

McDaniel & Associates Consultants Ltd.

Summary of Price Forecasts

January 1, 2023

Year	Crude Oil Price Forecasts							Liquids Price Forecasts					Gas Price Forecasts								
	WTI Crude Oil \$/bbl	Brent Crude Oil \$/bbl	Edmonton Light Crude Oil \$/bbl	Alberta Bow River Hardisty Crude Oil \$/bbl	Western Canadian Select Crude Oil \$/bbl	Alberta Heavy Crude Oil \$/bbl	Sask Cromer Medium Crude Oil \$/bbl	Edmonton Ethane \$/bbl	Edmonton Propane \$/bbl	Edmonton Butanes \$/bbl	Edmonton Cond. & Natural Gasolines \$/bbl	U.S. Henry Hub Gas Price \$/MMBtu	Alberta AECO Spot Price \$/MMBtu	Alberta Average Plantgate \$/MMBtu	Alberta Aggregator Plantgate \$/MMBtu	Empress \$/MMBtu	Sask. Prov. Gas Plantgate \$/MMBtu	British Columbia Average Plantgate \$/MMBtu	British Columbia Station 2 \$/MMBtu	Inflation %	US/CAN Exchange Rate \$/CAN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)					(8)	(9)								
History																					
2012	94.20	111.65	86.10	74.35	73.10	63.65	82.10		28.60	69.55	100.80	2.75	2.45	2.25	2.25	2.30	2.30	2.25	2.40	1.55	1.000
2013	97.95	108.60	93.05	76.55	75.25	65.25	88.25		38.90	69.40	104.65	3.75	3.20	3.00	3.00	3.10	3.10	2.95	3.10	0.95	0.970
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	94.65	100.75	120.55	99.05	98.85	90.65	114.10		50.35	61.20	123.05	6.40	5.55	5.35	5.35	6.70	5.80	5.00	5.15	6.85	0.770
Forecast																					
2023	80.00	84.00	102.67	77.00	75.97	69.81	96.51	15.20	42.09	51.33	104.67	4.50	4.00	3.80	3.80	5.25	4.45	3.60	3.80	0.0	0.750
2024	76.50	80.58	96.67	76.37	75.40	67.67	90.87	15.50	39.63	48.33	99.73	4.50	4.08	3.88	3.88	4.85	4.39	3.67	3.88	2.0	0.750
2025	75.43	79.59	95.13	76.11	75.15	67.54	89.42	15.81	39.00	47.57	98.25	4.42	4.16	3.95	3.95	4.68	4.42	3.75	3.95	2.0	0.750
2026	74.28	78.53	93.50	75.73	74.80	66.38	87.89	16.13	38.33	46.75	96.68	4.51	4.24	4.03	4.03	4.78	4.51	3.82	4.03	2.0	0.750
2027	75.77	80.10	95.37	77.25	76.29	67.71	89.65	16.45	39.10	47.68	98.61	4.60	4.33	4.11	4.11	4.87	4.60	3.90	4.11	2.0	0.750
2028	77.29	81.70	97.27	78.79	77.82	69.06	91.44	16.78	39.88	48.64	100.59	4.69	4.42	4.20	4.20	4.97	4.69	3.97	4.20	2.0	0.750
2029	78.83	83.34	99.22	80.37	79.38	70.45	93.27	17.12	40.68	49.61	102.60	4.79	4.50	4.28	4.28	5.07	4.79	4.05	4.28	2.0	0.750
2030	80.41	85.00	101.20	81.98	80.96	71.86	95.13	17.46	41.49	50.60	104.65	4.88	4.59	4.37	4.37	5.17	4.88	4.14	4.37	2.0	0.750
2031	82.02	86.70	103.23	83.62	82.58	73.29	97.03	17.81	42.32	51.61	106.74	4.98	4.69	4.45	4.45	5.27	4.98	4.22	4.45	2.0	0.750
2032	83.66	88.44	105.29	85.29	84.23	74.76	98.98	18.17	43.17	52.65	108.88	5.08	4.78	4.54	4.54	5.38	5.08	4.30	4.54	2.0	0.750
2033	85.33	90.21	107.40	86.99	85.92	76.25	100.96	18.53	44.03	53.70	111.06	5.18	4.88	4.63	4.63	5.49	5.18	4.39	4.63	2.0	0.750
2034	87.04	92.01	109.55	88.73	87.64	77.78	102.97	18.90	44.91	54.77	113.28	5.28	4.97	4.72	4.72	5.60	5.28	4.48	4.72	2.0	0.750
2035	88.78	93.85	111.74	90.51	89.39	79.33	105.03	19.28	45.81	55.87	115.54	5.39	5.07	4.82	4.82	5.71	5.39	4.57	4.82	2.0	0.750
2036	90.55	95.73	113.97	92.32	91.18	80.92	107.13	19.66	46.73	56.99	117.85	5.50	5.17	4.92	4.92	5.82	5.50	4.66	4.92	2.0	0.750
2037	92.36	97.64	116.25	94.16	93.00	82.54	109.28	20.06	47.66	58.13	120.21	5.61	5.28	5.01	5.01	5.94	5.61	4.75	5.01	2.0	0.750
Thereafter	+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	2.0	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. 2022 historical prices: 7A \$5.56/MMBTU, 5A \$5.34/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 - 2023 \$)

