

Oil price outlook survey 2019-2023

John Kemp

Reuters

15 January 2019

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 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	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 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	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)

2019 2020 2021 2022 2023

5th percentile	50	50	50	45	45
10th percentile	55	50	50	50	50
25th percentile	60	60	60	60	60
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

Central tendency (US\$/bbl)

2019 2020 2021 2022 2023

Mode	65	65	70	70	70
Median	65	65	70	70	70
Mean	63	66	68	69	70

Futures prices (U.S.\$/bbl)

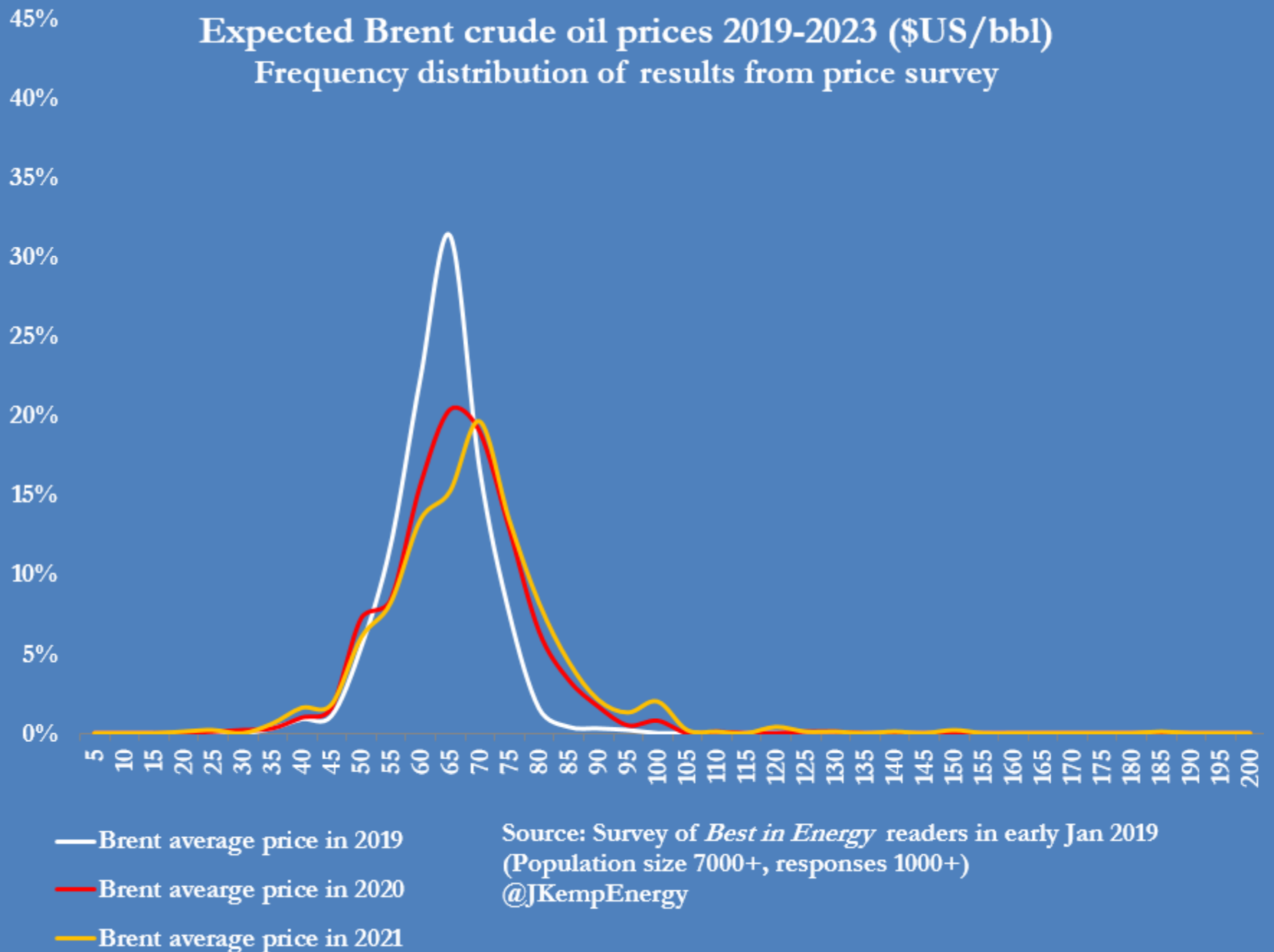
2019 2020 2021 2022 2023

Fut. strip	60.0	60.4	60.9		
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(8 Jan 2019)

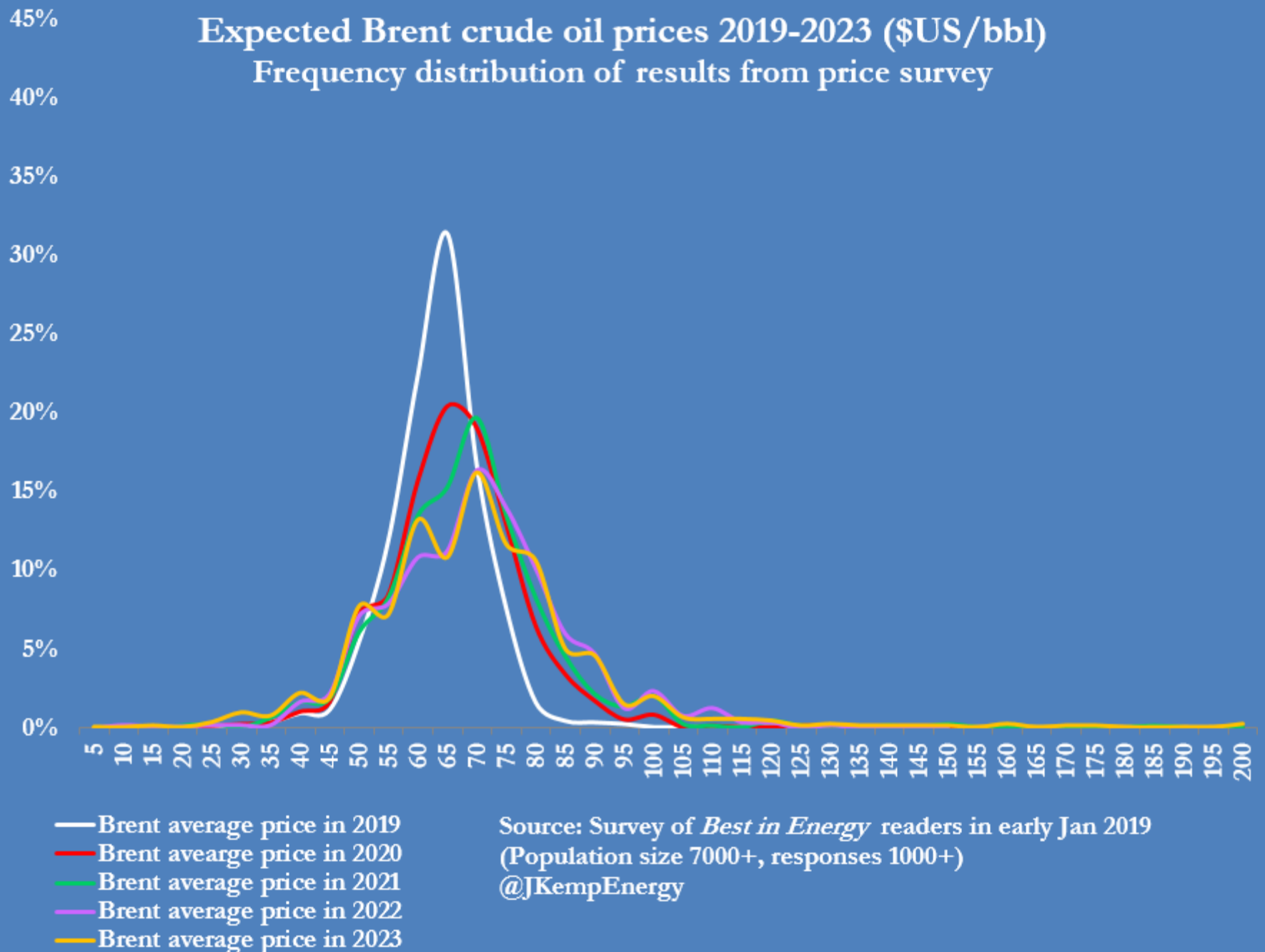
Expected Brent crude oil prices 2019-2023 (\$US/bbl)

