



Energy Survey

Tenth District Energy Activity Increased Moderately

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First quarter energy survey results revealed that Tenth District energy activity increased moderately, and expectations for future activity remained strong. Firms reported that oil prices needed to be on average \$62 per barrel for drilling to be profitable, but \$86 per barrel for a substantial increase in drilling to occur. Similarly, natural gas prices needed to be \$3.72 per million Btu for drilling to be profitable on average, and \$4.53 per million Btu for drilling to increase.

Summary of Quarterly Indicators

Tenth District energy activity increased moderately in the first quarter of 2022, as indicated by firms contacted between March 15th, 2022, and March 31st, 2022 (Tables 1 & 2). The drilling and business activity index eased slightly from 32 to 29 but remained relatively high by historical standards, indicating solid expansion (Chart 1). The indexes for employment, wages and benefits, and access to credit reached their highest levels since the survey began in 2014. The index for profits also remained elevated, while the pace of growth for revenues slowed slightly and supplier delivery time declined.

Year-over-year indexes were mixed compared with the previous survey. The year-over-year drilling and business activity index declined moderately from 74 to 52. The rate of growth also dipped for the revenues and profits indexes, and the supplier delivery time index decreased. However, the year-over-year capital expenditures index was at its highest level since 2018, and the employment, wages and benefits, and access to credit indexes posted record highs.

Expectations for future activity remained strong in Q1 2022. The future drilling and business activity index inched down from 45 to 42, while expectations for future employment, capital spending, wages and benefits, and access to credit continued to increase. Price expectations for oil were lower compared to current prices. Expectations for natural gas prices were relatively flat, while natural gas liquids prices were expected to increase moving forward.

Summary of Special Questions

This quarter 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 \$62 per barrel, while the average natural gas price needed was \$3.72 per million Btu. 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, with a range of \$45 to \$150 (Chart 3). The average natural gas price needed was \$4.53 per million Btu, with responses ranging from \$3.00 to \$6.50. Overall, firms reported the highest prices needed to be profitable and increase drilling in survey history (since 2014).

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?

