

Oil price outlook survey 2023-2027

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Summary: Oil price outlook survey 2023-2027

Survey sent to 13,000+ recipients on daily best in energy circulation list

Full or partial responses from 1,066

Survey conducted between Jan 10 and Jan 12, 2023

Expected annual average Brent price in:

	2023	2024	2025	2026	2027
Mean	87	91	91	90	90
Mode	90	90	80	80	80
5th percentile	70	65	60	55	50
10th percentile	70	70	65	60	60
25th percentile	80	80	75	75	70
Median	90	90	90	85	85
75th percentile	95	100	100	100	100
90th percentile	100	115	120	120	125
95th percentile	105	120	130	135	140
Standard deviation	12.36	18.35	22.53	24.64	27.46
Skew	0.46	0.86	0.90	0.94	0.92

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Forecast Number of respondents expecting avg. price of Brent in US\$/bbl to be

Year	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
2023	0	0	0	0	0	0	0	0	2	3	1	15	29	67	90	135	186	231	130	79
2024	0	0	0	0	0	2	1	3	0	3	9	21	38	75	73	121	115	171	95	112
2025	2	0	0	1	0	1	2	1	4	14	14	34	39	89	68	135	102	115	84	101
2026	0	1	1	0	0	1	2	5	5	23	18	55	35	82	96	121	85	112	54	90
2027	2	1	0	0	2	3	3	13	7	27	22	51	56	84	87	116	74	98	45	84

Forecast Number of respondents expecting avg. price of Brent in US\$/bbl to be

Year	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
2023	40	24	6	12	3	1	0	4	0	1	0	0	0	0	0	0	0	0	0	0
2024	45	58	26	40	11	10	3	6	0	5	0	2	0	0	2	3	0	0	0	0
2025	32	63	20	42	17	11	9	11	1	12	1	2	0	2	4	1	0	0	0	3
2026	39	61	14	34	24	14	8	13	2	11	2	5	1	6	2	3	0	0	0	3
2027	30	55	18	32	21	15	9	13	9	16	3	4	2	4	1	4	0	1	0	6

Dispersion measures (US\$/bbl)

2023 2024 2025 2026 2027

5th percentile	70	65	60	55	50
10th percentile	70	70	65	60	60
25th percentile	80	80	75	75	70
75th percentile	95	100	100	100	100
90th percentile	100	115	120	120	125
95th percentile	105	120	130	135	140
Standard deviation	12.4	18.3	22.5	24.6	27.5
Skew	0.46	0.86	0.90	0.94	0.92

Central tendency (US\$/bbl)