Frequency distribution of results from price survey



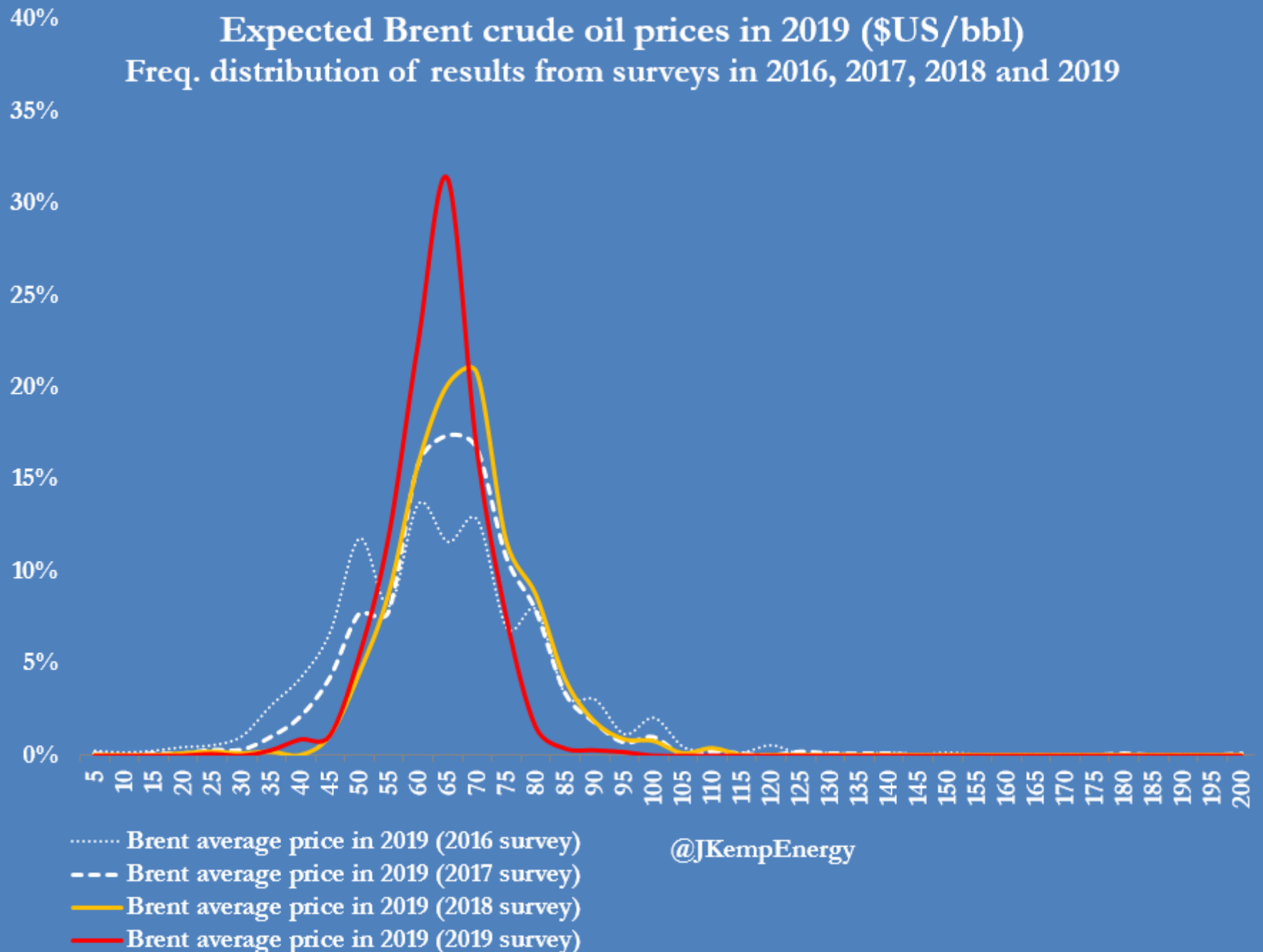
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Frequency distribution of results from price survey



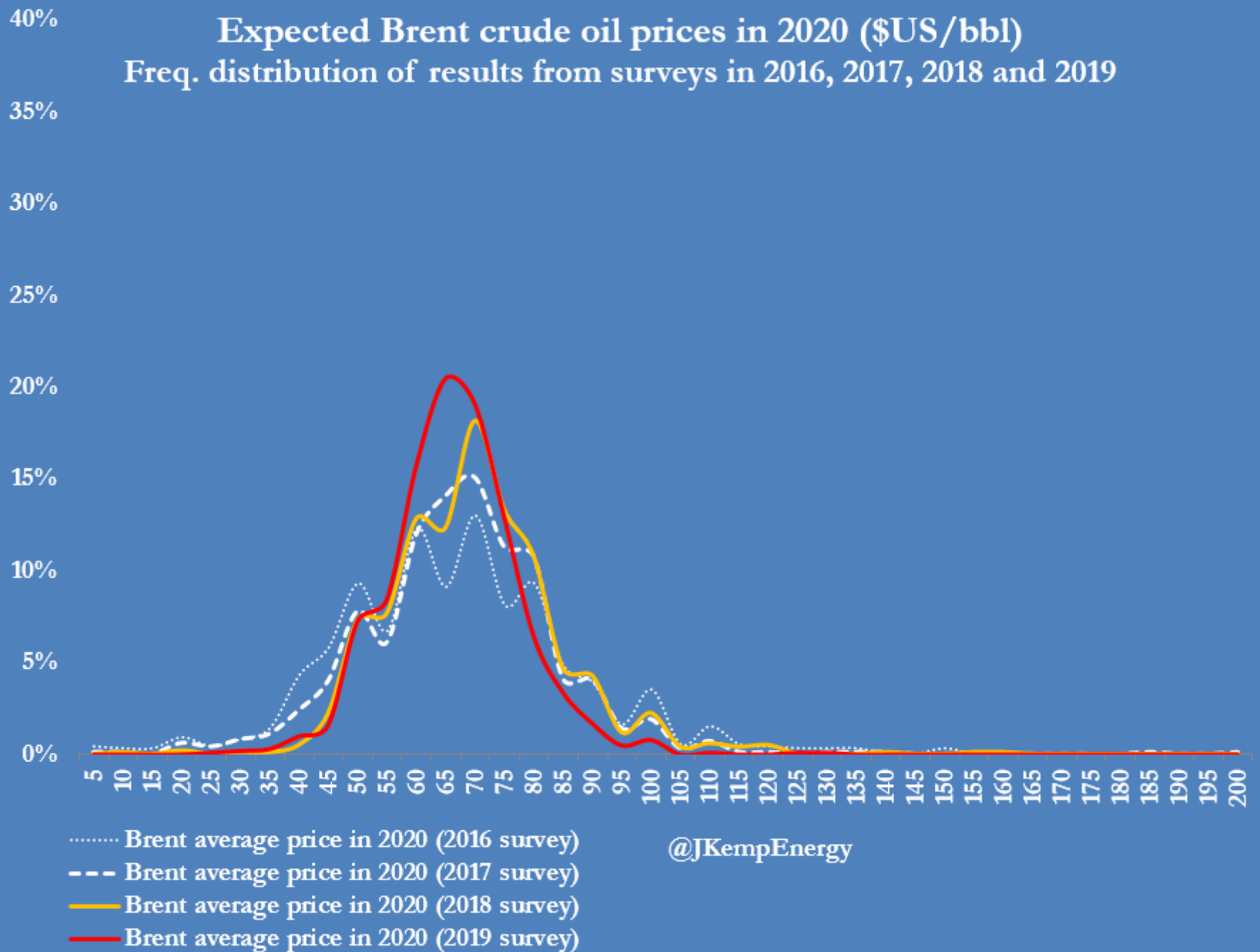
Expected Brent crude oil prices in 2019 (\$US/bbl)

