Energy Survey

Tenth District Energy Activity Expanded Moderately

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Tenth District energy activity expanded moderately from a quarter ago and increased further from year-ago levels. Expectations for future activity remained strong. Firms reported that oil prices needed to be on average $73 per barrel for a substantial increase in drilling to occur, and natural gas prices needed to be $4.27 per million Btu.

Summary of Quarterly Indicators

Tenth District energy activity expanded moderately in the fourth quarter of 2021 and continued to outpace year ago levels, as indicated by firms contacted between December 15th, 2021 and January 3rd, 2022 (Tables 1 & 2). The drilling and business activity index moved from 39 to 31, with positive levels indicating expansion (Chart 1). The total revenues index remained elevated, and the wages and benefits index rose to a new survey record high. Supplier delivery time inched up while access to credit growth eased.

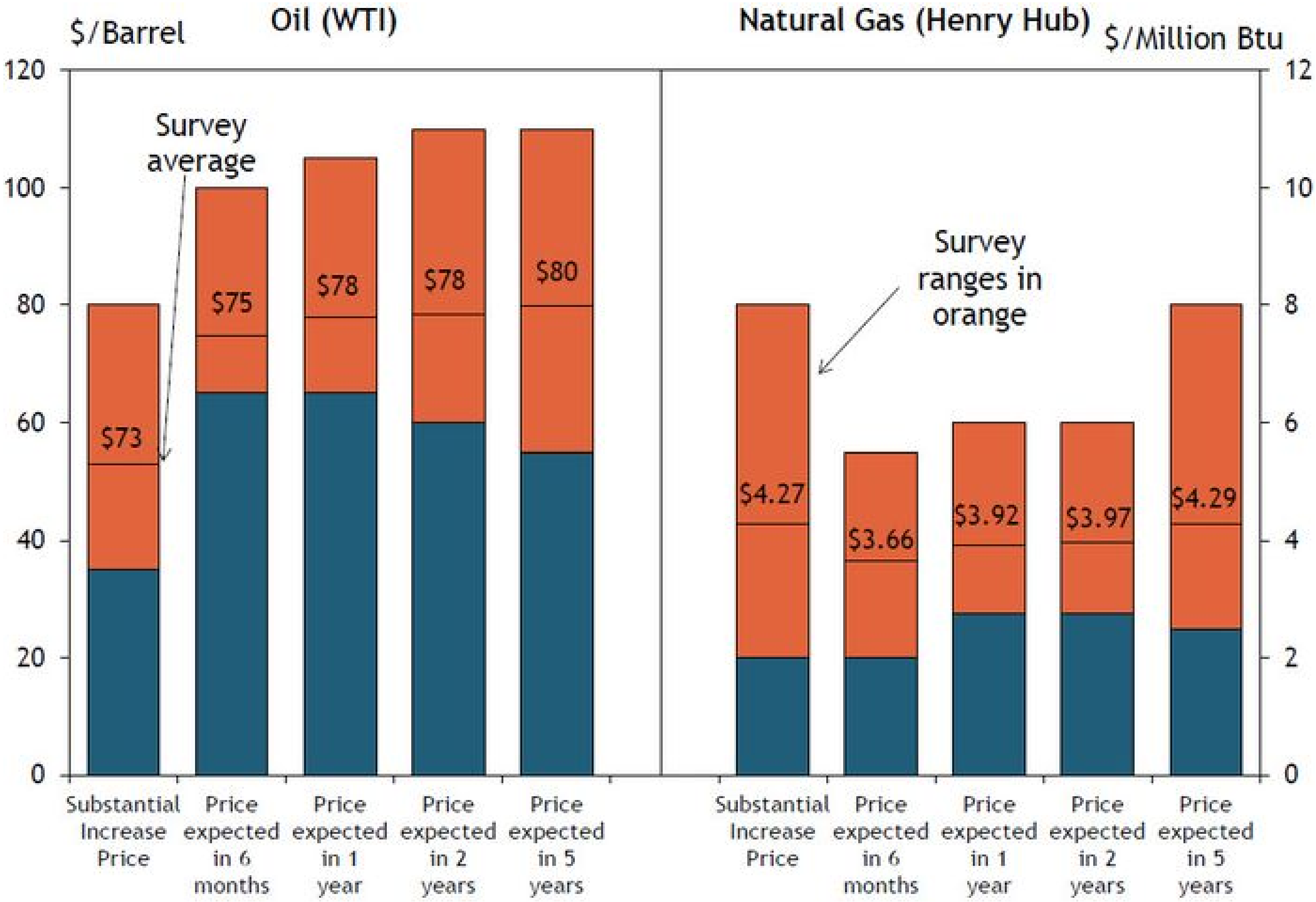
Year-over-year indexes increased further from the previous survey. The year-over-year drilling and business activity index rose from 69 to 75. The indexes for capital expenditures, employment, and wages and benefits all indicated higher levels than a year ago. The revenues and profits indexes also remained very high. However, supplier delivery times remained higher than a year ago for a small share of firms.