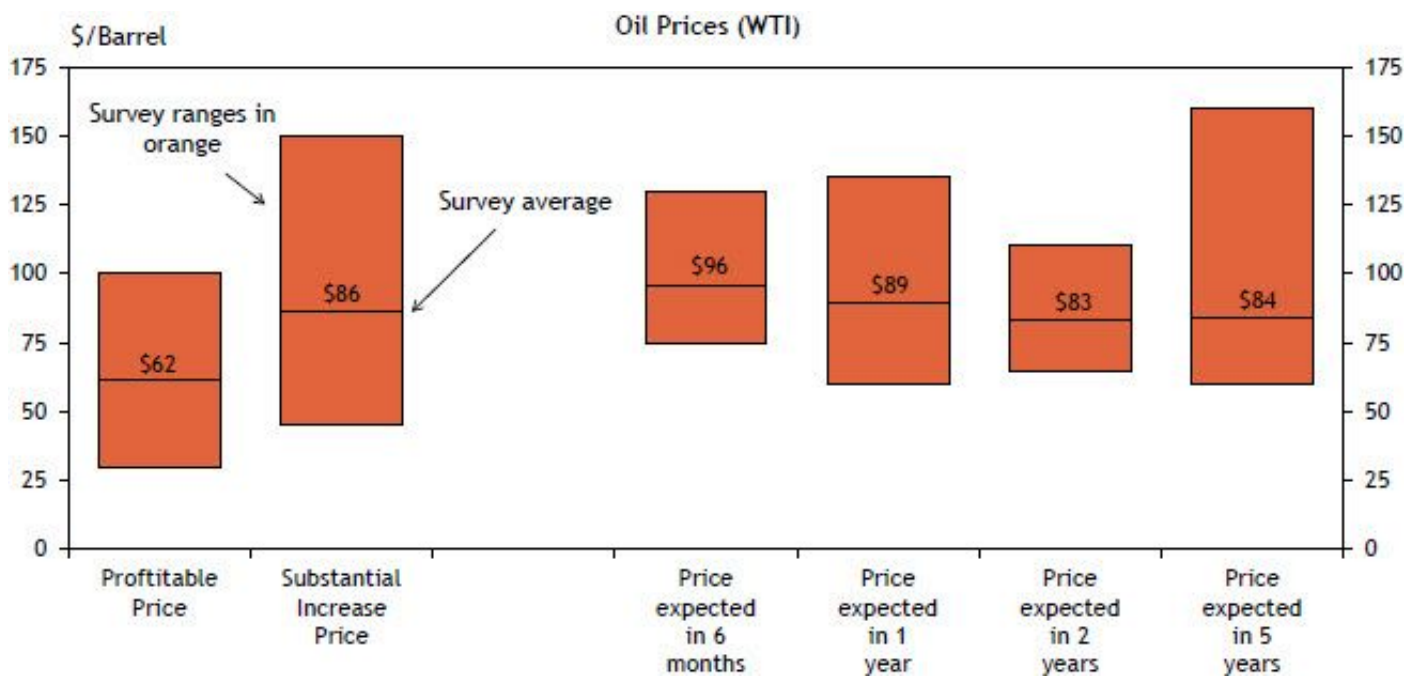
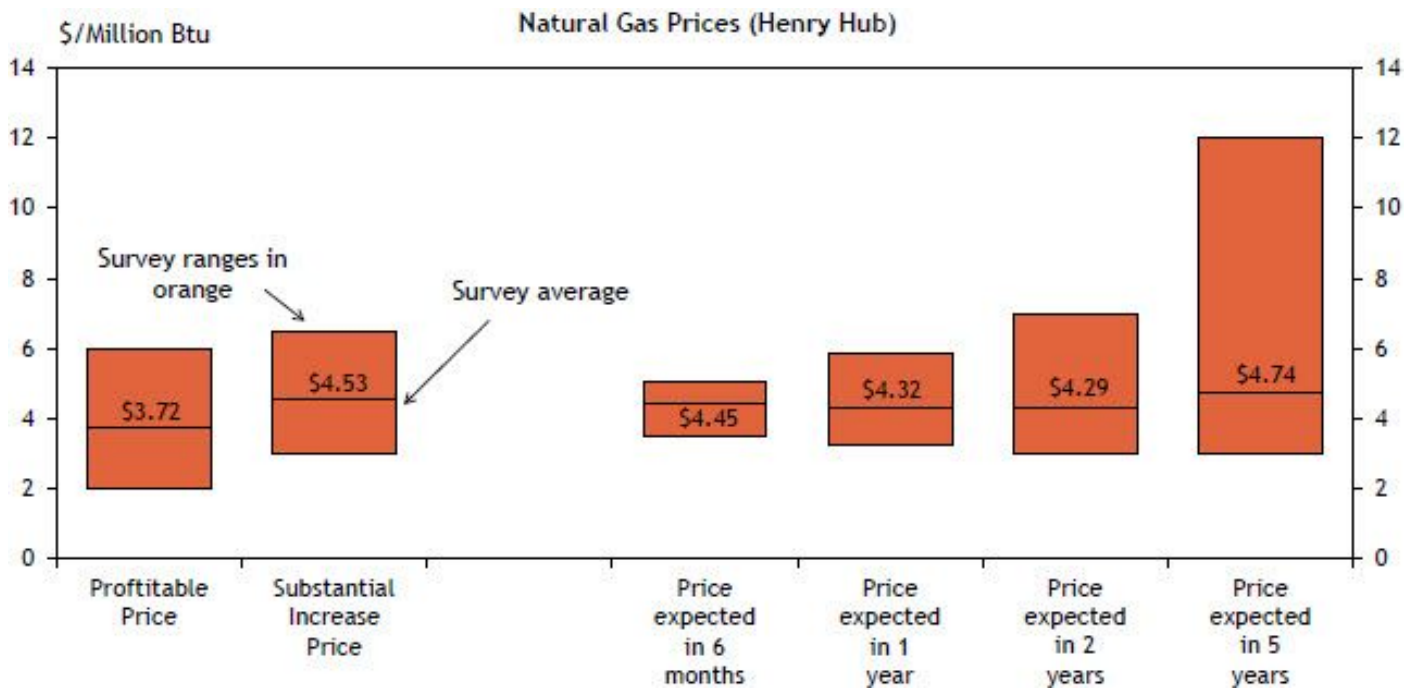


Chart 3. Special Question - What price is currently needed for a drilling to be profitable and for a substantial increase in drilling to occur for natural gas? What do you expect Henry Hub prices to be in six months, one year, two years, and five years?



Firms were also asked what they expected oil and natural gas prices to be in six months, one year, two years, and five years. Oil price expectations again surpassed survey records. The average expected WTI prices were \$96, \$89, \$83, and \$84 per barrel, respectively. In contrast, price expectations for natural gas declined. The average expected Henry Hub natural gas prices were \$4.45, \$4.32, \$4.29, and \$4.74 per million Btu, respectively.