2023 2024 2025 2026 2027

Mode	90	90	80	80	80
Median	90	90	90	85	85
Mean	87	91	91	90	90

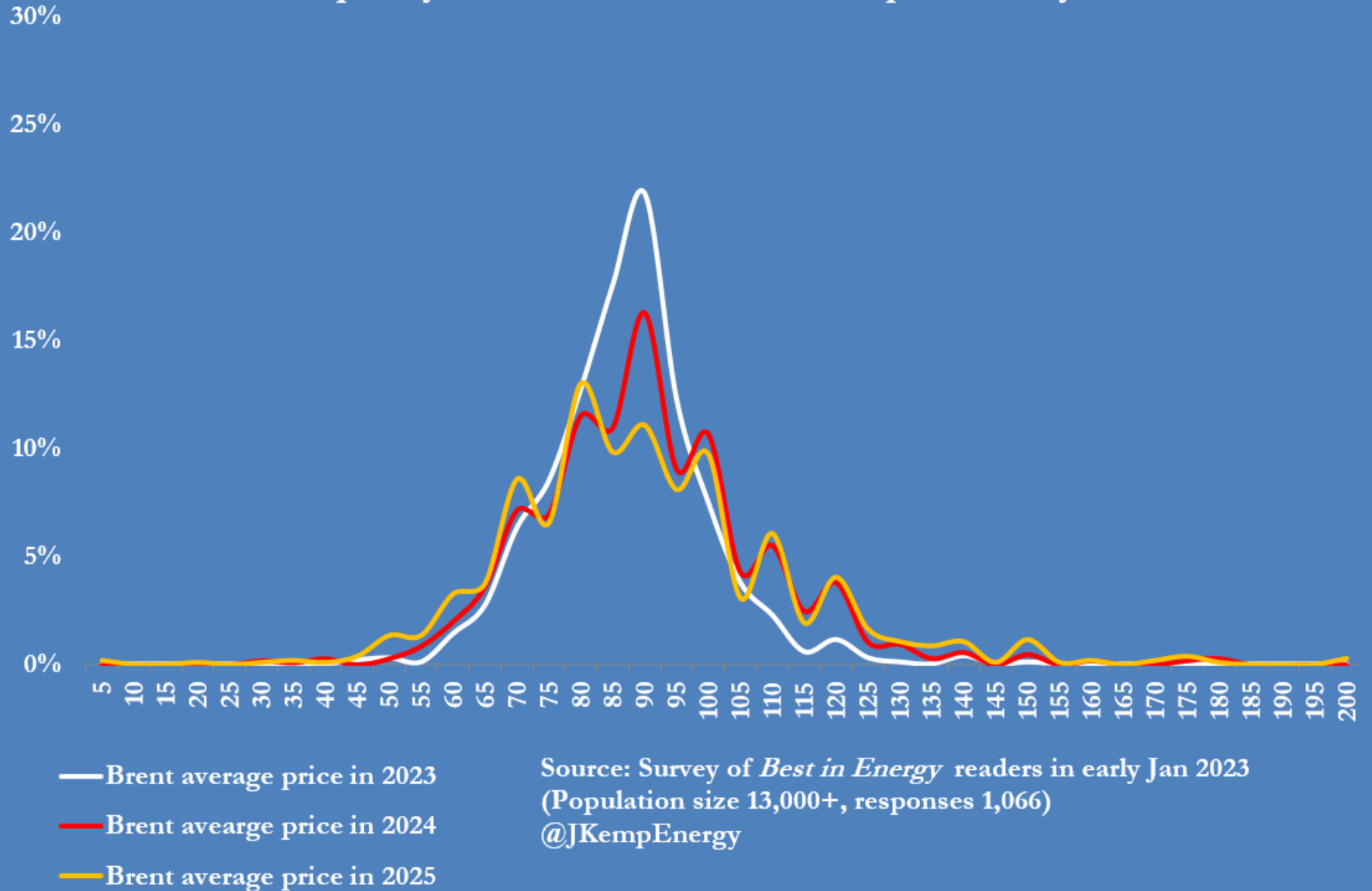
Futures prices (U.S./bbl)

2023 2024 2025 2026 2027

Fut. strip (10 Jan 2023)	76	73	71	69
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Expected Brent crude oil prices 2023-2025 (\$US/bbl)

