

# McDaniel & Associates Consultants Ltd.

## Summary of Price Forecasts

April 1, 2024

### Crude Oil Price Forecasts

### Liquids Price Forecasts

### Gas Price Forecasts

Year	WTI	Brent	Edmonton	Alberta	Western	Alberta	Sask				Edmonton			U.S.	Alberta	Alberta	Alberta	Sask.	British	British	US/CAN	
	Crude Oil	Crude Oil	Light Crude Oil	Hardisty Crude Oil	Canadian Select Crude Oil	Heavy Crude Oil	Cromer Medium Crude Oil	Edmonton Ethane	Edmonton Propane	Edmonton Butanes	Cond. & Natural Gasolines	Henry Hub Gas Price	AECO Spot Price	Average Plantgate	Aggregator Plantgate	Empress	Prov. Gas Plantgate	Columbia Average Plantgate	Columbia Station 2	Inflation %	Exchange Rate	
	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	%	\$/US\$CAN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)						(8)	(9)								
<b>History</b>																						
2014	93.00	99.00	93.50	80.40	79.10	71.20	87.80		45.05	69.60	102.40	4.35	4.40	4.20	4.20	4.55	4.40	4.05	4.20	1.90	0.905	
2015	48.80	52.35	57.75	46.10	44.80	39.55	51.45		6.60	36.50	60.30	2.60	2.80	2.60	2.60	3.00	2.70	2.00	2.10	1.10	0.785	
2016	43.30	43.55	53.90	40.45	39.15	33.35	49.10		13.15	34.35	56.15	2.50	2.10	1.90	1.90	2.30	2.20	1.55	1.65	1.45	0.755	
2017	50.90	54.25	62.85	52.00	50.70	45.20	59.85		28.90	44.60	66.85	3.00	2.40	2.20	2.20	2.85	2.40	1.80	1.95	1.60	0.770	
2018	64.95	71.05	69.65	51.25	49.95	40.00	70.20		27.55	32.80	79.20	3.05	1.55	1.35	1.35	3.00	1.60	1.20	1.40	2.25	0.770	
2019	57.00	64.35	69.00	60.00	58.70	54.80	68.00		17.40	23.55	70.30	2.55	1.60	1.40	1.40	2.75	1.75	1.00	1.15	2.00	0.755	
2020	39.25	41.75	45.00	36.50	35.40	30.70	43.75		16.40	22.15	49.15	2.05	2.25	2.05	2.05	2.30	2.45	2.05	2.20	0.75	0.745	
2021	68.00	70.70	80.35	69.40	68.85	63.15	77.75		43.10	51.15	85.50	3.90	3.55	3.35	3.35	3.90	3.95	3.30	3.45	3.40	0.800	
2022	94.80	100.80	120.75	99.25	99.10	90.95	114.30		50.30	61.15	123.00	6.40	5.55	5.35	5.35	6.70	5.85	5.00	5.15	6.80	0.770	
2023	77.65	82.45	100.40	79.75	79.55	71.45	92.55		29.40	45.55	103.40	2.55	2.95	2.75	2.75	3.10	3.20	2.30	2.45	3.90	0.740	