Energy firms were also asked about their key constraints to production growth (Chart 4). Firms ranked difficulty finding labor, investor pressure to maintain capital discipline, price uncertainty, and supply chain issues as primary items restraining growth. Still, on average, firms planned to increase production 7.5% by Q4 2022.

In addition, firms were asked about well productivity (Chart 5). Around 52% of firms reported a slight increase in U.S. well productivity over the course of the pandemic, with nearly 30% of firms reporting slight or significant decreases and over 18% of firms reporting no change. Moving forward, 14% of firms expected a significant increase in productivity, and 48% expected a slight increase. However, 24% expected no change, and 14% expected a slight decrease in productivity in 2022.

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

Energy Company Indicators	Quarter 1 vs. Quarter 4 (percent)*				Quarter 1 vs. Year Ago (percent)*				Expected in Six Months (percent)*			
	Increase	No Change	Decrease	Diff Index [^]	Increase	No Change	Decrease	Diff Index [^]	Increase	No Change	Decrease	Diff Index [^]
Drilling/Business Activity	35	58	6	29	58	35	6	52	42	58	0	42
Total Revenues	56	25	19	38	78	16	6	72	66	22	13	53
Capital Expenditures					66	31	3	63	63	38	0	63
Supplier Delivery Time	31	28	41	-9	34	28	38	-3	31	47	22	9
Total Profits	53	38	9	44	81	13	6	75	50	38	13	38
Number of Employees	45	48	6	39	69	28	3	66	50	47	3	47
Employee Hours	44	53	3	41	63	38	0	63	41	59	0	41
Wages and Benefits	59	38	3	56	84	16	0	84	72	28	0	72
Access to Credit	28	69	3	25	41	56	3	38	25	69	6	19
Expected Oil Prices									28	28	44	-16
Expected Natural Gas Prices									26	48	26	0
Expected Natural Gas Liquids Prices									35	48	16	19

*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, 2022 to March 31, 2022 and included 33 responses from firms in Colorado, Kansas, Nebraska, Oklahoma, Wyoming, northern New Mexico, and western Missouri.