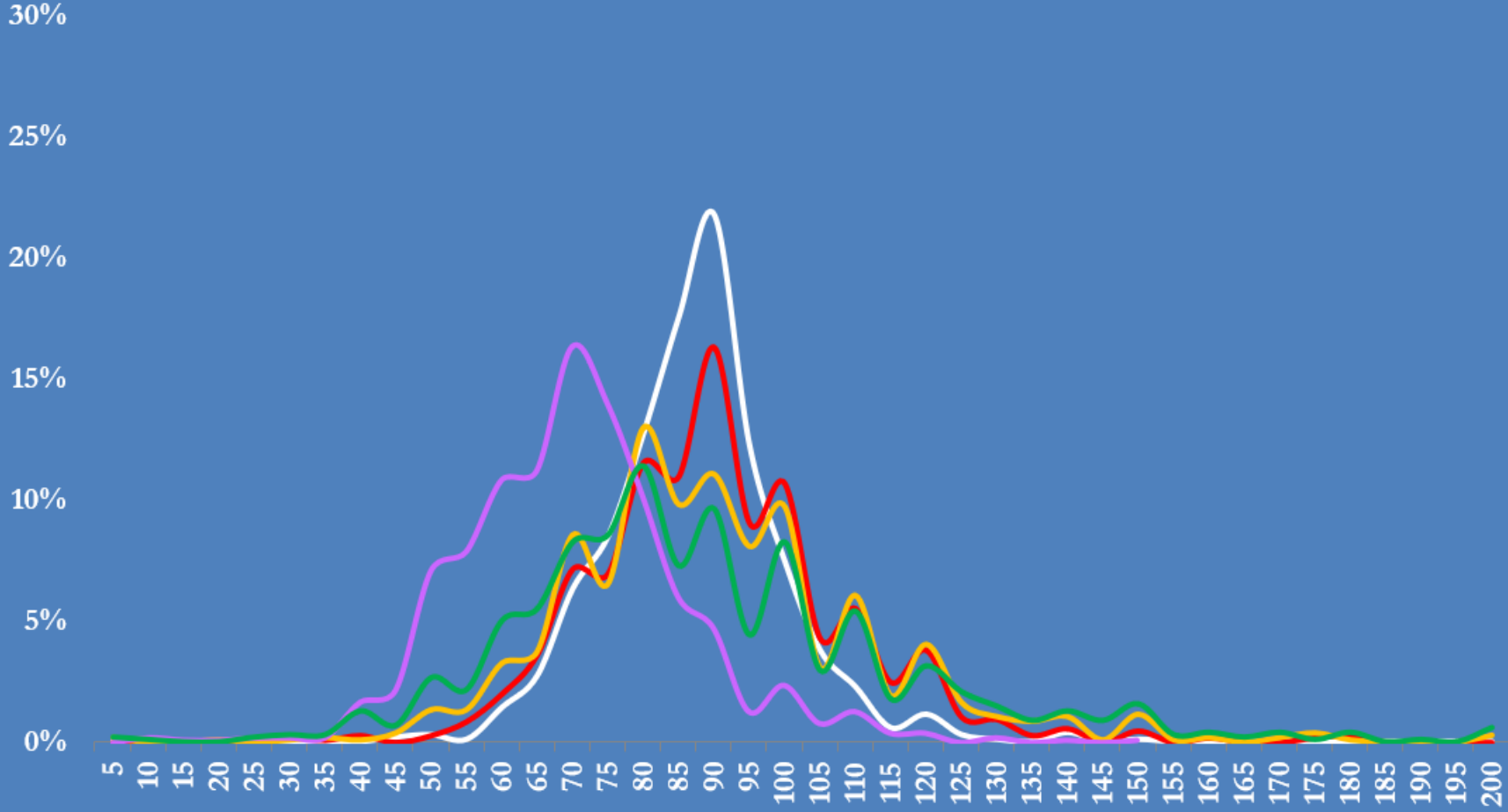
Frequency distribution of results from price survey



Source: Survey of *Best in Energy* readers in early Jan 2023
(Population size 13,000+, responses 1,066)
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Expected Brent crude oil prices 2023-2027 (\$US/bbl)