Freq. distribution of results from surveys in 2016, 2017, 2018 and 2019



Expected Brent crude oil prices in 2020 (\$US/bbl)

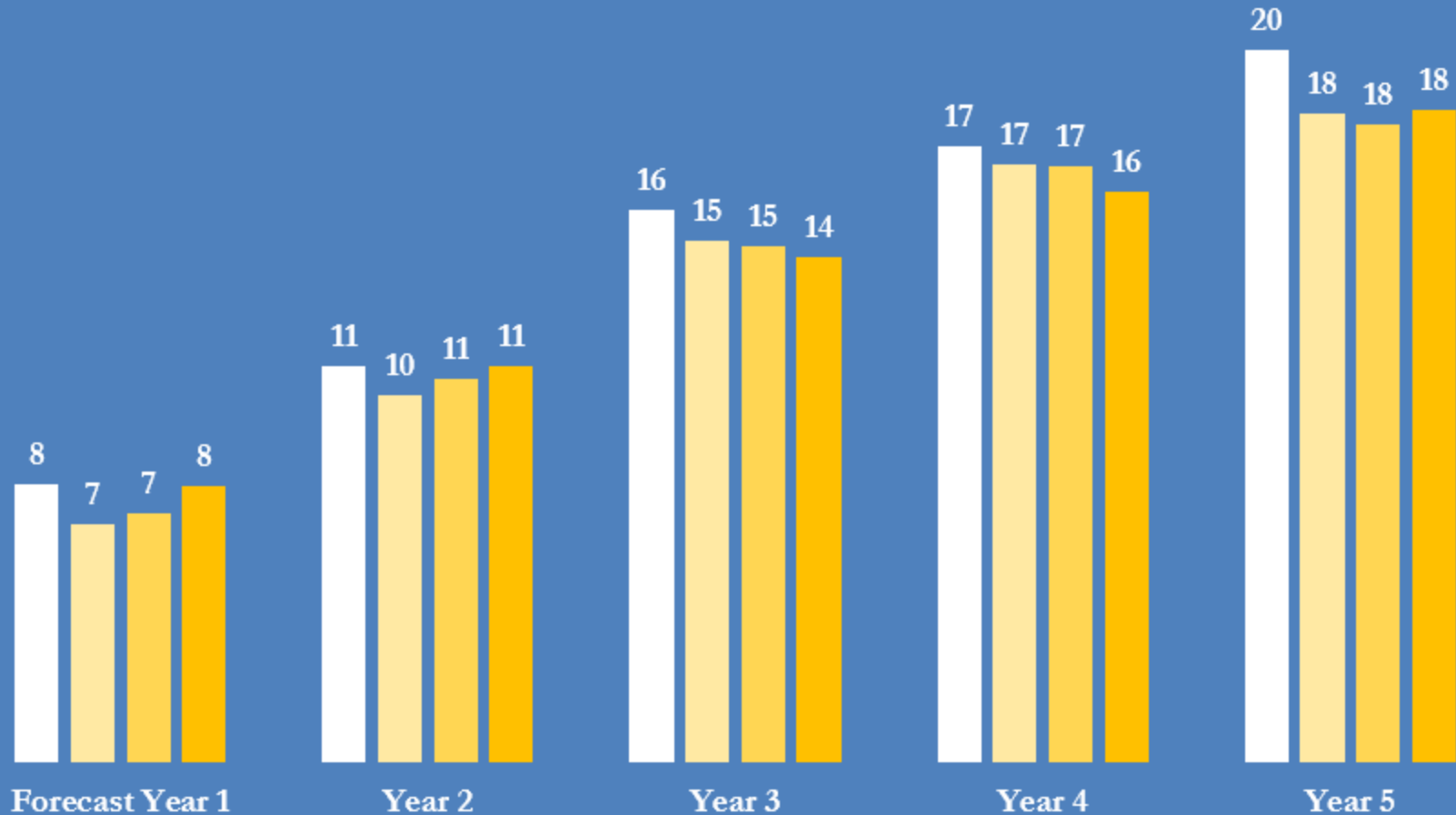
Freq. distribution of results from surveys in 2016, 2017, 2018 and 2019



Oil price forecast uncertainty

Standard deviation of price forecasts from Year 1 to Year 5

U.S.\$/bbl, successive oil price surveys conducted annually 2016-2019



- 2016 survey
- 2017 survey
- 2018 survey
- 2019 survey

Source: @JKempEnergy

Oil outlook survey 2019-2023

Distribution of survey respondents (1000+)

Oil and gas (exploration, drilling, production, refining, distribution, marketing, oilfield services)	26%
Banking and finance	18%
Research	9%
Professional services	9%
Hedge fund	8%
Physical commodity trading	6%
Other energy (coal, electricity, gas, carbon markets)	5%
Media	3%
Government	3%
Other corporate (transport, manufacturing, construction, mining, services)	2%
Education	1%
Other	9%

Oil outlook survey 2018-2022

Conducted early Jan 2018

Results for comparison

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 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	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

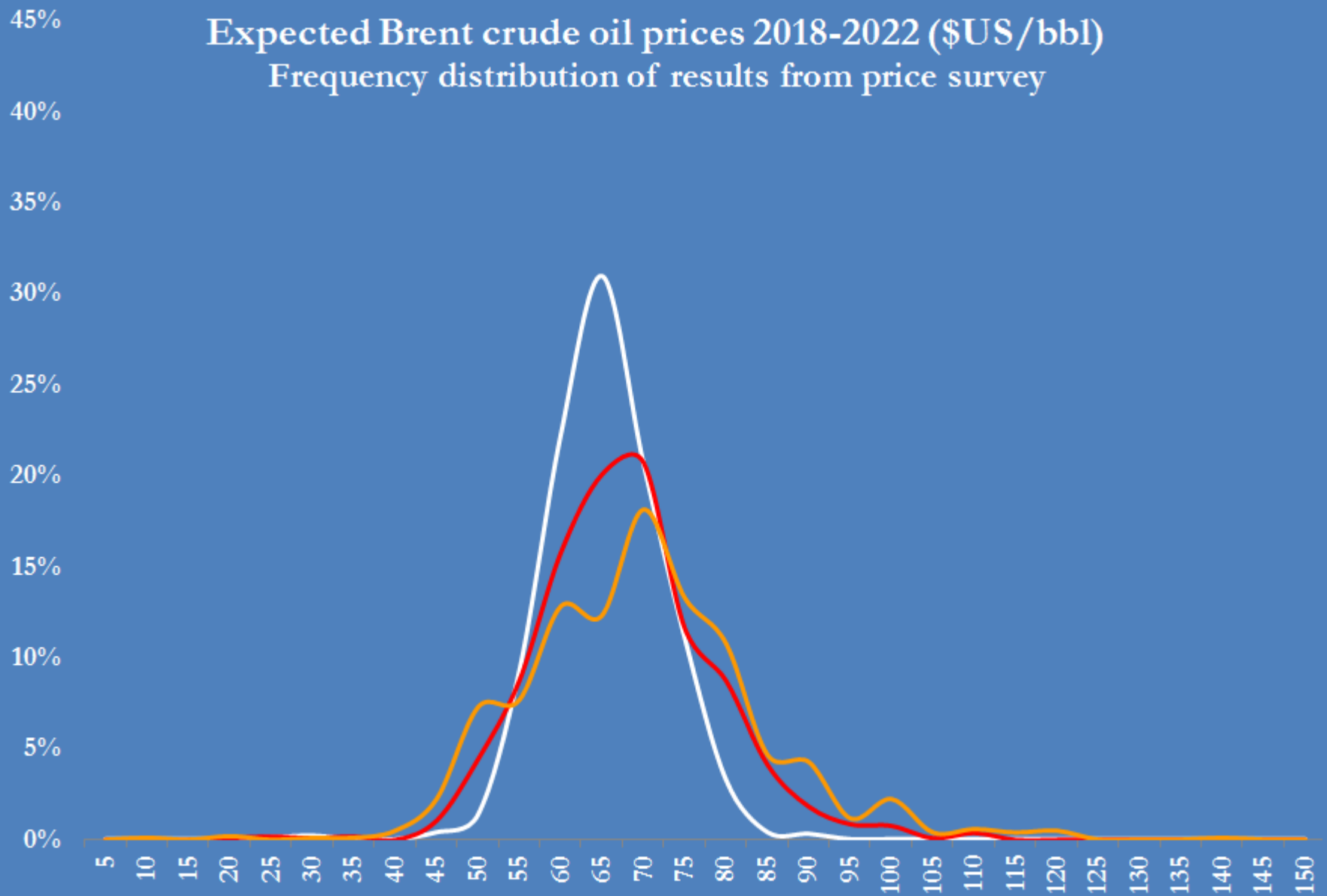
Forecast Year	Number of respondents expecting avg. price of Brent in US\$/bbl to be																			
	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2019	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020	4	6	4	5	0	0	0	1	0	0	1	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)					Central tendency (US\$/bbl)					
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022	
5th percentile	55	50	50	50	45	Mode	65	70	70	70	75
10th percentile	55	55	50	50	50	Median	65	65	70	70	70
25th percentile	60	60	60	60	60	Mean	65.4	67.8	69.8	70.5	70.8
75th percentile	70	75	80	80	80						
90th percentile	75	80	85	90	90	Futures prices (U.S.\$/bbl)					
95th percentile	75	85	95	100	100	2018	2019	2020	2021	2022	
Standard deviation	7.1	10.9	14.6	16.9	18.1	Fut. strip	62.8	60.3	59.1		