Table 2
Historical Energy Survey Indexes

	Q1'19	Q2'19	Q3'19	Q4'19	Q1'20	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22
<i>Versus a Quarter Ago</i>													
(not seasonally adjusted)													
Drilling/Business Activity	0	7	-23	-48	-81	-61	4	40	35	33	43	32	29
Total Revenues	13	-14	-10	6	-73	-78	-7	31	44	82	82	63	38
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	7	-7	-6	-24	-13	-21	0	5	-3	-3	6	-9
Total Profits	6	-18	-23	-21	-81	-88	-24	14	36	70	69	34	44
Number of Employees	3	0	-10	0	-54	-56	-39	-14	12	25	26	34	39
Employee Hours	6	0	0	-12	-54	-55	-38	3	17	42	38	28	41
Wages and Benefits	28	15	10	9	-24	-38	-17	9	21	39	33	53	56
Access to Credit	-10	-7	-6	-21	-32	-31	-28	-6	5	9	16	10	25
<i>Versus a Year Ago</i>													
Drilling/Business Activity	17	-11	-21	-50	-92	-70	-71	-60	12	59	68	74	52
Total Revenues	23	-22	-7	-19	-81	-74	-79	-77	20	88	92	88	72
Capital Expenditures	3	4	-10	-13	-68	-69	-66	-57	14	30	54	59	63
Supplier Delivery Time	3	7	-21	-13	-22	-26	-10	-9	7	3	8	9	-3
Total Profits	6	-24	-13	-30	-83	-84	-83	-69	5	91	82	84	75
Number of Employees	24	4	-13	-18	-62	-61	-59	-60	-17	12	31	32	66
Employee Hours	16	3	-17	-18	-62	-53	-62	-46	-7	30	45	29	63
Wages and Benefits	47	43	33	3	-30	-16	-24	-32	0	45	56	77	84
Access to Credit	3	-7	0	-16	-44	-35	-28	-46	-12	24	29	23	38
<i>Expected in Six Months</i>													
(not seasonally adjusted)													
Drilling/Business Activity	17	-26	-21	-16	-78	0	0	26	41	41	45	45	42
Total Revenues	47	-4	4	13	-78	-16	-7	51	54	76	58	50	53
Capital Expenditures	19	-4	-17	-13	-73	-35	-14	9	36	33	31	53	63
Supplier Delivery Time	14	14	-14	-23	-32	-19	3	-3	10	18	8	9	9
Total Profits	35	-7	-10	0	-81	-10	-3	51	37	79	59	44	38
Number of Employees	14	0	-3	-16	-68	-26	-38	-9	24	30	31	42	47
Employee Hours	13	-4	-10	-18	-59	-33	-31	-3	36	27	26	23	41
Wages and Benefits	28	15	17	-6	-49	-19	-28	12	36	36	46	71	72
Access to Credit	0	-3	-10	-9	-44	-13	-10	6	7	12	13	6	19
Expected Oil Prices	34	15	32	28	-19	28	28	51	24	55	33	34	-16
Expected Natural Gas Prices	3	10	23	-6	16	38	34	37	31	59	31	3	0
Expected Natural Gas Liquids Prices	18	-7	13	10	-8	45	31	40	36	63	34	13	19
<i>Special Price Questions</i>													
(averages)													
Profitable WTI Oil Price (per barrel)	\$52		\$55		\$47		\$49		\$53		\$57		\$62
WTI Price to Substantially Increase Drilling		\$66		\$65		\$51		\$56		\$72		\$73	\$86
WTI Price Expected in 6 Months	\$60	\$57	\$58	\$60	\$33	\$41	\$43	\$48	\$62	\$74	\$73	\$75	\$96
WTI Price Expected in 1 Year	\$61	\$60	\$60	\$62	\$42	\$47	\$47	\$52	\$65	\$76	\$75	\$78	\$89
WTI Price Expected in 2 Years	\$65	\$63	\$63	\$65	\$50	\$53	\$53	\$56	\$67	\$76	\$75	\$78	\$83
WTI Price Expected in 5 Years	\$72	\$70	\$69	\$71	\$58	\$60	\$60	\$61	\$70	\$78	\$76	\$80	\$84
Profitable Natural Gas Price (per million BTU)	\$ 3.02		\$ 2.91		\$ 2.65		\$ 3.12		\$ 2.94		\$3.88		\$3.72
Natural Gas Price to Substantially Increase Drilling		\$ 3.40		\$ 3.66		\$ 2.88		\$ 3.28		\$3.82		\$4.27	\$4.53
Henry Hub Price Expected in 6 Months	\$ 2.85	\$ 2.52	\$ 2.59	\$ 2.38	\$ 2.02	\$ 2.17	\$ 2.62	\$2.68	\$2.72	\$3.19	\$4.72	\$3.66	\$4.45
Henry Hub Price Expected in 1 Year	\$ 2.91	\$ 2.59	\$ 2.58	\$ 2.49	\$ 2.34	\$ 2.41	\$ 2.71	\$2.88	\$2.94	\$3.21	\$4.22	\$3.92	\$4.32
Henry Hub Price Expected in 2 Years	\$ 3.05	\$ 2.79	\$ 2.81	\$ 2.69	\$ 2.57	\$ 2.64	\$ 2.87	\$3.03	\$3.14	\$3.34	\$4.31	\$3.97	\$4.29
Henry Hub Price Expected in 5 Years	\$ 3.18	\$ 3.16	\$ 3.20	\$ 3.09	\$ 2.94	\$ 3.02	\$ 3.28	\$3.23	\$3.50	\$3.71	\$4.79	\$4.29	\$4.74

Selected Energy Comments

“The world oil price is currently in turmoil due to the Russian war on Ukraine, the negotiations with Iran and other outages and factors such as COVID resurgence in China. We expect higher prices until some clarity is reached on several of these issues. Expect high volatility to continue.”

“The biggest factor is global demand and the ability for the US to continue expanding liquefaction capacities. If progress is made on that front, higher prices could be in order [for natural gas].”

“[Over the course of the pandemic], more disciplined use of capital along with adding extra overtime now instead of adding people.”

“The extended years of low crude oil prices has killed the drilling business.”

“[Over the course of the pandemic] technology in fracturing keeps becoming more efficient.... We are beginning to drill and complete our second-tier locations, with a bit of trepidation. I do not believe we will see the big percentage increase year over year as happened this past decade.”

“[Over the course of the pandemic], the rising cost to drill & complete have operators reevaluating this cost to justify drilling. Smaller independents are having a difficult time attracting new investors.”

“[The Russia/Ukraine conflict] reduced our willingness to hedge due to increased risk of sharp price spikes.”

“We have historically not hedged but recent events [Russia/Ukraine conflict] have caused us to do some evaluation.”

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Chad Wilkerson serves as Oklahoma City Branch Executive and Senior Vice President for the Federal Reserve Bank of Kansas City. Wilkerson began his career with Federal Reserve in the Kansas City research department in 1998, before accepting the role of Oklahoma City Branch Executive in 2006. In 2022, Wilkerson was appointed Senior Vice President. 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. Serving as Senior Vice President of Community Development, Wilkerson supports community development staff 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.