January 1, 2023

Year	Crude Oil Price Forecasts							Liquids Price Forecasts					Gas Price Forecasts								
	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 %	US/CAN Exchange Rate
	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	%	\$/US\$/CAN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)					(8)	(9)								
History																					
2012	94.20	111.65	86.10	74.35	73.10	63.65	82.10		28.60	69.55	100.80	2.75	2.45	2.25	2.25	2.30	2.30	2.25	2.40	1.55	1.000
2013	97.95	108.60	93.05	76.55	75.25	65.25	88.25		38.90	69.40	104.65	3.75	3.20	3.00	3.00	3.10	3.10	2.95	3.10	0.95	0.970
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	94.65	100.75	120.55	99.05	98.85	90.65	114.10		50.35	61.20	123.05	6.40	5.55	5.35	5.35	6.70	5.80	5.00	5.15	6.85	0.770
Forecast																					
2023	80.00	84.00	102.67	77.00	75.97	69.81	96.51	15.20	42.09	51.33	104.67	4.50	4.00	3.80	3.80	5.25	4.45	3.60	3.80	0.0	0.750
2024	75.00	79.00	94.77	74.87	73.92	66.34	89.08	15.20	38.86	47.39	97.77	4.41	4.00	3.80	3.80	4.75	4.30	3.60	3.80	2.0	0.750
2025	72.50	76.50	91.44	73.15	72.24	64.92	85.95	15.20	37.49	45.72	94.44	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2026	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2027	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2028	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2029	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2030	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2031	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2032	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2033	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2034	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2035	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2036	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	0.750
2037	70.00	74.00	88.10	71.36	70.48	62.55	82.82	15.20	36.12	44.05	91.10	4.25	4.00	3.80	3.80	4.50	4.25	3.60	3.80	2.0	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. 2022 historical prices: 7A \$5.56/MMBTU, 5A \$5.34/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 International Price Forecasts