(9 Jan 2018)

Expected Brent crude oil prices 2018-2022 (\$US/bbl)

Frequency distribution of results from price survey

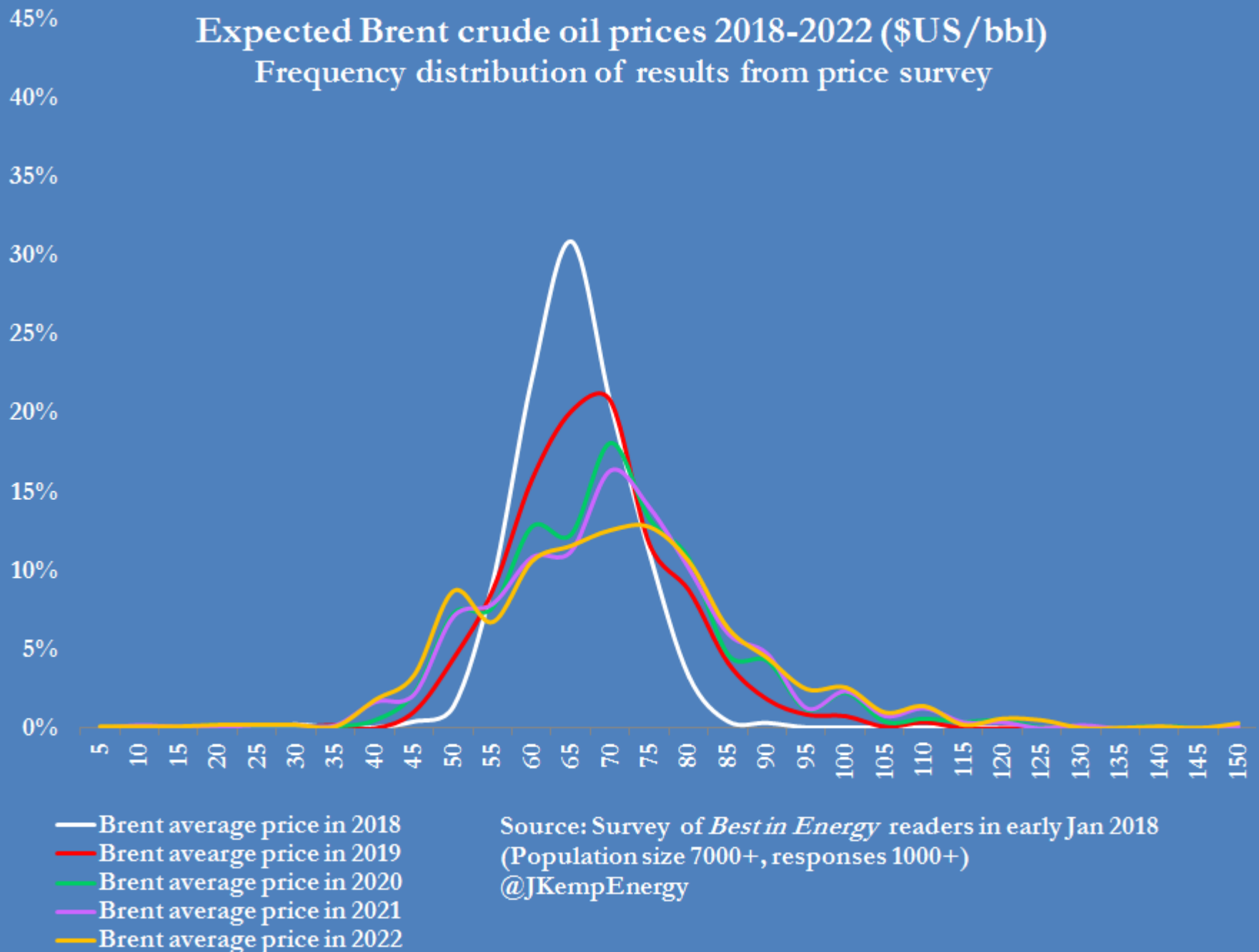


- Brent average price in 2018
- Brent average price in 2019
- Brent average price in 2020

Source: Survey of *Best in Energy* readers in early Jan 2018
(Population size 7000+, responses 1000+)
@JKempEnergy

