

McDaniel & Associates Consultants Ltd.

Summary of Price Forecasts

April 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		\$/MMBtu	%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)						(8)	(9)								
History																						
2009	61.80	61.60	65.90	60.30	58.58	55.30	62.80		38.60	49.25	68.15	3.95	4.20	3.95	3.90		3.87	4.05		0.3	0.880	
2010	79.50	79.90	77.50	68.50	67.23	61.45	73.80		46.70	66.05	84.25	4.40	4.15	3.90	3.85		3.96	3.90		1.8	0.971	
2011	95.10	111.25	95.00	78.55	77.10	67.90	88.90		55.15	76.50	104.20	4.00	3.70	3.50	3.75		3.56	3.30		2.9	1.012	
2012	94.20	111.65	86.10	74.35	73.08	63.65	82.10		28.60	69.55	100.80	2.75	2.45	2.25	2.25		2.31	2.25		1.5	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	2.90	3.08	0.9	0.971	
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	4.53	4.40	4.10	4.20	1.9	0.906	
2015	48.80	52.35	57.75	46.10	44.80	39.55	51.45		6.65	35.55	60.30	2.60	2.80	2.55	2.55	3.00	2.70	2.00	2.10	1.1	0.780	
2016	43.30	43.55	53.85	40.30	39.00	33.35	48.95		13.15	34.35	56.20	2.50	2.10	1.90	1.90	2.31	2.20	1.55	1.68	1.4	0.760	
2017	50.90	54.25	62.85	52.00	50.70	45.20	59.85		28.90	44.60	66.85	2.95	2.40	2.15	2.15	2.83	2.35	1.75	1.88	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	2.85	1.60	1.20	1.40	2.2	0.770	
2019	56.95	64.15	68.65	59.30	58.10	54.50	67.60		17.40	23.55	70.85	2.55	1.60	1.40	1.40	2.70	1.65	0.95	1.10	2.0	0.750	
2020 (3 mos)	47.05	51.85	52.45	36.60	35.30	25.90	49.95		15.05	36.20	62.90	1.95	2.15	1.95	1.95	2.20	2.05	1.55	2.00	1.8	0.740	
Forecast																						
2020 (9 mos)	32.50	35.50	32.14	24.75	24.43	20.57	30.86	6.60	10.45	16.07	34.14	2.25	1.85	1.65	1.65	2.10	1.75	1.25	1.40	0.0	0.700	
2021	43.35	46.41	49.45	40.05	39.56	34.61	46.73	8.36	17.31	29.67	53.53	2.70	2.30	2.09	2.09	2.45	2.19	1.68	1.84	2.0	0.725	
2022	52.02	55.14	62.69	50.78	50.15	43.89	58.30	8.95	23.51	37.62	66.85	2.97	2.44	2.24	2.24	2.60	2.34	1.92	2.08	2.0	0.750	
2023	58.37	61.55	71.02	57.53	56.82	49.72	66.05	9.13	26.63	42.61	75.27	3.02	2.49	2.28	2.28	2.65	2.39	2.07	2.23	2.0	0.750	
2024	59.53	62.78	72.44	58.68	57.95	50.71	67.37	9.31	27.17	43.47	76.77	3.08	2.54	2.33	2.33	2.71	2.44	2.11	2.27	2.0	0.750	
2025	60.72	64.04	73.89	59.85	59.11	51.72	68.72	9.50	27.71	44.33	78.31	3.15	2.59	2.37	2.37	2.76	2.48	2.15	2.32	2.0	0.750	
2026	61.94	65.32	75.37	61.05	60.30	52.76	70.09	9.68	28.26	45.22	79.87	3.21	2.65	2.42	2.42	2.82	2.53	2.20	2.36	2.0	0.750	
2027	63.18	66.62	76.88	62.27	61.50	53.81	71.50	9.88	28.83	46.13	81.47	3.27	2.70	2.47	2.47	2.87	2.58	2.24	2.41	2.0	0.750	
2028	64.44	67.96	78.41	63.52	62.73	54.89	72.92	10.08	29.41	47.05	83.10	3.34	2.75	2.52	2.52	2.93	2.64	2.28	2.46	2.0	0.750	
2029	65.73	69.32	79.98	64.79	63.99	55.99	74.38	10.28	29.99	47.99	84.76	3.41	2.81	2.57	2.57	2.99	2.69	2.33	2.51	2.0	0.750	
2030	67.04	70.70	81.58	66.08	65.27	57.11	75.87	10.48	30.59	48.95	86.46	3.47	2.86	2.62	2.62	3.05	2.74	2.38	2.56	2.0	0.750	
2031	68.39	72.12	83.21	67.40	66.57	58.25	77.39	10.69	31.21	49.93	88.19	3.54	2.92	2.67	2.67	3.11	2.80	2.42	2.61	2.0	0.750	
2032	69.75	73.56	84.88	68.75	67.90	59.41	78.94	10.91	31.83	50.93	89.95	3.61	2.98	2.73	2.73	3.17	2.85	2.47	2.66	2.0	0.750	
2033	71.15	75.03	86.58	70.13	69.26	60.60	80.52	11.13	32.47	51.95	91.75	3.69	3.04	2.78	2.78	3.23	2.91	2.52	2.72	2.0	0.750	
2034	72.57	76.53	88.31	71.53	70.65	61.81	82.13	11.35	33.12	52.98	93.58	3.76	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 \$)

