Energy Survey

Tenth District Energy Activity Continued to Decline

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Third quarter energy survey results revealed that Tenth District energy activity continued to decline but is expected to pick up modestly in the next six months. Firms reported that oil prices needed to be on average $64 per barrel for drilling to be profitable, and $90 per barrel for a substantial increase in drilling to occur. Natural gas prices needed to be $3.45 per million Btu for drilling to be profitable on average, and $4.36 per million Btu for drilling to increase substantially.

Summary of Quarterly Indicators

Tenth District energy activity continued to decline in the third quarter of 2023, as indicated by firms contacted between Sept. 15th, 2023, and Sept. 29th, 2023 (Tables 1 & 2). The drilling and business activity index increased from -19 to -13 (Chart 1). The number of employees and employee hours indexes cooled and access to credit declined slightly, while all other indexes increased from previous readings.

The year-over-year indexes were mixed. Drilling/business activity declined moderately while revenues, profits, and supplier delivery time decreased at a lesser pace than last quarter. Access to credit turned negative. The wages and benefits indexes grew further even as both employment indexes cooled.

All expectations indexes for future activity turned positive in Q3 2023, except access to credit at -3. The future drilling/business activity index rose from -22 to 7, and revenues and profits are expected to grow as well. Additionally, firms expect to sustain their increases in employment and capital expenditures.

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 (Chart 2), while the average natural gas price needed was $3.45 per million Btu (Chart 3). 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 $90 per barrel (Chart 2), and the average natural gas price needed was $4.36 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?