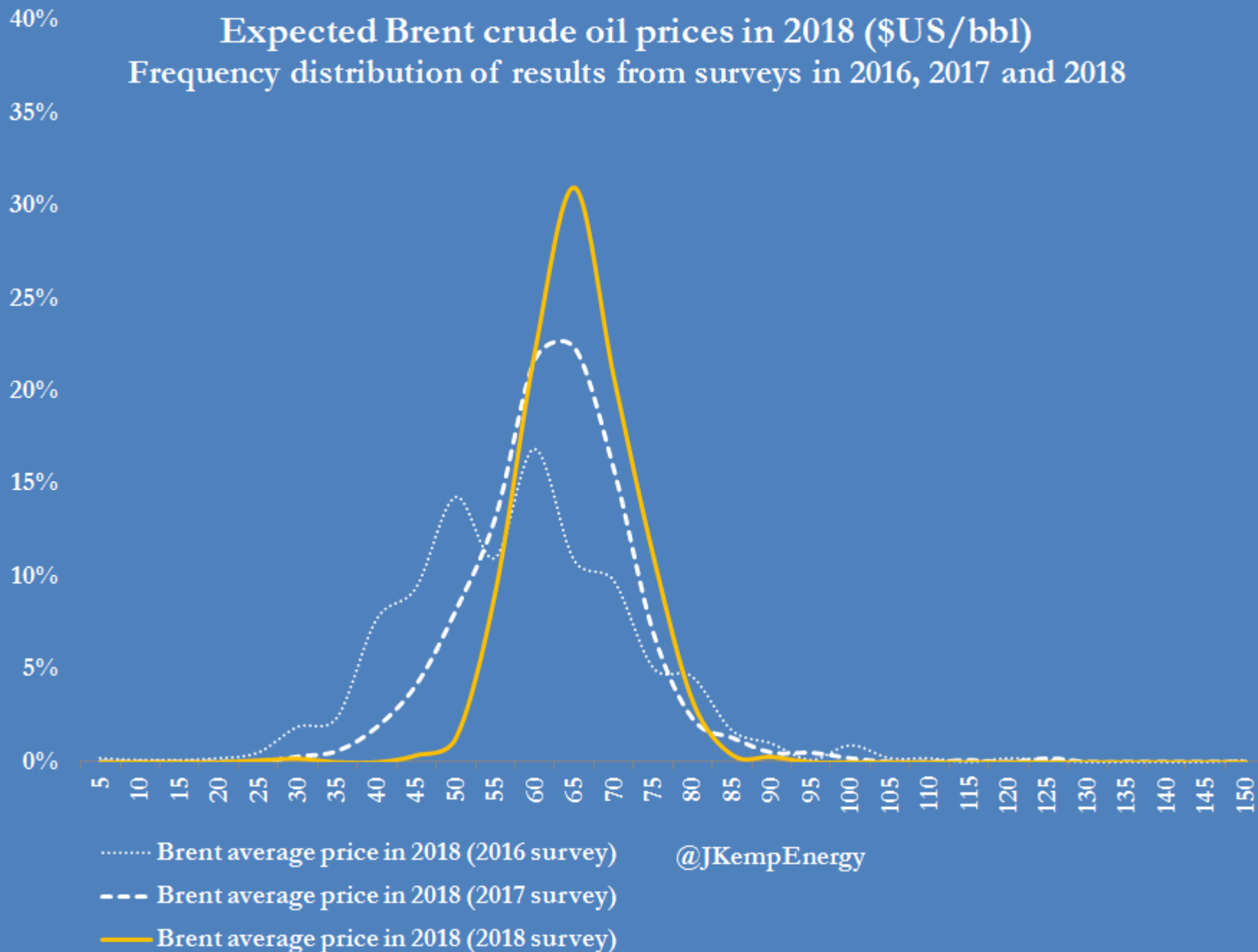
Expected Brent crude oil prices 2018-2022 (\$US/bbl)

Frequency distribution of results from price survey



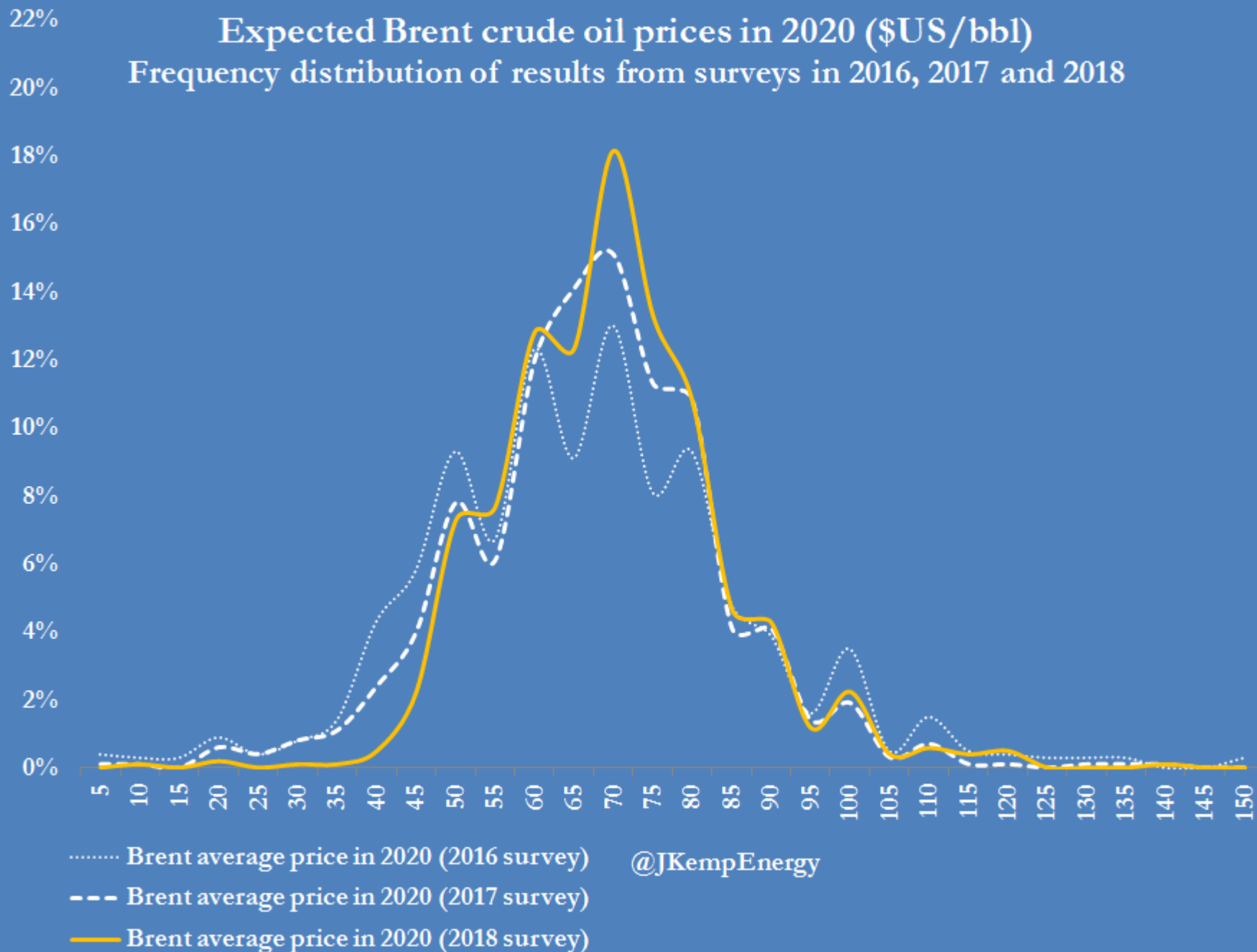
Expected Brent crude oil prices in 2018 (\$US/bbl)

Frequency distribution of results from surveys in 2016, 2017 and 2018



Expected Brent crude oil prices in 2020 (\$US/bbl)

Frequency distribution of results from surveys in 2016, 2017 and 2018



Oil outlook survey 2018-2022

Distribution of survey respondents (1000+)

Oil and gas (exploration, drilling, production, refining, distribution, marketing, oilfield services)	25%
Banking and finance	18%
Research	9%
Hedge fund	9%
Professional services	8%
Physical commodity trading	8%
Other energy (coal, electricity, gas, carbon markets)	4%
Other corporate (transport, manufacturing, construction, mining, services)	3%
Media	3%
Government	2%
Education	1%
Other	10%

