-6	5	9	16	10	25	16	6	6	0
Versus a Year Ago													
Drilling/Business Activity	-92	-70	-71	-60	12	59	68	74	52	77	78	56	17
Total Revenues	-81	-74	-79	-77	20	88	92	88	72	90	87	67	-10
Capital Expenditures	-68	-69	-66	-57	14	30	54	59	63	71	71	65	26
Supplier Delivery Time	-22	-26	-10	-9	7	3	8	9	-3	23	6	-5	10
Total Profits	-83	-84	-83	-69	5	91	82	84	75	81	84	61	3
Number of Employees	-62	-61	-59	-60	-17	12	31	32	66	55	61	56	26
Employee Hours	-62	-53	-62	-46	-7	30	45	29	63	55	50	57	26
Wages and Benefits	-30	-16	-24	-32	0	45	56	77	84	77	87	89	77
Access to Credit	-44	-35	-28	-46	-12	24	29	23	38	19	27	3	6
Expected in Six Months													
(not seasonally adjusted)													
Drilling/Business Activity	-78	0	0	26	41	41	45	45	42	50	25	19	-13
Total Revenues	-78	-16	-7	51	54	76	58	50	53	55	27	11	-26
Capital Expenditures	-73	-35	-14	9	36	33	31	53	63	52	52	49	-6
Supplier Delivery Time	-32	-19	3	-3	10	18	8	9	9	16	-10	-19	-23
Total Profits	-81	-10	-3	51	37	79	59	44	38	35	39	6	-23
Number of Employees	-68	-26	-38	-9	24	30	31	42	47	42	42	38	13
Employee Hours	-59	-33	-31	-3	36	27	26	23	41	32	27	30	13
Wages and Benefits	-49	-19	-28	12	36	36	46	71	72	63	65	70	45
Access to Credit	-44	-13	-10	6	7	12	13	6	19	6	7	3	-6
Expected Oil Prices	-19	28	28	51	24	55	33	34	-16	-6	20	62	29
Expected Natural Gas Prices	16	38	34	37	31	59	31	3	0	10	-10	-3	14
Expected Natural Gas Liquids Prices	-8	45	31	40	36	63	34	13	19	0	21	22	20
Special Price Questions													
(averages)													
Profitable WTI Oil Price (per barrel)	$47		$49		$53		$57		$62	$65	$61	$64	$64
WTI Price to Substantially Increase Drilling		$51		$56		$72		$73	$86	$98	$102	$89	$86
WTI Price Expected in 6 Months	$33	$41	$43	$48	$62	$74	$73	$75	$96	$109	$88	$83	$75
WTI Price Expected in 1 Year	$42	$47	$47	$52	$65	$76	$75	$78	$89	$102	$89	$86	$81
WTI Price Expected in 2 Years	$50	$53	$53	$56	$67	$76	$75	$78	$83	$88	$90	$88	$86
WTI Price Expected in 5 Years	$58	$60	$60	$61	$70	$78	$76	$80	$84	$86	$93	$88	$90
Profitable Natural Gas Price (per million BTU)	$ 2.65		$ 3.12		$ 2.94		$3.88		$3.72	$4.64	$4.42	$4.32	$3.45
Natural Gas Price to Substantially Increase Drilling		$ 2.88		$ 3.28		$3.82		$4.27	$4.53	$6.34	$7.65	$6.13	$4.74
Henry Hub Price Expected in 6 Months	$ 2.02	$ 2.17	$ 2.62	$2.68	$2.72	$3.19	$4.72	$3.66	$4.45	$7.06	$7.46	$5.01	$2.82
Henry Hub Price Expected in 1 Year	$ 2.34	$ 2.41	$ 2.71	$2.88	$2.94	$3.21	$4.22	$3.92	$4.32	$6.65	$6.48	$5.52	$3.33
Henry Hub Price Expected in 2 Years	$ 2.57	$ 2.64	$ 2.87	$3.03	$3.14	$3.34	$4.31	$3.97	$4.29	$6.06	$6.16	$5.78	$4.04
Henry Hub Price Expected in 5 Years	$ 2.94	$ 3.02	$ 3.28	$3.23	$3.50	$3.71	$4.79	$4.29	$4.74	$5.77	$6.51	$6.19	$4.51

Selected Energy Comments

“A lot of uncertainty with the price of oil. Operators are taking a pause to see how the next 3-4 months play out. Drilling for gas isn't even part of the conversation. We continue to hear from operators that steel/casing cost are still too high with availability limited.”

“As rigs continue to go down we have to retain our crews. We've worked so hard to find good help, if we lose them now they'll never come back. I'm paying reduced wages with no OT to 70% of my personnel to work in our drilling yard on equipment maintenance. With declining revenues & income it's all about preserving capital.”

“We have cut back drilling to offset higher costs and lower revenue to maintain a stable to increasing free cash flow position.”

“Natural gas markets are oversupplied and there will be nowhere to go with gas until producers pinch back 400 bcf to get storage back in balance.”

“Service costs are currently at a rate in excess of today's commodity prices. Therefore, an absence of service cost decreases would be damaging.”

“Fluctuations in oil prices driven by the conflicting inflationary environment and potential recession are making it difficult to plan business over the next 6 months. We expect softness in the gas market due to sub $3 gas. TBD on whether oil basins can absorb the excess capacity. Weakness in overall activity and resulting pricing softness could lead to headcount and capex reductions.”

“Not a lot of quality deals and few investment dollars especially for the smaller independents. Very little new entry into our market combined with an aging and/or retirement from the older operators.”

“Appears to be no risk premium in oil prices. While fundamentals for crude have been bearish lately, it does not appear that product demand has softened a great deal, and inventories of products remain tight.”

Additional Resources

Current Release

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About the Energy Survey

Authors

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Chad Wilkerson serves as Oklahoma City Branch Executive and Senior Vice President of Community Development for the Federal Reserve Bank of Kansas City. Wilkerson has been with the Federal Reserve since 1998, starting in Kansas City's research department.Appointed in 2006 as Oklahoma City Branch Executive, Wilkerson is the Bank's lead officer and regional economist in Oklahoma. He recruits and works closely with the Oklahoma City Branch Board of Directors and is responsible for briefing the Kansas City Fed president, a member of the Federal Open Market Committee, on economic trends in the state. His team conducts research and surveys on key regional issues such as energy, manufacturing and migration.Wilkerson was appointed Senior Vice President in 2022, and supports a Community Development team located across the Kansas City Fed's seven-state region. This group works to understand and address issues affecting the ability of underserved communities and small businesses to access credit. Community development focus areas include financial resiliency, affordable housing, community investments, workforce development, rural development and digital inclusion.Wilkerson holds a master's degree in public policy from the University of Chicago, as well as a master's degree from Southwestern Seminary and bachelor's degree from William Jewell College. He serves on the boards of the Economic Club of Oklahoma, the United Way of Central Oklahoma and City Rescue Mission. He lives in Edmond, Oklahoma, with his wife and children.

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