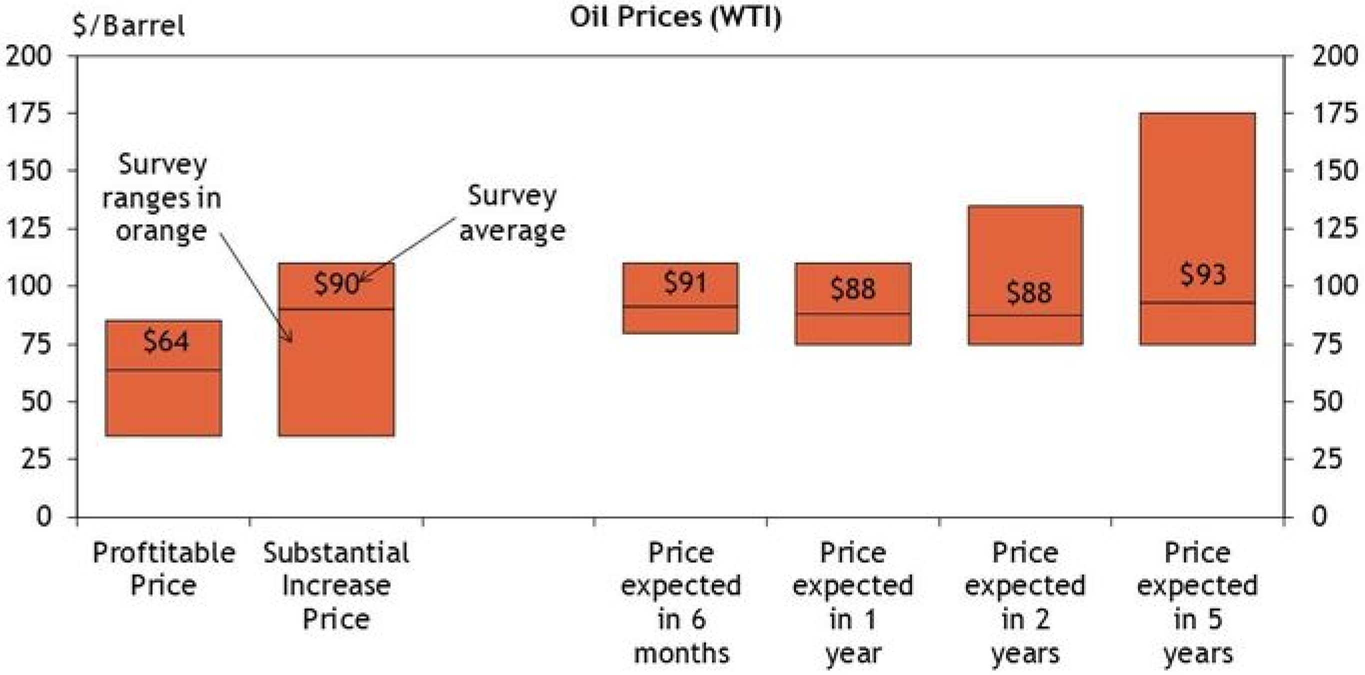
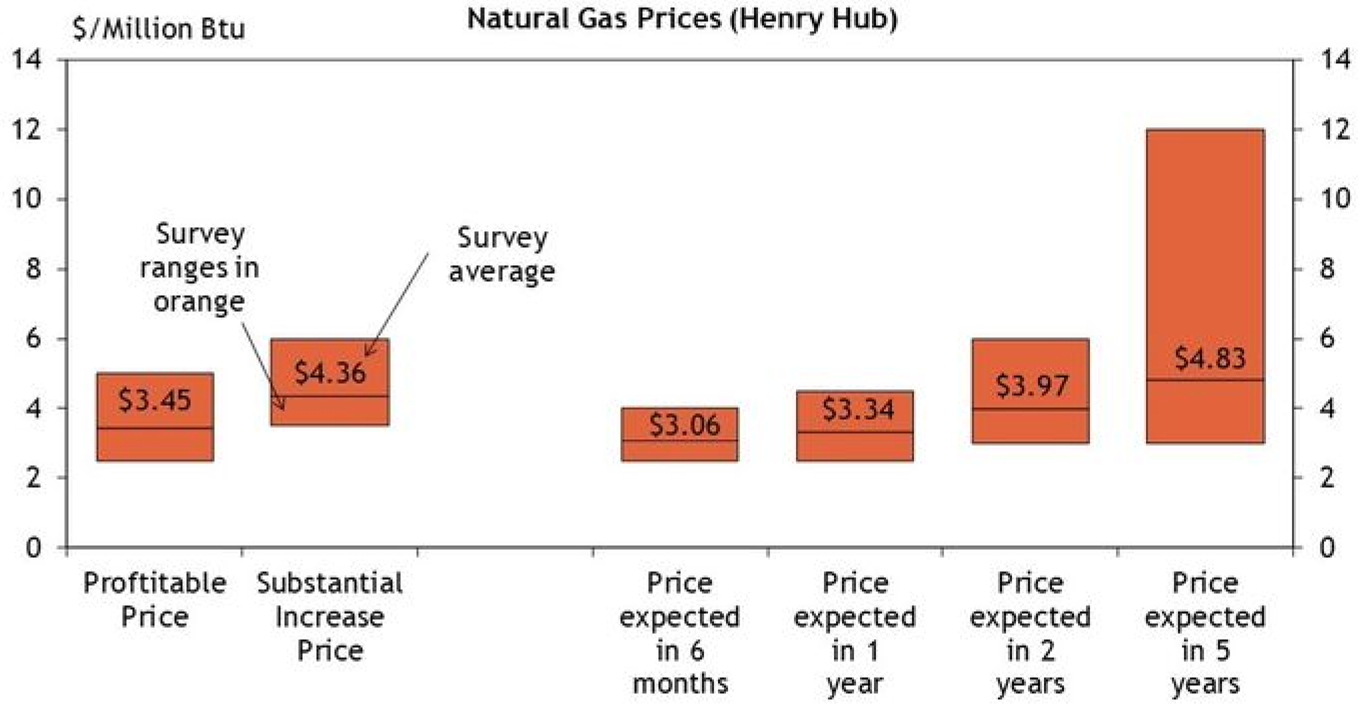


Chart 3. Special Question: What price is currently needed for a drilling to be profitable and for a substantial increase in drilling to occur for natural gas? What do you expect Henry Hub prices to be in six months, one year, two years, and five years?