Frequency distribution of results from price survey

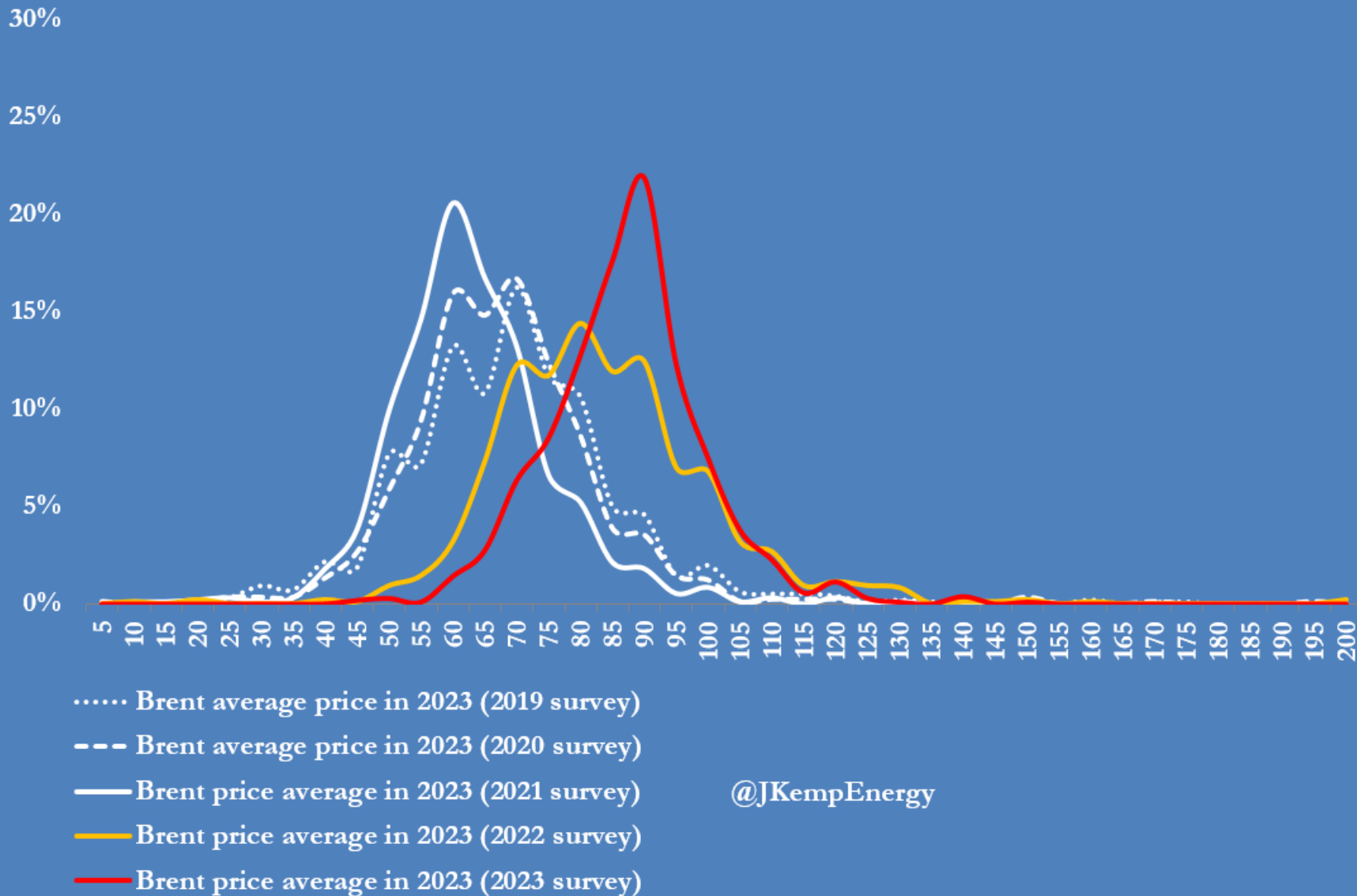


- Brent average price in 2023
- Brent average price in 2024
- Brent average price in 2025
- Brent average price in 2026
- Brent average price in 2027

Source: Survey of *Best in Energy* readers in early Jan 2023
(Population size 13,000+, responses 1,066)
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Expected Brent crude oil prices in 2023 (\$US/bbl)