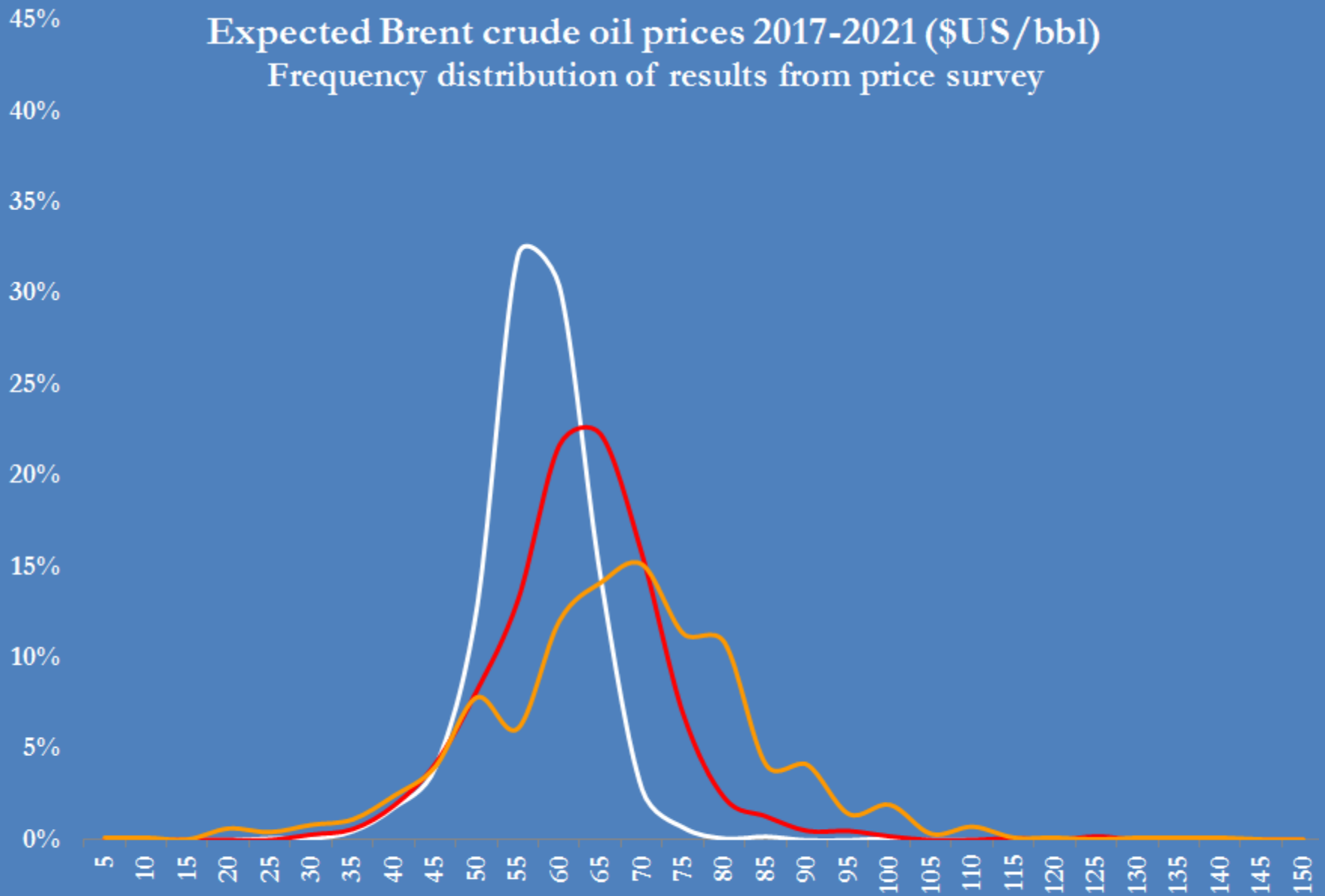
Oil outlook survey 2017-2021

Conducted early Jan 2017

Results for comparison

Expected Brent crude oil prices 2017-2021 (\$US/bbl)

Frequency distribution of results from price survey

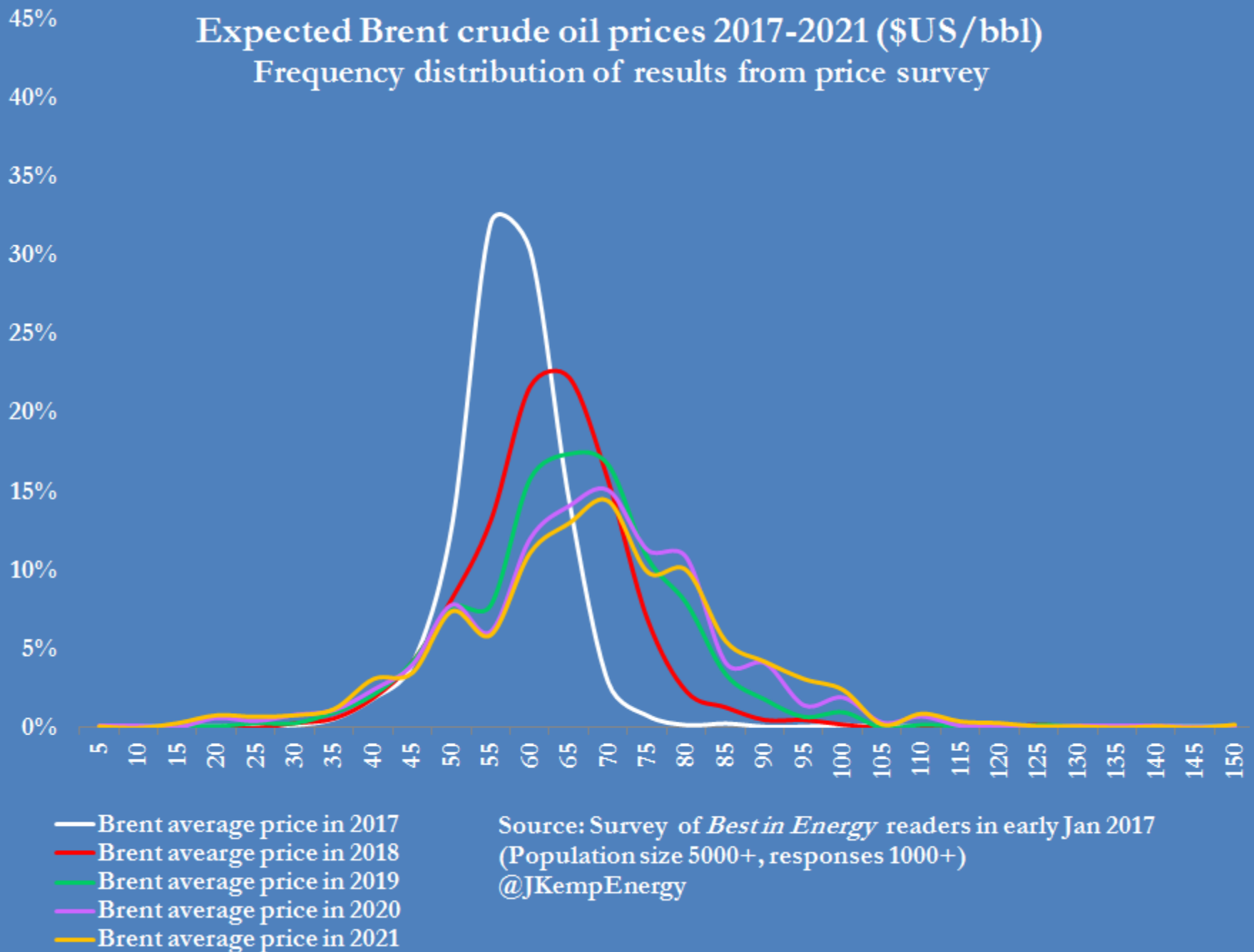


- Brent average price in 2017
- Brent average price in 2018
- Brent average price in 2020

Source: Survey of *Best in Energy* readers in early Jan 2017
(Population size 5000+, responses 1000+)
@JKempEnergy