Expectations indexes remained positive in Q4 2021. The future drilling and business activity index eased from 46 in Q3 2021 to 44 but was above the Q2 posting of 41. Future employment expectations rose to the highest levels in over 6 years, and expectations for future wages and benefits set a survey record. Expectations for capital spending increased while supplier delivery time expectations remained subdued. Price expectations for oil remained high, while expectations for natural gas and natural gas liquids price growth slowed from a quarter ago.

Summary of Special Questions

This quarter firms were asked what oil and natural gas prices were needed on average for a substantial increase in drilling to occur across the fields in which they are active (in alternate quarters they are asked what prices are needed to be profitable). The average oil price needed was $73 per barrel, with a range of $50 to $100 (Chart 2). The average natural gas price needed was $4.27 per million Btu, with responses ranging from $2.00 to $8.00. The substantial increase price average for oil was the highest level reported since Q2 2015, and the highest ever recorded substantial increase price for natural gas (since 2015).

Chart 2. Special Question - What price is currently needed to substantially increase drilling 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?



Firms were again asked what they expected oil and natural gas prices to be in six months, one year, two years, and five years. Oil price expectations increased to the highest levels since the survey began this question in 2017. The average expected WTI prices were $75, $78, $78, and $80 per barrel, respectively. In contrast, price expectations for natural gas declined. The average expected Henry Hub natural gas prices were $3.66, $3.92, $3.97, and $4.29 per million Btu, respectively.

Firms were also asked about capital spending plans (Chart 3). Nearly 20% of firms expected capital spending in 2022 to increase significantly compared to 2021, while another 50% expected slight increases. Only 6% of firms expected capital spending to decline. Around a quarter of firms expected 2022 capital spending to remain close to 2021 levels. Several firms reported that inflation has driven higher capital spending costs from services and materials. Other contacts reported increased capital spending plans to expand drilling and production.

Additionally, firms were asked about environmental plans (Chart 4). 45% of firms indicated they plan to reduce carbon dioxide emissions, 41% plan to reduce methane emissions, 28% plan to recycle/reuse water, and 21% plan to reduce flaring. Another 38% of firms indicated they did not have any of the plans listed.

Table 1
Summary of Tenth District Energy Conditions, Quarter 4, 2021

	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	38	56	6	31	78	19	3	75	50	44	6	44
Total Revenues	64	33	3	61	88	12	0	88	58	33	9	48
Capital Expenditures					67	24	9	58	61	30	9	52
Supplier Delivery Time	39	24	36	3	42	21	36	6	24	58	18	6
Total Profits	45	42	12	33	82	18	0	82	52	39	9	42
Number of Employees	36	61	3	33	44	44	13	31	44	53	3	41
Employee Hours	30	67	3	27	38	53	9	28	31	59	9	22
Wages and Benefits	58	39	3	55	81	16	3	78	72	28	0	72
Access to Credit	13	84	3	9	28	63	9	19	9	88	3	6
Expected Oil Prices									39	55	6	33
Expected Natural Gas Prices									30	42	27	3
Expected Natural Gas Liquids Prices									26	61	13	13

*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, 2021 to January 3, 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