April 1, 2020

Year	Crude Oil Price Forecasts							Liquids Price Forecasts					Gas Price Forecasts							US/CAN Exchange Rate \$US/\$CAN	
	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)							
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2010	79.50	79.90	77.50	68.50	67.23	61.45	73.80		46.70	66.05	84.25	4.40	4.15	3.90	3.85		3.96	3.90		1.77	0.971
2011	95.10	111.25	95.00	78.55	77.10	67.90	88.90		55.15	76.50	104.20	4.00	3.70	3.50	3.75		3.56	3.30		2.89	1.012
2012	94.20	111.65	86.10	74.35	73.08	63.65	82.10		28.60	69.55	100.80	2.75	2.45	2.25	2.25		2.31	2.25		1.53	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	2.90	3.08	0.93	0.971
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	4.53	4.40	4.10	4.20	1.92	0.906
2015	48.80	52.35	57.75	46.10	44.80	39.55	51.45		6.65	35.55	60.30	2.60	2.80	2.55	2.55	3.00	2.70	2.00	2.10	1.12	0.780
2016	43.30	43.55	53.85	40.30	39.00	33.35	48.95		13.15	34.35	56.20	2.50	2.10	1.90	1.90	2.31	2.20	1.55	1.68	1.44	0.760
2017	50.90	54.25	62.85	52.00	50.70	45.20	59.85		28.90	44.60	66.85	2.95	2.40	2.15	2.15	2.83	2.35	1.75	1.88	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	2.85	1.60	1.20	1.40	2.24	0.770
2019	56.95	64.15	68.65	59.30	58.10	54.50	67.60		17.40	23.55	70.85	2.55	1.60	1.40	1.40	2.70	1.65	0.95	1.10	2.01	0.750
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2021	42.50	45.50	48.48	39.27	38.78	33.94	45.81	8.20	16.97	29.09	52.48	2.65	2.25	2.05	2.05	2.40	2.15	1.65	1.80	2.0	0.725
2022	50.00	53.00	60.26	48.81	48.21	42.18	56.04	8.60	22.60	36.16	64.26	2.85	2.35	2.15	2.15	2.50	2.25	1.85	2.00	2.0	0.750
2023	55.00	58.00	66.93	54.21	53.54	46.85	62.24	8.60	25.10	40.16	70.93	2.85	2.35	2.15	2.15	2.50	2.25	1.95	2.10	2.0	0.750
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- (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