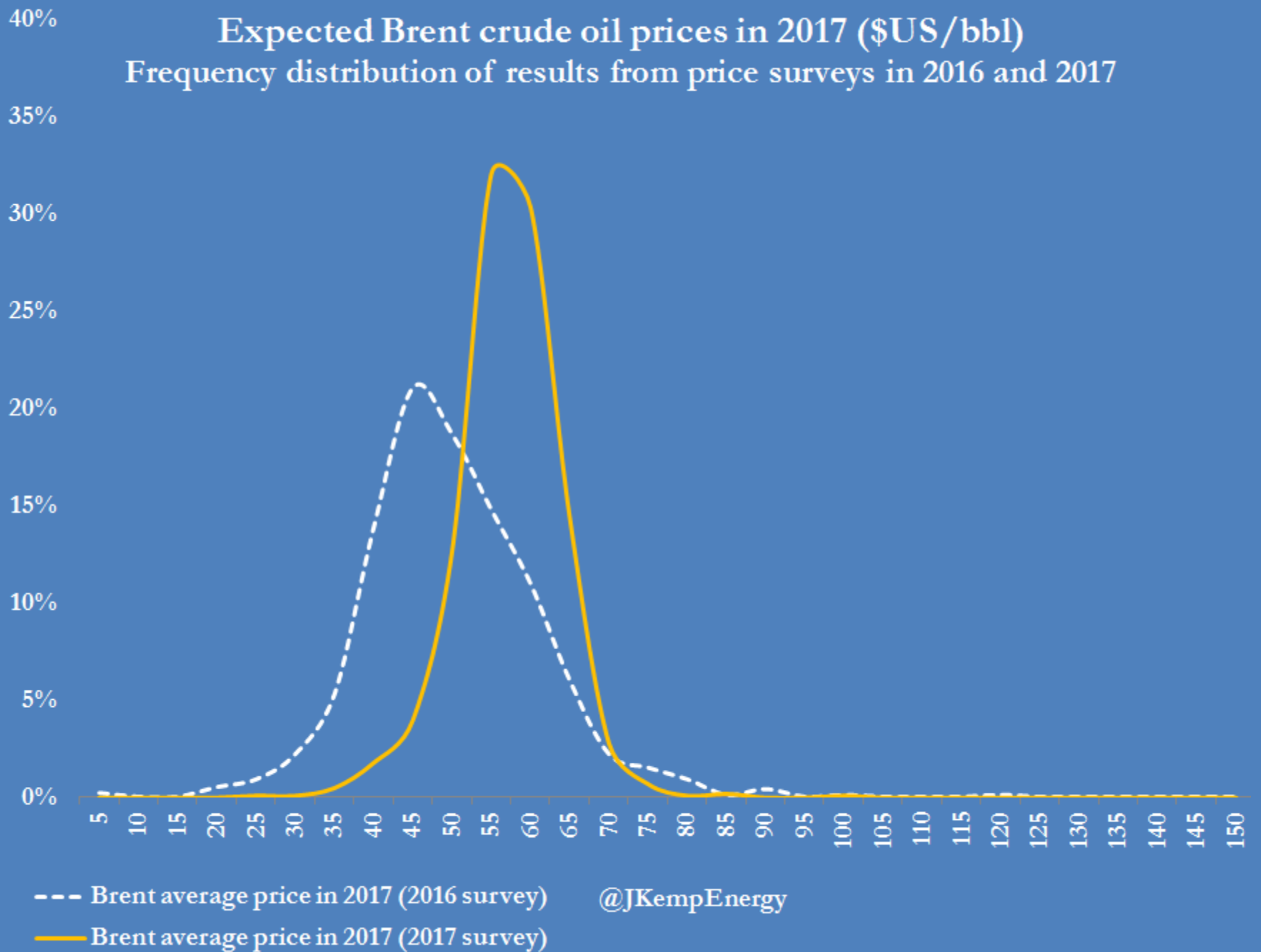
Expected Brent crude oil prices 2017-2021 (\$US/bbl)

Frequency distribution of results from price survey



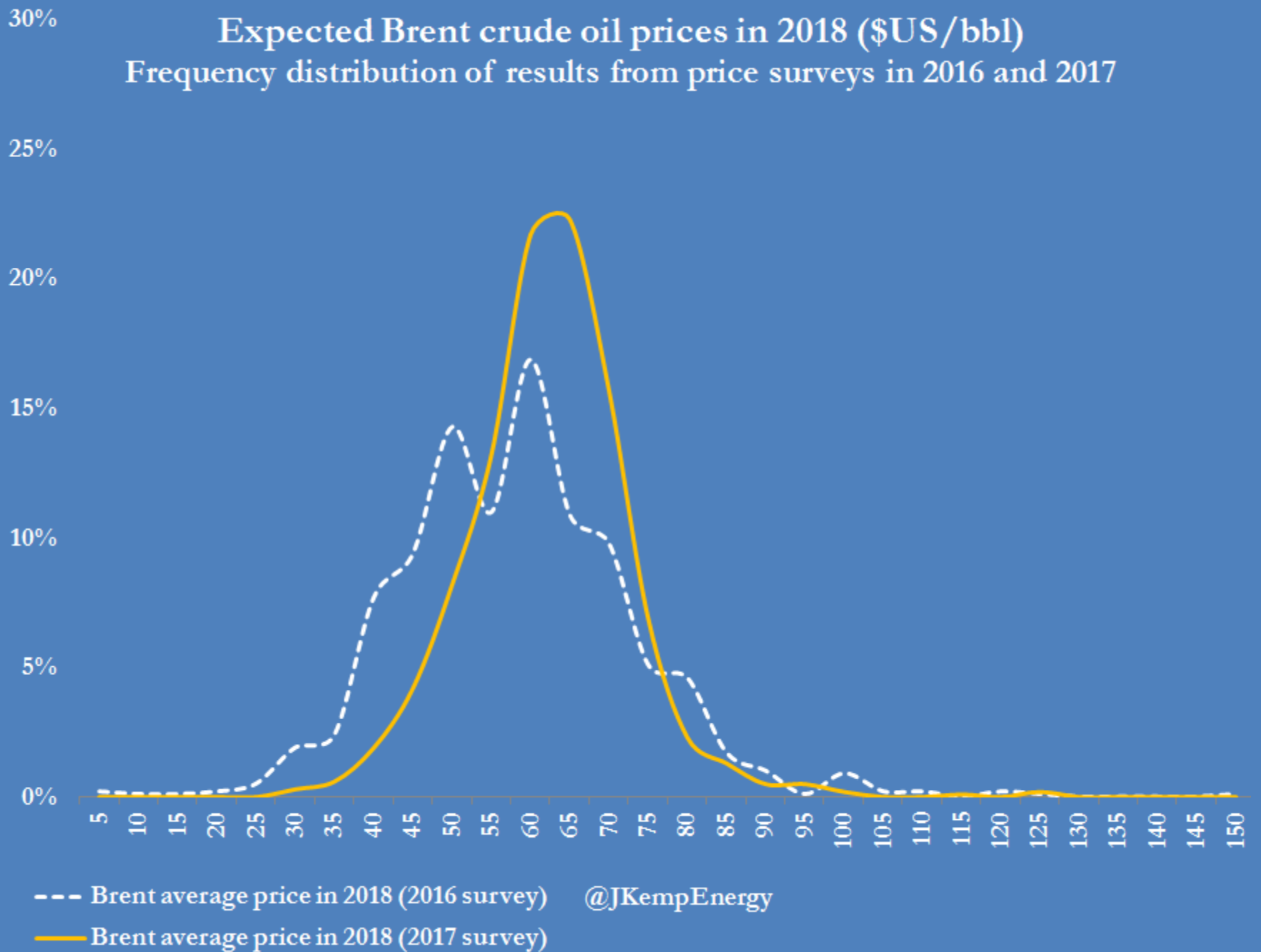
Expected Brent crude oil prices in 2017 (\$US/bbl)