	Q4'18	Q1'19	Q2'19	Q3'19	Q4'19	Q1'20	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21
Versus a Quarter Ago													
(not seasonally adjusted)													
Drilling/Business Activity	-13	0	7	-23	-48	-81	-61	4	40	34	33	39	31
Total Revenues	6	13	-14	-10	6	-73	-78	-7	31	45	82	80	61
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	0	3	7	-7	-6	-24	-13	-21	0	5	-3	-3	3
Total Profits	-18	6	-18	-23	-21	-81	-88	-24	14	33	70	68	33
Number of Employees	9	3	0	-10	0	-54	-56	-39	-14	12	25	25	33
Employee Hours	6	6	0	0	-12	-54	-55	-38	3	16	42	37	27
Wages and Benefits	30	28	15	10	9	-24	-38	-17	9	21	39	35	55
Access to Credit	-19	-10	-7	-6	-21	-32	-31	-28	-6	5	9	15	9
Versus a Year Ago													
Drilling/Business Activity	17	17	-11	-21	-50	-92	-70	-71	-60	10	59	69	75
Total Revenues	50	23	-22	-7	-19	-81	-74	-79	-77	17	88	92	88
Capital Expenditures	27	3	4	-10	-13	-68	-69	-66	-57	14	30	55	58
Supplier Delivery Time	3	3	7	-21	-13	-22	-26	-10	-9	7	3	8	6
Total Profits	42	6	-24	-13	-30	-83	-84	-83	-69	2	91	83	82
Number of Employees	27	24	4	-13	-18	-62	-61	-59	-60	-16	12	30	31
Employee Hours	19	16	3	-17	-18	-62	-53	-62	-46	-7	30	44	28
Wages and Benefits	55	47	43	33	3	-30	-16	-24	-32	0	45	58	78
Access to Credit	9	3	-7	0	-16	-44	-35	-28	-46	-14	24	31	19
Expected in Six Months													
(not seasonally adjusted)													
Drilling/Business Activity	-19	17	-26	-21	-16	-78	0	0	26	40	41	46	44
Total Revenues	-23	47	-4	4	13	-78	-16	-7	51	52	76	56	48
Capital Expenditures	-13	19	-4	-17	-13	-73	-35	-14	9	35	33	33	52
Supplier Delivery Time	9	14	14	-14	-23	-32	-19	3	-3	12	18	10	6
Total Profits	-27	35	-7	-10	0	-81	-10	-3	51	38	79	58	42
Number of Employees	15	14	0	-3	-16	-68	-26	-38	-9	23	30	30	41
Employee Hours	3	13	-4	-10	-18	-59	-33	-31	-3	35	27	26	22
Wages and Benefits	42	28	15	17	-6	-49	-19	-28	12	37	36	45	72
Access to Credit	3	0	-3	-10	-9	-44	-13	-10	6	7	12	13	6
Expected Oil Prices	29	34	15	32	28	-19	28	28	51	23	55	33	33
Expected Natural Gas Prices	-33	3	10	23	-6	16	38	34	37	30	59	30	3
Expected Natural Gas Liquids Prices	-3	18	-7	13	10	-8	45	31	40	35	63	33	13
Special Price Questions													
(averages)													
Profitable WTI Oil Price (per barrel)		$52		$55		$47		$49		$53		$57	
WTI Price to Substantially Increase Drilling	$63		$66		$65		$51		$56		$72		$73
WTI Price Expected in 6 Months	$54	$60	$57	$58	$60	$33	$41	$43	$48	$62	$74	$73	$75
WTI Price Expected in 1 Year	$59	$61	$60	$60	$62	$42	$47	$47	$52	$65	$76	$74	$78
WTI Price Expected in 2 Years	$61	$65	$63	$63	$65	$50	$53	$53	$56	$67	$76	$75	$78
WTI Price Expected in 5 Years	$66	$72	$70	$69	$71	$58	$60	$60	$61	$70	$78	$76	$80
Profitable Natural Gas Price (per million BTU)		$ 3.02		$ 2.91		$ 2.65		$ 3.12		$ 2.94		$3.88	
Natural Gas Price to Substantially Increase Drilling	$ 3.48		$ 3.40		$ 3.66		$ 2.88		$ 3.28		$3.82		$4.27
Henry Hub Price Expected in 6 Months	$ 3.06	$ 2.85	$ 2.52	$ 2.59	$ 2.38	$ 2.02	$ 2.17	$ 2.62	$2.68	$2.72	$3.19	$4.72	$3.66
Henry Hub Price Expected in 1 Year	$ 3.12	$ 2.91	$ 2.59	$ 2.58	$ 2.49	$ 2.34	$ 2.41	$ 2.71	$2.88	$2.94	$3.21	$4.22	$3.92
Henry Hub Price Expected in 2 Years	$ 3.23	$ 3.05	$ 2.79	$ 2.81	$ 2.69	$ 2.57	$ 2.64	$ 2.87	$3.03	$3.14	$3.34	$4.31	$3.97
Henry Hub Price Expected in 5 Years	$ 3.54	$ 3.18	$ 3.16	$ 3.20	$ 3.09	$ 2.94	$ 3.02	$ 3.28	$3.23	$3.50	$3.71	$4.79	$4.29

Selected Energy Comments

“There will be a need for fossil fuels for a prolonged period due to the incredibly high costs of transition to other forms of energy. Fossil fuels are still plentiful and relatively inexpensive.”

“There is not enough investment for replacement barrels [of oil]. Supply may shrink and demand will stay similar or even grow.”

“Not enough new reserves are being drilled to replace existing production.”

“Inflation is hitting the equipment purchases for new wells.”

“If demand picks up from drop in covid cases, I think oil prices [will increase] within a few months. Then demand destruction kicks in and more EVs are sold and by mid to end of decade we see gasoline demand actually start to plateau and even drop.”

“Expect prices to remain steady due to supply constraints resulting from underinvestment coupled with disproportionate demand increase.”

“Plenty of gas in the USA; European and Asian demand will fall off significantly.”

“Inability to permit enough LNG to balance the market in the US. Persistent disparity between US and global spot prices.”

“Gas will be favored internationally for its cleaner footprint. Underspending will keep prices up.”

“We will pay cash for all our [capital expenditures].”

“OPEC + overhang and demand uncertainties suggest neutral to moderate approach to growth.”

“2021 was catch up for lack of [capital] spending in 2020. We've added "have to have or too good to pass up" assets to our inventory, now it's plow ahead and save.”

“Pressure to moderate spending from investors.”

Additional Resources

Current Release

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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.