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 $91, $88, $88, and $83 per barrel, respectively. The average expected Henry Hub natural gas prices were $3.06, $3.34, $3.97, and $4.83 per million Btu, respectively.

Contacts were asked what they expect the U.S. rig count to be in six months relative to current levels (Chart 4). 48% of firms expect the number of rigs to be slightly higher, 45% expect it to be about the same, and 3% each expect it to be significantly higher or slightly lower.

District energy firms were also asked how productivity has changed at their business over the past year, and how they expect it to change in the next year (Chart 5). 45% of firms reported a slight increase in productivity over the past year, while 31% reported no change, 14% reported a large increase, 7% reported a slight decrease, and only 3% reported a large decrease. However, in the coming year, 70% of firms expect a slight increase in productivity, while nearly a quarter expect no change in productivity, and 3% each expect a slight or large decrease.

Table 1
Summary of Tenth District Energy Conditions, Quarter 3, 2023

	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	17	53	30	-13	20	37	43	-23	30	47	23	7
Total Revenues	45	23	32	13	29	19	52	-23	58	26	16	42
Capital Expenditures					35	35	29	6	39	39	23	16
Supplier Delivery Time	10	71	19	-10	29	35	35	-6	13	74	13	0
Total Profits	29	39	32	-3	26	23	52	-26	42	39	19	23
Number of Employees	26	61	13	13	39	45	16	23	26	68	6	19
Employee Hours	16	74	10	6	16	71	13	3	13	77	10	3
Wages and Benefits	35	65	0	35	84	10	6	77	55	42	3	52
Access to Credit	10	77	13	-3	13	71	16	-3	10	77	13	-3
Expected Oil Prices									42	48	10	32
Expected Natural Gas Prices									57	37	7	50
Expected Natural Gas Liquids Prices									43	50	7	37

*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 June 15, 2023 to June 30, 2023 and included 33 responses from firms in Colorado, Kansas, Nebraska, Oklahoma, Wyoming, northern New Mexico, and western Missouri.