Frequency distribution of results from price surveys in 2016 and 2017



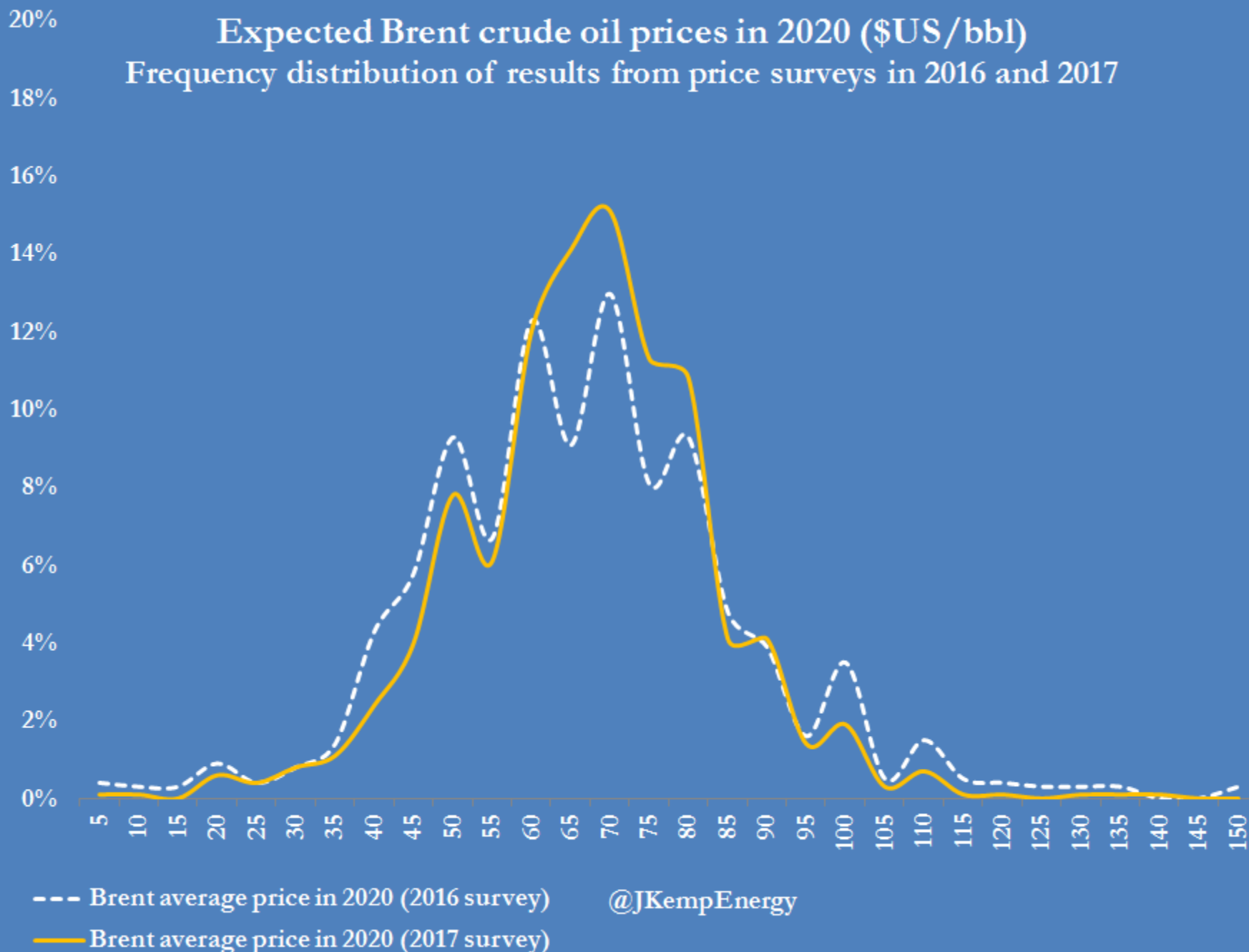
Expected Brent crude oil prices in 2018 (\$US/bbl)

Frequency distribution of results from price surveys in 2016 and 2017



Expected Brent crude oil prices in 2020 (\$US/bbl)

Frequency distribution of results from price surveys in 2016 and 2017



Oil outlook survey 2017-2021

Distribution of survey respondents (1000+)

Oil and gas (exploration, drilling, production, refining, marketing, field services)	24%
Banking and finance	20%
Hedge fund	11%
Other	9%
Research	8%
Professional services	8%
Physical commodity trading	7%
Other energy (coal, electricity, gas, carbon markets)	4%
Media	3%
Other corporate (transport, manufacturing, construction, mining, services)	3%
Government	2%
Education	2%

Oil outlook survey 2016-2020

Conducted early Mar 2016

Results for comparison

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

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)

2016 2017 2018 2019 2020

5th percentile	30	35	35	35	40
10th percentile	35	40	40	45	45
25th percentile	35	45	50	50	55
75th percentile	45	55	65	75	80
90th percentile	50	65	75	85	90
95th percentile	50	70	80	90	100
Standard deviation	7.9	11.2	15.7	17.4	20.2

Central tendency (US\$/bbl)

2016 2017 2018 2019 2020

Mode	40	45	60	60	70
Median	40	50	60	65	65
Mean	40.4	50	58.4	63.3	67

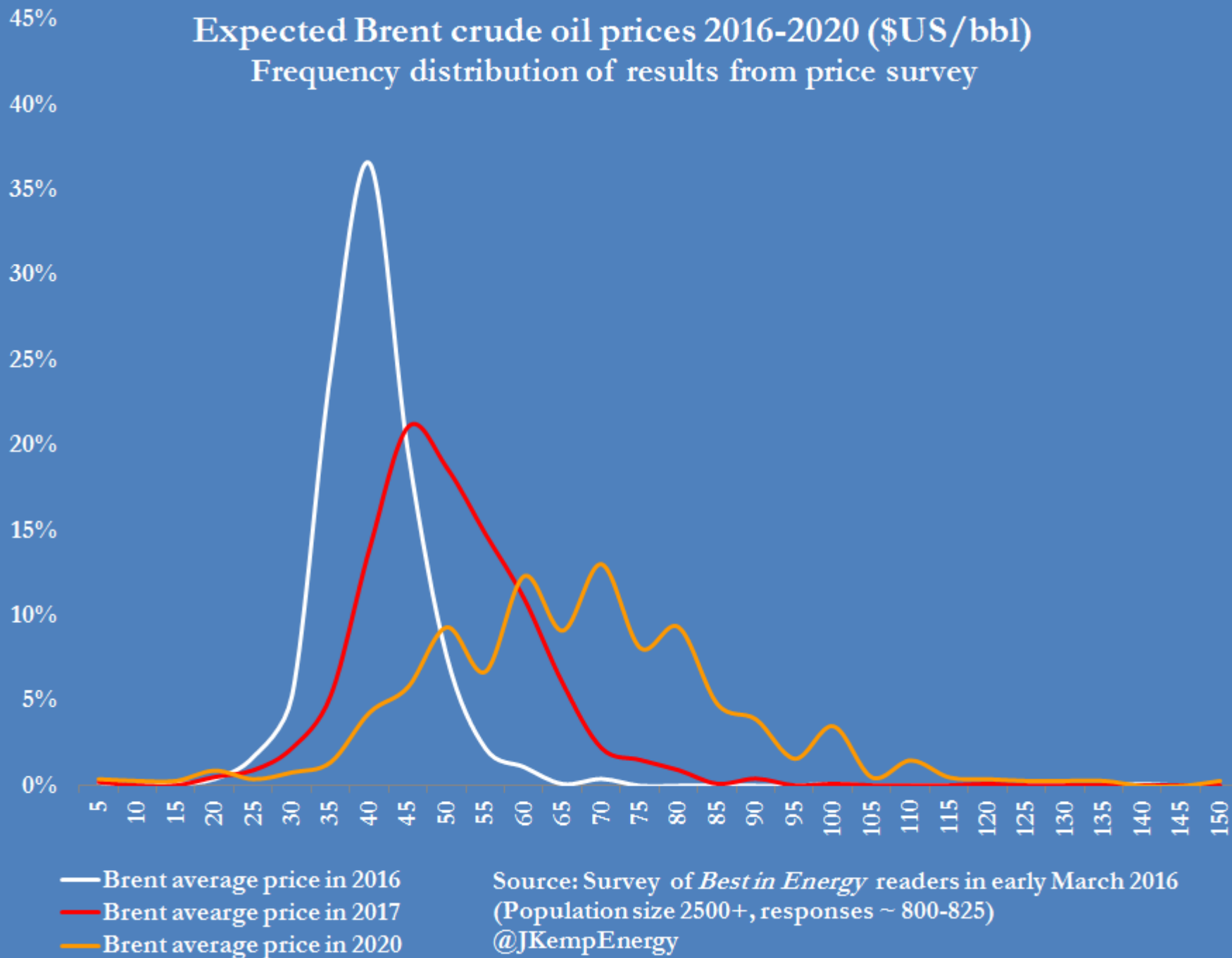
Futures prices (U.S./bbl)

2016 2017 2018 2019 2020

Fut. strip (1 Mar 2016)	43.9	46.6	48.5	50.2	
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Expected Brent crude oil prices 2016-2020 (\$US/bbl)

Frequency distribution of results from price survey



Expected Brent crude oil prices 2016-2020 (\$US/bbl)

Frequency distribution of results from price survey