Distribution of results from surveys in 2019, 2020, 2021, 2022 and 2023

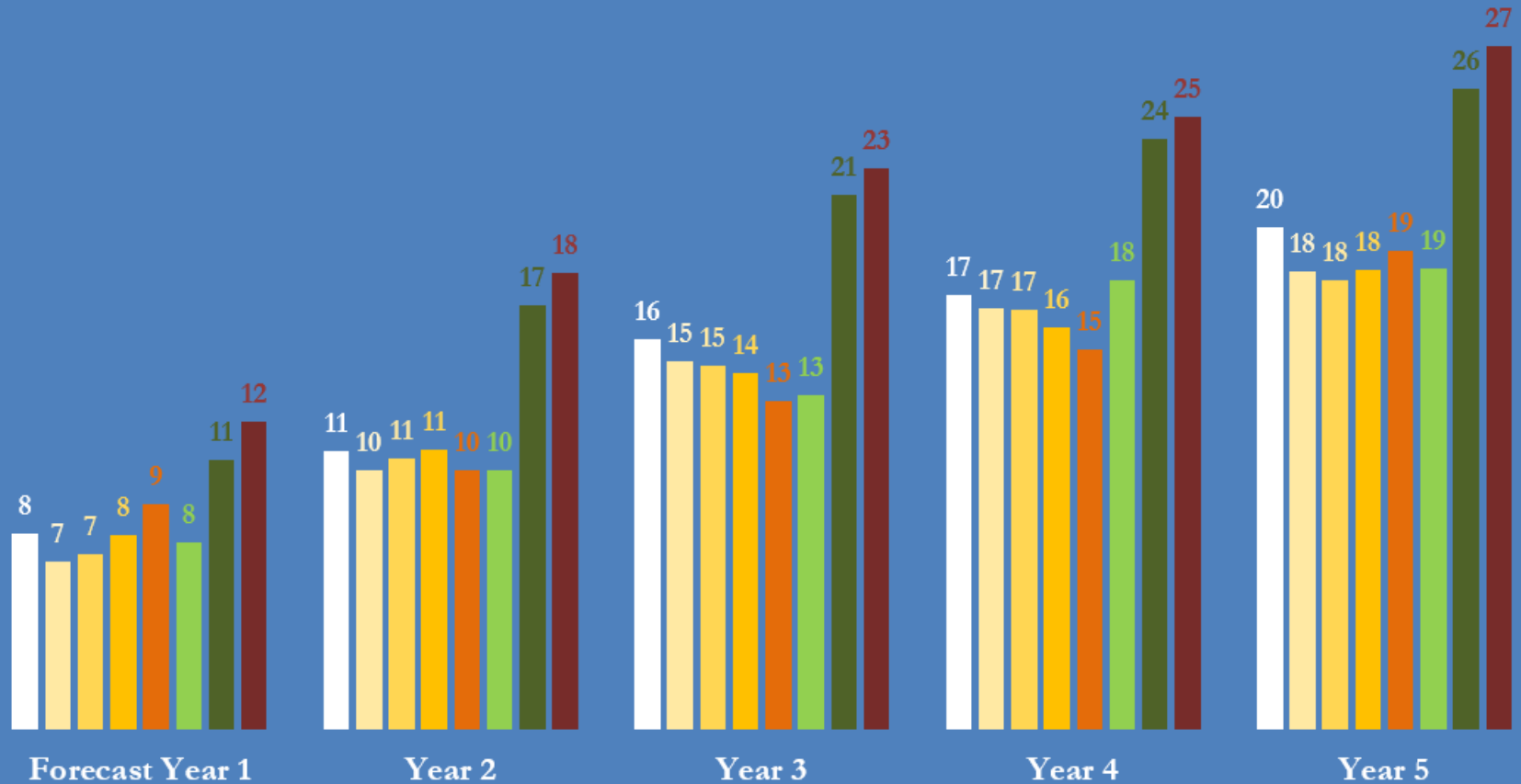


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Oil price forecast uncertainty

Standard deviation of price forecasts from Year 1 to Year 5

U.S.\$/bbl, successive oil price surveys conducted annually 2016-2023



■ 2016 survey ■ 2017 survey ■ 2018 survey ■ 2019 survey
■ 2020 survey ■ 2021 survey ■ 2022 survey ■ 2023 survey

Source: @JKempEnergy

Oil price outlook survey 2023-2027

Distribution of survey respondents (n=1,066)

Oil and gas (exploration, drilling, production, refining, distribution, marketing, oilfield services)	22%
Banking and finance	18%
Other	9%
Research	8%
Professional services	8%
Hedge fund	8%
Physical commodity trading	7%
Other energy (coal, electricity, gas, carbon markets)	6%
Other corporate (transport, manufacturing, construction, mining, services)	5%
Government	2%
Media	2%
Education	2%
No response	0%

Results of previous surveys

Oil price outlook survey 2021-2025

Survey sent to 9000 recipients on daily best in energy circulation list

Full or partial responses from 955

Survey conducted between Jan 12 and Jan 15, 2021

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
2021	0	0	0	0	1	5	0	18	59	152	296	257	115	32	7	6	1	1	0	1
2022	0	0	0	2	2	4	1	14	33	89	153	240	186	110	48	30	14	8	0	4
2023	0	1	1	2	3	1	3	17	36	93	137	193	157	124	62	49	20	17	5	8
2024	1	0	2	1	2	4	7	28	49	95	122	167	135	122	61	50	25	16	8	18
2025	1	2	0	1	4	7	11	35	57	102	120	140	130	100	66	48	32	20	14	17