2024 (3 mos)	77.45	83.00	92.05	78.10	77.75	70.90	84.45		30.35	46.00	97.90	2.15	2.05	1.85	1.85	2.20	2.50	1.60	1.75	2.80	0.740	
<b>Forecast</b>																						
2024 (9 mos)	80.00	84.50	102.00	85.17	84.15	75.48	93.84	8.20	31.62	48.96	105.00	2.50	2.25	2.05	2.05	2.45	2.70	1.75	2.00	-	0.750	
2025	76.50	80.58	97.24	82.17	81.20	71.96	89.46	11.42	30.14	46.68	100.30	3.32	3.06	2.86	2.86	3.26	3.52	2.55	2.81	2.00	0.750	
2026	75.43	79.59	95.72	80.88	79.92	70.83	88.06	14.77	29.67	45.94	98.84	3.90	3.90	3.69	3.69	4.11	4.37	3.38	3.64	2.00	0.750	
2027	76.94	81.18	97.63	82.50	81.52	72.25	89.82	15.07	30.27	46.86	100.81	3.98	3.98	3.77	3.77	4.19	4.46	3.45	3.71	2.00	0.750	
2028	78.48	82.81	99.58	84.15	83.15	73.69	91.62	15.37	30.87	47.80	102.83	4.06	4.06	3.84	3.84	4.28	4.55	3.52	3.79	2.00	0.750	
2029	80.05	84.46	101.58	85.83	84.82	75.17	93.45	15.68	31.49	48.76	104.89	4.14	4.14	3.92	3.92	4.36	4.64	3.59	3.86	2.00	0.750	
2030	81.65	86.15	103.61	87.55	86.51	76.67	95.32	15.99	32.12	49.73	106.99	4.22	4.22	4.00	4.00	4.45	4.73	3.66	3.94	2.00	0.750	
2031	83.28	87.87	105.68	89.30	88.24	78.20	97.22	16.31	32.76	50.73	109.13	4.31	4.31	4.08	4.08	4.54	4.82	3.73	4.02	2.00	0.750	
2032	84.95	89.63	107.79	91.08	90.01	79.77	99.17	16.64	33.42	51.74	111.31	4.39	4.39	4.16	4.16	4.63	4.92	3.81	4.10	2.00	0.750	
2033	86.64	91.42	109.95	92.91	91.81	81.36	101.15	16.97	34.08	52.78	113.53	4.48	4.48	4.24	4.24	4.72	5.02	3.88	4.18	2.00	0.750	
2034	88.38	93.25	112.15	94.76	93.64	82.99	103.18	17.31	34.77	53.83	115.80	4.57	4.57	4.33	4.33	4.82	5.12	3.96	4.27	2.00	0.750	
2035	90.14	95.12	114.39	96.66	95.52	84.65	105.24	17.66	35.46	54.91	118.12	4.66	4.66	4.41	4.41	4.91	5.22	4.04	4.35	2.00	0.750	
2036	91.95	97.02	116.68	98.59	97.43	86.34	107.34	18.01	36.17	56.01	120.48	4.76	4.76	4.50	4.50	5.01	5.33	4.12	4.44	2.00	0.750	
2037	93.79	98.96	119.01	100.56	99.37	88.07	109.49	18.37	36.89	57.13	122.89	4.85	4.85	4.59	4.59	5.11	5.43	4.20	4.53	2.00	0.750	
2038	95.66	100.94	121.39	102.58	101.36	89.83	111.68	18.74	37.63	58.27	125.35	4.95	4.95	4.68	4.68	5.21	5.54	4.29	4.62	2.00	0.750	
<b>Thereafter</b>	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	2.00	0.750	

