

McDaniel & Associates Consultants Ltd.

Summary of Price Forecasts

July 1, 2020

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	%	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)					(8)	(9)								
History																					
2010	79.55	79.90	77.50	68.50	67.25	61.45	73.80		46.80	66.05	84.25	4.40	4.15	3.90	3.85		3.95	3.90		1.8	0.970
2011	95.10	111.25	95.05	78.55	77.10	67.90	89.05		55.15	76.50	104.20	4.00	3.70	3.50	3.75	3.50	3.55	3.30	3.40	2.9	1.010
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	1.6	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	1.0	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	1.9	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	1.1	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	1.5	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	1.6	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	2.3	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	2.0	0.755
2020 (6 mos)	36.75	39.90	40.05	29.20	27.90	21.85	38.20		17.65	25.25	45.80	1.80	2.05	1.85	1.85	2.10	2.05	1.80	1.95	1.6	0.735
Forecast																					
2020 (6 mos)	40.00	43.00	50.68	42.32	41.82	37.51	48.66	7.60	19.01	24.08	52.68	2.15	2.10	1.90	1.90	2.35	2.00	1.70	1.85	0.0	0.730
2021	45.90	48.96	56.62	46.43	45.86	39.64	53.51	8.57	21.23	32.56	60.70	2.70	2.35	2.14	2.14	2.50	2.24	1.94	2.09	2.0	0.740
2022	52.02	55.14	63.92	52.41	51.78	44.74	59.45	8.95	23.97	38.35	68.08	2.86	2.44	2.24	2.24	2.60	2.34	2.03	2.18	2.0	0.750
2023	55.71	58.90	68.74	56.36	55.68	48.12	63.92	9.13	25.78	41.24	72.98	2.92	2.49	2.28	2.28	2.65	2.39	2.07	2.23	2.0	0.750
2024	56.83	60.07	70.11	57.49	56.79	49.08	65.20	9.31	26.29	42.07	74.44	2.98	2.54	2.33	2.33	2.71	2.44	2.11	2.27	2.0	0.750
2025	57.96	61.28	71.51	58.64	57.93	50.06	66.51	9.50	26.82	42.91	75.93	3.04	2.59	2.37	2.37	2.76	2.48	2.15	2.32	2.0	0.750
2026	59.12	62.50	72.94	59.81	59.08	51.06	67.84	9.68	27.35	43.77	77.45	3.10	2.65	2.42	2.42	2.82	2.53	2.20	2.36	2.0	0.750
2027	60.31	63.75	74.40	61.01	60.27	52.08	69.19	9.88	27.90	44.64	79.00	3.16	2.70	2.47	2.47	2.87	2.58	2.24	2.41	2.0	0.750
2028	61.51	65.03	75.89	62.23	61.47	53.12	70.58	10.08	28.46	45.53	80.58	3.22	2.75	2.52	2.52	2.93	2.64	2.28	2.46	2.0	0.750
2029	62.74	66.33	77.41	63.47	62.70	54.19	71.99	10.28	29.03	46.44	82.19	3.29	2.81	2.57	2.57	2.99	2.69	2.33	2.51	2.0	0.750
2030	64.00	67.65	78.96	64.74	63.95	55.27	73.43	10.48	29.61	47.37	83.83	3.35	2.86	2.62	2.62	3.05	2.74	2.38	2.56	2.0	0.750
2031	65.28	69.01	80.53	66.04	65.23	56.37	74.90	10.69	30.20	48.32	85.51	3.42	2.92	2.67	2.67	3.11	2.80	2.42	2.61	2.0	0.750
2032	66.58	70.39	82.15	67.36	66.54	57.50	76.40	10.91	30.80	49.29	87.22	3.49	2.98	2.73	2.73	3.17	2.85	2.47	2.66	2.0	0.750
2033	67.91	71.80	83.79	68.71	67.87	58.65	77.92	11.13	31.42	50.27	88.96	3.56	3.04	2.78	2.78	3.23	2.91	2.52	2.72	2.0	0.750
2034	69.27	73.23	85.46	70.08	69.23	59.82	79.48	11.35	32.05	51.28	90.74	3.63	3.10	2.84	2.84	3.30	2.97	2.57	2.77	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. 2019 historical prices: 7A \$1.60/MMBTU, 5A \$1.75/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 Price Forecasts (Real Prices - 2020 \$)

July 1, 2020

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 %
	\$US/bbl	\$US/bbl	\$C/bbl	\$C/bbl	\$C/bbl	\$C/bbl	\$C/bbl	\$/bbl	\$/bbl	\$/bbl	\$/bbl	\$US/MMBtu	\$C/MMBtu	\$C/MMBtu	\$C/MMBtu	\$C/MMBtu	\$C/MMBtu	\$C/MMBtu	\$C/MMBtu		%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)					(8)	(9)								
History																					
2010	79.55	79.90	77.50	68.50	67.25	61.45	73.80		46.80	66.05	84.25	4.40	4.15	3.90	3.85		3.95	3.90		1.75	0.970
2011	95.10	111.25	95.05	78.55	77.10	67.90	89.05		55.15	76.50	104.20	4.00	3.70	3.50	3.75	3.50	3.55	3.30	3.40	2.9	1.010
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	1.9	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	1.1	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	1.6	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	0.755
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2021	45.00	48.00	55.51	45.52	44.96	38.86	52.46	8.40	20.82	31.92	59.51	2.65	2.30	2.10	2.10	2.45	2.20	1.90	2.05	2.0	0.740
2022	50.00	53.00	61.44	50.38	49.76	43.01	57.14	8.60	23.04	36.86	65.44	2.75	2.35	2.15	2.15	2.50	2.25	1.95	2.10	2.0	0.750
2023	52.50	55.50	64.77	53.11	52.46	45.34	60.24	8.60	24.29	38.86	68.77	2.75	2.35	2.15	2.15	2.50	2.25	1.95	2.10	2.0	0.750
2024	52.50	55.50	64.77	53.11	52.46	45.34	60.24	8.60	24.29	38.86	68.77	2.75	2.35	2.15	2.15	2.50	2.25	1.95	2.10	2.0	0.750
2025	52.50	55.50	64.77	53.11	52.46	45.34	60.24	8.60	24.29	38.86	68.77	2.75	2.35	2.15	2.15	2.50	2.25	1.95	2.10	2.0	0.750
2026	52.50	55.50	64.77	53.11	52.46	45.34	60.24	8.60	24.29	38.86	68.77	2.75	2.35	2.15	2.15	2.50	2.25	1.95	2.10	2.0	0.750
2027	52.50	55.50	64.77	53.11	52.46	45.34	60.24	8.60	24.29	38.86	68.77	2.75	2.35	2.15	2.15	2.50	2.25	1.95	2.10	2.0	0.750
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