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
2021	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023	1	3	0	3	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
2024	2	3	1	3	3	1	0	0	0	2	0	0	0	0	1	0	0	0	0	4
2025	1	4	0	4	2	2	0	0	0	4	0	0	0	0	0	0	0	0	0	3

	Dispersion measures (US\$/bbl)					Central tendency (US\$/bbl)					
	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025	
5th percentile	45	45	45	45	40	Mode	55	60	60	60	60
10th percentile	50	50	50	46	45	Median	55	60	60	60	60
25th percentile	55	55	55	55	55	Mean	56.7	61.6	63.4	64.4	64.0
75th percentile	60	65	70	70	70						
90th percentile	65	75	80	80	85						
95th percentile	70	80	85	90	95						
Standard deviation	7.5	10.4	13.4	18.1	18.5						
Skew	0.53	0.46	1.10	2.59	2.01	Fut. strip (12 Jan 2021)	52.5	51.16	50.51	50.06	

Oil price outlook survey 2020-2024

Survey sent to 9000 recipients on daily best in energy circulation list

Full or partial responses from 950

Survey conducted between Jan 7 and Jan 10, 2020

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
2020	2	1	0	1	0	1	1	0	2	14	45	165	335	188	128	38	13	5	1	2
2021	1	1	0	1	2	1	0	2	7	39	74	184	210	179	111	72	28	10	1	2
2022	0	0	0	2	0	1	3	9	11	51	90	169	147	176	109	62	45	16	9	5
2023	1	0	0	1	3	3	3	12	24	53	85	144	134	151	112	78	35	32	13	11
2024	0	1	1	0	4	6	4	23	17	85	74	129	113	125	114	76	37	36	13	19

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
2020	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
2021	1	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2022	0	3	0	3	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1
2023	1	2	2	2	0	1	0	0	0	3	0	0	0	1	0	0	0	0	1	0
2024	5	4	1	1	1	1	1	0	0	1	0	0	0	1	1	0	2	0	0	4

	Dispersion measures (US\$/bbl)					Central tendency (US\$/bbl)					
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	
5th percentile	55	50	50	45	45	Mode	65	65	70	70	60
10th percentile	60	55	55	50	50	Median	65	65	65	65	65
25th percentile	65	60	60	60	60	Mean	66.7	66.6	67.3	67.9	68.5
75th percentile	70	70	75	75	75						
90th percentile	75	80	80	85	90						
95th percentile	80	80	85	90	95						
Standard deviation	9.1	10.4	13.2	15.3	19.2						
Skew	1.32	0.09	2.06	1.55	2.38						
						Futures prices (U.S.\$/bbl)					
						Fut. strip	60.1	57.9	57.2	58.3	
						(7 Jan 2020)					

Oil outlook survey 2019-2023

Survey sent to 7000 recipients on daily best in energy circulation list

Full or partial responses from 1026

Survey conducted between Jan 8 and Jan 11, 2019

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
2018	0	0	0	0	1	0	3	9	11	55	121	228	320	170	77	16	4	3	2	0
2019	0	0	0	0	1	2	3	10	16	73	85	158	206	192	130	65	34	17	5	8
2020	0	0	0	1	2	0	6	16	18	60	82	134	152	196	134	82	45	21	13	20
2021	0	0	0	0	3	5	4	21	17	58	79	127	135	164	117	105	57	34	8	13
2022	0	0	1	0	3	9	7	21	18	74	69	127	104	156	112	102	48	44	14	19

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2019	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020	2	1	0	4	1	1	0	1	0	2	0	0	0	0	0	0	1	0	0	0
2021	5	4	1	5	0	1	1	2	1	1	0	1	0	1	0	0	0	0	0	1
2022	6	5	5	4	1	2	1	1	1	1	0	2	0	1	1	0	0	0	0	2