(1) West Texas Intermediate at Cushing Oklahoma 40 degrees API, 0.5% sulphur

(2) North Sea Brent Blend 37 degrees API, 1.0% sulphur

(3) Edmonton Light Sweet 40 degrees API, 0.3% sulphur

(4) Bow River at Hardisty, Alberta (Heavy stream)

(5) Western Canadian Select at Hardisty, Alberta

(6) Heavy crude oil 12 degrees API at Hardisty, Alberta (after deduction of blending costs to reach pipeline quality)

(7) Midale Cromer crude oil 29 degrees API, 2.0% sulphur

(8) Historical prices based on AECO 7A (near month prices). 5A (daily price) expected to be equal to 7A over long term. 2023 historical prices: 7A \$2.93/MMBTU, 5A \$2.64/MMBTU

(9) This forecast also applies to direct sales contracts and the Alberta gas reference price used in the Crown royalty calculations

# McDaniel & Associates Consultants Ltd.

## Summary of Price Forecasts (Real Prices - 2024 \$)

April 1, 2024

Year	Crude Oil Price Forecasts							Liquids Price Forecasts					Gas Price Forecasts							US/CAN Exchange Rate	
	WTI Crude Oil	Brent Crude Oil	Edmonton Light Crude Oil	Alberta Bow River Hardisty Crude Oil	Western Canadian Select Crude Oil	Alberta Heavy Crude Oil	Sask Cromer Medium Crude Oil	Edmonton Ethane	Edmonton Propane	Edmonton Butanes	Edmonton Cond. & Natural Gasolines	U.S. Henry Hub Gas Price	Alberta AECO Spot Price	Alberta Average Plantgate	Alberta Aggregator Plantgate	Empress	Sask. Prov. Gas Plantgate	British Columbia Average Plantgate	British Columbia Station 2		Inflation %
	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu		\$/MMBtu
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
<b>History</b>																					
2014	93.00	99.00	93.50	80.40	79.10	71.20	87.80		45.05	69.60	102.40	4.35	4.40	4.20	4.20	4.55	4.40	4.05	4.20	1.90	0.905
2015	48.80	52.35	57.75	46.10	44.80	39.55	51.45		6.60	36.50	60.30	2.60	2.80	2.60	2.60	3.00	2.70	2.00	2.10	1.10	0.785
2016	43.30	43.55	53.90	40.45	39.15	33.35	49.10		13.15	34.35	56.15	2.50	2.10	1.90	1.90	2.30	2.20	1.55	1.65	1.45	0.755
2017	50.90	54.25	62.85	52.00	50.70	45.20	59.85		28.90	44.60	66.85	3.00	2.40	2.20	2.20	2.85	2.40	1.80	1.95	1.60	0.770
2018	64.95	71.05	69.65	51.25	49.95	40.00	70.20		27.55	32.80	79.20	3.05	1.55	1.35	1.35	3.00	1.60	1.20	1.40	2.25	0.770
2019	57.00	64.35	69.00	60.00	58.70	54.80	68.00		17.40	23.55	70.30	2.55	1.60	1.40	1.40	2.75	1.75	1.00	1.15	2.00	0.755
2020	39.25	41.75	45.00	36.50	35.40	30.70	43.75		16.40	22.15	49.15	2.05	2.25	2.05	2.05	2.30	2.45	2.05	2.20	0.75	0.745
2021	68.00	70.70	80.35	69.40	68.85	63.15	77.75		43.10	51.15	85.50	3.90	3.55	3.35	3.35	3.90	3.95	3.30	3.45	3.40	0.800
2022	94.80	100.80	120.75	99.25	99.10	90.95	114.30		50.30	61.15	123.00	6.40	5.55	5.35	5.35	6.70	5.85	5.00	5.15	6.80	0.770
2023	77.65	82.45	100.40	79.75	79.55	71.45	92.55		29.40	45.55	103.40	2.55	2.95	2.75	2.75	3.10	3.20	2.30	2.45	3.90	0.740
2024 (3 mos)	77.45	83.00	92.05	78.10	77.75	70.90	84.45		30.35	46.00	97.90	2.15	2.05	1.85	1.85	2.20	2.50	1.60	1.75	2.80	0.740
<b>Forecast</b>																					
2024 (9 mos)	80.00	84.50	102.00	85.17	84.15	75.48	93.84	8.20	31.62	48.96	105.00	2.50	2.25	2.05	2.05	2.45	2.70	1.75	2.00	-	0.750
2025	75.00	79.00	95.33	80.56	79.60	70.55	87.71	11.20	29.55	45.76	98.33	3.25	3.00	2.80	2.80	3.20	3.45	2.50	2.75	2.00	0.750
2026	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2027	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2028	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2029	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2030	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2031	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2032	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2033	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2034	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2035	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2036	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2037	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750
2038	72.50	76.50	92.00	77.74	76.82	68.08	84.64	14.20	28.52	44.16	95.00	3.75	3.75	3.55	3.55	3.95	4.20	3.25	3.50	2.00	0.750

(1) West Texas Intermediate at Cushing Oklahoma 40 degrees API, 0.5% sulphur

(2) North Sea Brent Blend 37 degrees API, 1.0% sulphur

(3) Edmonton Light Sweet 40 degrees API, 0.3% sulphur

(4) Bow River at Hardisty, Alberta (Heavy stream)

(5) Western Canadian Select at Hardisty, Alberta

(6) Heavy crude oil 12 degrees API at Hardisty, Alberta (after deduction of blending costs to reach pipeline quality)

(7) Midale Cromer crude oil 29 degrees API, 2.0% sulphur

(8) Historical prices based on AECO 7A (near month prices). 5A (daily price) expected to be equal to 7A over long term. 2023 historical prices: 7A \$2.93/MMBTU, 5A \$2.64/MMBTU

(9) This forecast also applies to direct sales contracts and the Alberta gas reference price used in the Crown royalty calculations

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## Summary of International Price Forecasts