Table 2
Historical Energy Survey Indexes

	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22	Q3'22	Q4'22	Q1'23	Q2'23	Q3'23
Versus a Quarter Ago													
(not seasonally adjusted)													
Drilling/Business Activity	4	40	35	33	43	32	29	57	44	6	-13	-19	-13
Total Revenues	-7	31	44	82	82	63	38	87	25	-8	-42	-42	13
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	-21	0	5	-3	-3	6	-9	10	-3	-11	-3	-21	-10
Total Profits	-24	14	36	70	69	34	44	68	29	-17	-26	-39	-3
Number of Employees	-39	-14	12	25	26	34	39	42	47	38	6	27	13
Employee Hours	-38	3	17	42	38	28	41	39	37	41	6	18	6
Wages and Benefits	-17	9	21	39	33	53	56	58	61	59	42	27	35
Access to Credit	-28	-6	5	9	16	10	25	16	6	6	0	3	-3
Versus a Year Ago													
Drilling/Business Activity	-71	-60	12	59	68	74	52	77	78	56	17	-16	-23
Total Revenues	-79	-77	20	88	92	88	72	90	87	67	-10	-48	-23
Capital Expenditures	-66	-57	14	30	54	59	63	71	71	65	26	0	6
Supplier Delivery Time	-10	-9	7	3	8	9	-3	23	6	-5	10	-45	-6
Total Profits	-83	-69	5	91	82	84	75	81	84	61	3	-48	-26
Number of Employees	-59	-60	-17	12	31	32	66	55	61	56	26	39	23
Employee Hours	-62	-46	-7	30	45	29	63	55	50	57	26	21	3
Wages and Benefits	-24	-32	0	45	56	77	84	77	87	89	77	58	77
Access to Credit	-28	-46	-12	24	29	23	38	19	27	3	6	6	-3
Expected in Six Months													
(not seasonally adjusted)													
Drilling/Business Activity	0	26	41	41	45	45	42	50	25	19	-13	-22	7
Total Revenues	-7	51	54	76	58	50	53	55	27	11	-26	3	42
Capital Expenditures	-14	9	36	33	31	53	63	52	52	49	-6	-9	16
Supplier Delivery Time	3	-3	10	18	8	9	9	16	-10	-19	-23	-42	0
Total Profits	-3	51	37	79	59	44	38	35	39	6	-23	-3	23
Number of Employees	-38	-9	24	30	31	42	47	42	42	38	13	12	19
Employee Hours	-31	-3	36	27	26	23	41	32	27	30	13	3	3
Wages and Benefits	-28	12	36	36	46	71	72	63	65	70	45	24	52
Access to Credit	-10	6	7	12	13	6	19	6	7	3	-6	3	-3
Expected Oil Prices	28	51	24	55	33	34	-16	-6	20	62	29	42	32
Expected Natural Gas Prices	34	37	31	59	31	3	0	10	-10	-3	14	53	50
Expected Natural Gas Liquids Prices	31	40	36	63	34	13	19	0	21	22	20	31	37
Special Price Questions													
(averages)													
Profitable WTI Oil Price (per barrel)	$49		$53		57.241		$62	$65	$61	$64	$64	$63	$64
WTI Price to Substantially Increase Drilling		$56		$72		$73	$86	$98	$102	$89	$86	$86	$90
WTI Price Expected in 6 Months	$43	$48	$62	$74	$73	$75	$96	$109	$88	$83	$75	$75	$91
WTI Price Expected in 1 Year	$47	$52	$65	$76	$75	$78	$89	$102	$89	$86	$81	$79	$88
WTI Price Expected in 2 Years	$53	$56	$67	$76	$75	$78	$83	$88	$90	$88	$86	$83	$88
WTI Price Expected in 5 Years	$60	$61	$70	$78	$76	$80	$84	$86	$93	$88	$90	$88	$93
Profitable Natural Gas Price (per million BTU)	$ 3.12		$2.94		3.8796		$3.72	$4.64	$4.42	$4.32	$3.45	$3.49	$3.45
Natural Gas Price to Substantially Increase Drilling		$ 3.28		$3.82		$4.27	$4.53	$6.34	$7.65	$6.13	$4.74	$4.67	$4.36
Henry Hub Price Expected in 6 Months	$ 2.62	$ 2.68	$2.72	$3.19	$4.72	$3.66	$4.45	$7.06	$7.46	$5.01	$2.82	$3.00	$3.06
Henry Hub Price Expected in 1 Year	$ 2.71	$ 2.88	$2.94	$3.21	$4.22	$3.92	$4.32	$6.65	$6.48	$5.52	$3.33	$3.33	$3.34
Henry Hub Price Expected in 2 Years	$ 2.87	$ 3.03	$3.14	$3.34	$4.31	$3.97	$4.29	$6.06	$6.16	$5.78	$4.04	$3.71	$3.97
Henry Hub Price Expected in 5 Years	$ 3.28	$ 3.23	$3.50	$3.71	$4.79	$4.29	$4.74	$5.77	$6.51	$6.19	$4.51	$3.98	$4.83

Selected Energy Comments

"It is becoming ever more difficult and expensive to drill and operate. The best spots (geologically) for the best wells will become rarer to find."

“Gas demand is staying flat or increasing while ability and willingness to drill for gas is declining.”

“Gas burns cleaner than oil and if there is any transition to cleaner fuel, it will be toward natural gas.”

“Our teams are productive independent of price.”

“Completion costs are down 30%.”

“Oil prices are climbing but business is not in high demand.”

“There is not enough available drilling rigs and rig hands to increase our activity above our current activity level.”

“Bakken and Oklahoma have seen increased rig activity.”

“Business is stable.”

“No significant innovation, but better experience level of field personnel.”

Additional Resources

Current Release

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About the Energy Survey

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Chase Farha is a Research Associate in the Regional Affairs department at the Oklahoma City branch of the Federal Reserve Bank of Kansas City. In this role, his responsibilities include contributing to the Oklahoma Economist and a variety of research projects. He holds a Bachelor of Science degree in Economics, with minors in mathematics and Arabic, from Tulane University.