	Dispersion measures (US\$/bbl)					Central tendency (US\$/bbl)					
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023	
5th percentile	50	50	50	45	45	Mode	65	65	70	70	70
10th percentile	55	50	50	50	50	Median	65	65	70	70	70
25th percentile	60	60	60	60	60	Mean	63	66	68	69	70
75th percentile	70	75	75	75	80						
90th percentile	71	80	85	85	90						
95th percentile	75	85	90	90	100						
Standard deviation	7.8	11.2	14.3	16.2	18.5						
						Fut. strip	60.0	60.4	60.9		
						(8 Jan 2019)					

Oil outlook survey 2018-2022

Survey sent to 7000 recipients on daily best in energy circulation list

Full or partial responses from 1052

Survey conducted between Jan 9 and Jan 11, 2018

Forecast Number of respondents expecting avg. price of Brent in US\$/bbl to be

Year	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
2018	0	0	0	0	1	2	0	0	4	14	97	233	325	217	116	34	4	3	0	0
2019	0	0	0	1	2	1	2	0	11	46	91	164	209	216	121	91	43	19	9	8
2020	0	1	0	2	0	1	1	5	23	75	79	132	127	187	137	111	48	44	12	23
2021	0	2	1	1	2	2	2	17	22	72	80	110	114	166	142	103	61	48	13	24
2022	1	1	1	2	2	2	1	18	34	88	68	107	117	127	129	107	64	45	25	26

Forecast Number of respondents expecting avg. price of Brent in US\$/bbl to be

Year	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2019	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020	4	6	4	5	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
2021	8	13	4	4	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	2
2022	10	14	2	6	5	0	0	1	0	3	0	0	1	0	0	0	0	0	0	1

Dispersion measures (US\$/bbl)

2018 2019 2020 2021 2022

5th percentile	55	50	50	50	45
10th percentile	55	55	50	50	50
25th percentile	60	60	60	60	60
75th percentile	70	75	80	80	80
90th percentile	75	80	85	90	90
95th percentile	75	85	95	100	100
Standard deviation	7.1	10.9	14.6	16.9	18.1

Central tendency (US\$/bbl)

2018 2019 2020 2021 2022

Mode	65	70	70	70	75
Median	65	65	70	70	70
Mean	65.4	67.8	69.8	70.5	70.8

Futures prices (U.S./bbl)

2018 2019 2020 2021 2022

Fut. strip	62.8	60.3	59.1		
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(9 Jan 2018)

Oil outlook survey 2016-2020

Survey sent to 2500+ recipients on daily best in energy circulation list

Full or partial responses from 830

Survey conducted between Mar 1 and Mar 6, 2016

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
2016	2	0	1	3	14	44	202	303	162	63	18	9	1	3	0	0	0	0	0	1
2017	2	0	0	4	7	18	43	112	170	151	119	89	48	18	12	7	1	3	0	1
2018	2	1	1	2	4	15	19	62	76	115	89	136	88	79	41	37	14	8	1	7
2019	2	1	2	3	4	8	22	34	54	95	65	110	93	103	55	63	26	24	9	16
2020	3	2	2	7	3	6	11	34	46	74	53	98	72	103	64	74	38	31	13	28

Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be												Response rate	
	105	110	115	120	125	130	135	140	145	150	155	160	Total Response	No Response
2016	0	0	0	0	0	0	0	1	0	0	0	0	827	3
2017	0	0	0	1	0	0	0	0	0	0	0	0	806	24
2018	2	2	0	2	1	0	0	0	0	1	1	0	806	24
2019	3	2	1	4	0	1	0	1	0	1	0	0	802	28
2020	4	12	4	3	2	2	2	0	0	2	0	1	794	36

	Dispersion measures (US\$/bbl)					Central tendency (US\$/bbl)					
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	
5th percentile	30	35	35	35	40	Mode	40	45	60	60	70
10th percentile	35	40	40	45	45	Median	40	50	60	65	65
25th percentile	35	45	50	50	55	Mean	40.4	50	58.4	63.3	67
75th percentile	45	55	65	75	80						
90th percentile	50	65	75	85	90	Futures prices (U.S.\$/bbl)					
95th percentile	50	70	80	90	100						
Standard deviation	7.9	11.2	15.7	17.4	20.2	Fut. strip					
							43.9	46.6	48.5	50.2	

(1 Mar 2016)