January 1, 2023

US and Europe Crude Oil and Natural Gas Price Forecasts													
Exchange Rates			US Crude Oil		US Natural Gas					Europe Crude Oil		Europe Natural Gas	
Year	\$US to GBP £	\$US to EUR €	WTI Oil \$/bbl	LLS Oil \$/bbl	Henry Hub Gas \$/MMBtu	CIG Gas \$/MMBtu	Chicago Gas \$/MMBtu	Houston Ship Gas \$/MMBtu	San Juan Gas \$/MMBtu	UK Brent Crude Oil \$/bbl	UK Forties Oil \$/bbl	UK NBP Gas \$/MMBtu	Dutch TTF Gas \$/MMBtu
	Forecast												
2023	1.25	1.08	80.00	83.00	4.50	4.05	4.15	4.15	4.25	84.00	84.00	33.50	34.00
2024	1.25	1.08	76.50	79.56	4.50	4.05	4.15	4.15	4.25	80.58	80.58	28.00	28.00
2025	1.25	1.08	75.43	78.55	4.42	3.95	4.05	4.05	4.15	79.59	79.59	20.00	20.00
2026	1.25	1.08	74.28	77.47	4.51	4.05	4.15	4.15	4.25	78.53	78.53	17.50	17.50
2027	1.25	1.08	75.77	79.02	4.60	4.10	4.20	4.20	4.35	80.10	80.10	17.85	17.85
2028	1.25	1.08	77.29	80.60	4.69	4.20	4.30	4.30	4.40	81.70	81.70	18.21	18.21
2029	1.25	1.08	78.83	82.21	4.79	4.30	4.40	4.40	4.50	83.34	83.34	18.57	18.57
2030	1.25	1.08	80.41	83.85	4.88	4.35	4.50	4.50	4.60	85.00	85.00	18.94	18.94
2031	1.25	1.08	82.02	85.53	4.98	4.45	4.55	4.55	4.70	86.70	86.70	19.32	19.32
2032	1.25	1.08	83.66	87.24	5.08	4.55	4.65	4.65	4.80	88.44	88.44	19.71	19.71
2033	1.25	1.08	85.33	88.99	5.18	4.65	4.75	4.75	4.90	90.21	90.21	20.10	20.10
2034	1.25	1.08	87.04	90.77	5.28	4.70	4.85	4.85	4.95	92.01	92.01	20.50	20.50
2035	1.25	1.08	88.78	92.58	5.39	4.80	4.95	4.95	5.05	93.85	93.85	20.91	20.91
2036	1.25	1.08	90.55	94.43	5.50	4.90	5.05	5.05	5.15	95.73	95.73	21.33	21.33
2037	1.25	1.08	92.36	96.32	5.61	5.00	5.15	5.15	5.30	97.64	97.64	21.76	21.76

Other International Crude Oil Price Forecasts												
Year	Africa and Middle East						Asia		Latin America		Russia	
	Nigeria Bonny Light Oil \$/bbl	Algeria Saharan Blend Oil \$/bbl	Kuwait Kuwait Oil \$/bbl	Saudi Light Oil \$/bbl	Saudi Heavy Oil \$/bbl	UAE Fateh Oil \$/bbl	Iran Light Oil \$/bbl	Indonesia Minas Oil \$/bbl	Malaysia Tapis Oil \$/bbl	Mexico Maya Oil \$/bbl	Columbia Vasconia Oil \$/bbl	Urals Oil \$/bbl
Forecast												
2023	81.60	81.60	80.00	79.20	77.60	80.80	80.80	80.40	84.00	72.80	80.40	60.00
2024	78.03	78.03	76.50	75.74	74.21	77.27	77.27	76.88	80.33	69.62	76.88	57.38
2025	76.94	76.94	75.43	74.67	73.17	76.18	76.18	75.81	79.20	68.64	75.81	56.57
2026	75.77	75.77	74.28	73.54	72.06	75.03	75.03	74.66	78.00	67.60	74.66	55.71
2027	77.29	77.29	75.77	75.01	73.50	76.53	76.53	76.15	79.56	68.95	76.15	56.83
2028	78.83	78.83	77.29	76.51	74.97	78.06	78.06	77.67	81.15	70.33	77.67	57.96
2029	80.41	80.41	78.83	78.04	76.47	79.62	79.62	79.23	82.77	71.74	79.23	59.12
2030	82.02	82.02	80.41	79.60	78.00	81.21	81.21	80.81	84.43	73.17	80.81	60.31
2031	83.66	83.66	82.02	81.20	79.56	82.84	82.84	82.43	86.12	74.63	82.43	61.51
2032	85.33	85.33	83.66	82.82	81.15	84.49	84.49	84.07	87.84	76.13	84.07	62.74
2033	87.04	87.04	85.33	84.48	82.77	86.18	86.18	85.76	89.60	77.65	85.76	64.00
2034	88.78	88.78	87.04	86.17	84.43	87.91	87.91	87.47	91.39	79.20	87.47	65.28
2035	90.55	90.55	88.78	87.89	86.11	89.66	89.66	89.22	93.22	80.79	89.22	66.58
2036	92.36	92.36	90.55	89.65	87.84	91.46	91.46	91.01	95.08	82.40	91.01	67.91
2037	94.21	94.21	92.36	91.44	89.59	93.29	93.29	92.83	96.98	84.05	92.83	69.27