April 1, 2024

### US and Europe Crude Oil and Natural Gas Price Forecasts

Year	Exchange Rates		US Crude Oil		US Natural Gas					Europe Crude Oil		Europe Natural Gas	
	\$US to GBP £	\$US to EUR €	WTI Oil \$US/bbl	LLS Oil \$US/bbl	Henry Hub Gas \$US/MMBtu	CIG Gas \$US/MMBtu	Chicago Gas \$US/MMBtu	Houston Ship Gas \$US/MMBtu	San Juan Gas \$US/MMBtu	UK Brent Crude Oil \$US/bbl	UK Forties Oil \$US/bbl	UK NBP Gas \$US/MMBtu	Dutch TTF Gas \$US/MMBtu
<b>Forecast</b>													
2024 (9 mos)	1.25	1.08	80.00	82.50	2.50	2.10	2.25	2.25	2.35	84.50	84.50	11.00	11.00
2025	1.25	1.08	76.50	79.05	3.32	2.90	3.05	3.05	3.15	80.58	80.58	12.24	12.24
2026	1.25	1.08	75.43	78.03	3.90	3.50	3.65	3.65	3.75	79.59	79.59	12.48	12.48
2027	1.25	1.08	76.94	79.59	3.98	3.55	3.70	3.70	3.80	81.18	81.18	12.73	12.73
2028	1.25	1.08	78.48	81.18	4.06	3.65	3.80	3.80	3.90	82.81	82.81	12.99	12.99
2029	1.25	1.08	80.05	82.81	4.14	3.70	3.85	3.85	3.95	84.46	84.46	13.25	13.25
2030	1.25	1.08	81.65	84.46	4.22	3.75	3.95	3.95	4.05	86.15	86.15	13.51	13.51
2031	1.25	1.08	83.28	86.15	4.31	3.85	4.00	4.00	4.15	87.87	87.87	13.78	13.78
2032	1.25	1.08	84.95	87.87	4.39	3.95	4.10	4.10	4.20	89.63	89.63	14.06	14.06
2033	1.25	1.08	86.64	89.63	4.48	4.00	4.20	4.20	4.30	91.42	91.42	14.34	14.34
2034	1.25	1.08	88.38	91.42	4.57	4.10	4.25	4.25	4.40	93.25	93.25	14.63	14.63
2035	1.25	1.08	90.14	93.25	4.66	4.15	4.35	4.35	4.50	95.12	95.12	14.92	14.92
2036	1.25	1.08	91.95	95.12	4.76	4.25	4.45	4.45	4.55	97.02	97.02	15.22	15.22
2037	1.25	1.08	93.79	97.02	4.85	4.35	4.55	4.55	4.65	98.96	98.96	15.52	15.52
2038	1.25	1.08	95.66	98.96	4.95	4.40	4.60	4.60	4.75	100.94	100.94	15.83	15.83

### Other International Crude Oil Price Forecasts

Year	Africa and Middle East							Asia		Latin America		Russia
	Nigeria Bonny Light Oil \$US/bbl	Algeria Saharan Blend Oil \$US/bbl	Kuwait Oil \$US/bbl	Saudi Light Oil \$US/bbl	Saudi Heavy Oil \$US/bbl	UAE Fateh Oil \$US/bbl	Iran Light Oil \$US/bbl	Indonesia Minas Oil \$US/bbl	Malaysia Tapis Oil \$US/bbl	Mexico Maya Oil \$US/bbl	Columbia Vasconia Oil \$US/bbl	Urals Oil \$US/bbl
<b>Forecast</b>												
2024 (9 mos)	84.80	84.00	84.00	84.80	83.20	84.00	85.60	82.40	88.00	71.20	82.40	62.40
2025	81.09	80.33	80.33	81.09	79.56	80.33	81.86	78.80	84.15	68.09	78.80	59.67
2026	79.95	79.20	79.20	79.95	78.45	79.20	80.71	77.69	82.97	67.13	77.69	58.83
2027	81.55	80.78	80.78	81.55	80.02	80.78	82.32	79.25	84.63	68.47	79.25	60.01
2028	83.18	82.40	82.40	83.18	81.62	82.40	83.97	80.83	86.32	69.84	80.83	61.21
2029	84.85	84.05	84.05	84.85	83.25	84.05	85.65	82.45	88.05	71.24	82.45	62.44
2030	86.55	85.73	85.73	86.55	84.91	85.73	87.36	84.10	89.81	72.67	84.10	63.68
2031	88.28	87.44	87.44	88.28	86.61	87.44	89.11	85.78	91.61	74.12	85.78	64.96
2032	90.04	89.19	89.19	90.04	88.34	89.19	90.89	87.49	93.44	75.60	87.49	66.26
2033	91.84	90.98	90.98	91.84	90.11	90.98	92.71	89.24	95.31	77.11	89.24	67.58
2034	93.68	92.80	92.80	93.68	91.91	92.80	94.56	91.03	97.21	78.66	91.03	68.93
2035	95.55	94.65	94.65	95.55	93.75	94.65	96.45	92.85	99.16	80.23	92.85	70.31
2036	97.46	96.54	96.54	97.46	95.63	96.54	98.38	94.71	101.14	81.83	94.71	71.72
2037	99.41	98.48	98.48	99.41	97.54	98.48	100.35	96.60	103.17	83.47	96.60	73.15
2038	101.40	100.45	100.45	101.40	99.49	100.45	102.36	98.53	105.23	85.14	98.53	74.62