

CHAPMAN PETROLEUM ENGINEERING LTD.
CRUDE OIL
HISTORICAL, CONSTANT, CURRENT AND FUTURE PRICES

October 1, 2018

Date	WTI [1] \$US/STB	Brent Spot (ICE)[2] \$US/STB	AB Synthetic Crude Price [3] \$CDN/STB	Western Canada Select [4] \$CDN/STB	Exchange Rate \$US/\$CDN
HISTORICAL PRICES					
2004	41.51	38.26	52.89	37.52	0.77
2005	56.64	54.57	69.16	43.25	0.83
2006	66.05	65.16	72.88	50.40	0.88
2007	72.34	72.44	75.57	53.17	0.94
2008	99.67	96.94	102.98	83.88	0.94
2009	61.95	61.74	76.77	53.04	0.88
2010	79.48	79.61	80.56	66.58	0.97
2011	94.88	111.26	102.45	77.43	1.01
2012	94.05	111.63	92.56	71.70	1.00
2013	97.98	108.56	100.17	75.76	0.97
2014	93.12	99.43	101.07	82.07	0.91
2015	48.69	53.32	62.17	46.23	0.78
2016	43.17	45.06	57.98	38.90	0.76
2017	50.86	54.75	67.75	49.63	0.77
2018	9 mos. 66.85	72.64	82.58	55.25	0.78
CONSTANT PRICES (The average of the first-day-of-the-month price for the preceding 12 months-SEC)					
	63.22	68.90	80.19	53.57	0.78
FORECAST PRICES					
2018	67.00	73.03	85.30	57.15	0.78
2019	68.00	74.12	85.48	64.11	0.79
2020	71.40	77.83	88.65	66.49	0.80
2021	74.97	81.72	91.96	68.97	0.81
2022	76.47	83.35	92.66	69.49	0.82
2023	78.00	85.02	93.37	70.03	0.83
2024	79.56	86.72	95.25	71.44	0.83
2025	81.15	88.45	97.17	72.88	0.83
2026	82.77	90.22	99.13	74.34	0.83
2027	84.43	92.03	101.12	75.84	0.83
2028	86.12	93.87	103.16	77.37	0.83
2029	87.84	95.74	105.23	78.92	0.83
2030	89.60	97.66	107.35	80.51	0.83
2031	91.39	99.61	109.51	82.13	0.83
2032	93.22	101.61	111.71	83.78	0.83
2033	95.08	103.64	113.95	85.46	0.83

Escalated 2% thereafter

- Notes:
- [1] West Texas Intermediate quality (D2/S2) crude (40API) landed in Cushing, Oklahoma.
 - [2] The Brent Spot price is estimated based on historic data.
 - [3] Equivalent price for Light Sweet Crude (D2/S2) & Synthetic Crude landed in Edmonton.
 - [4] Western Canada Select (20.5API), spot price for B.C., Alberta, Saskatchewan, and Manitoba.

CHAPMAN PETROLEUM ENGINEERING LTD.
NATURAL GAS & BY-PRODUCTS
HISTORICAL, CONSTANT, CURRENT AND FUTURE PRICES

October 1, 2018

Date	Alberta GRP [1]		AECO Spot Gas[2]	Henry Hub Gas[3]	Propane C3 [4]	Butane C4 [4]	Condensate (Pentanes Plus) C5+[5]
	\$CDN/MMBTU	\$CDN/GJ	\$CDN/MMBTU	\$US/MMBTU	\$CDN/BBL	\$CDN/BBL	\$CDN/BBL
HISTORICAL PRICES							
2009	3.85	3.65	3.99	3.94	38.34	49.34	67.52
2010	3.93	3.73	4.02	4.39	44.40	57.99	77.51
2011	3.46	3.28	3.63	3.99	50.17	70.93	97.21
2012	2.25	2.13	2.39	2.70	47.40	64.48	96.26
2013	2.98	2.82	3.17	3.84	50.09	91.43	100.72
2014	4.22	4.00	4.51	4.36	46.85	62.26	108.28
2015	2.62	2.48	2.71	2.69	6.17	36.81	59.14
2016	2.03	1.93	2.18	3.31	6.71	29.81	55.62
2017	2.05	1.94	2.50	3.85	25.55	39.62	67.15
2018 9 mos.	1.59	1.51	1.52	3.77	32.04	48.31	81.39
CONSTANT PRICES (The average of the first-day-of-the-month price for the preceding 12 months-SEC)							
	1.65	1.56	1.68	2.73	32.13	46.38	81.63
FORECAST PRICES							
2018	1.96	1.86	2.00	3.69	33.23	34.27	84.44
2019	2.21	2.09	2.25	3.94	34.76	45.37	84.62
2020	2.45	2.32	2.50	4.19	38.92	54.29	87.76
2021	2.57	2.44	2.63	4.32	42.10	60.73	91.04
2022	2.70	2.56	2.76	4.45	43.48	65.51	91.73
2023	2.84	2.69	2.89	4.58	44.55	66.02	92.44
2024	2.98	2.82	3.04	4.73	45.56	67.34	94.30
2025	3.13	2.97	3.19	4.88	46.51	68.70	96.20
2026	3.19	3.03	3.25	4.94	47.52	70.08	98.14
2027	3.25	3.09	3.32	5.01	48.50	71.48	100.11
2028	3.32	3.15	3.39	5.08	49.59	72.89	102.12
2029	3.38	3.21	3.45	5.14	50.55	75.46	104.18
2030	3.45	3.27	3.52	5.21	51.59	76.97	106.27
2031	3.52	3.34	3.59	5.28	52.64	78.53	108.41
2032	3.59	3.41	3.67	5.36	53.67	80.09	110.59
2033	3.66	3.47	3.74	5.43	54.74	81.70	112.80

Escalated 2% thereafter

- Notes:
- [1] Alberta Gas Reference Price (GRP) represents the average of all system and direct (spot and firm) sales.
 - [2] The AECO C Spot price, which is the Alberta gas trading price
 - [3] Henry Hub Spot is natural gas traded on the New York Mercantile Exchange (NYMEX).
 - [4] Alberta average field price for Propane and Butane purchased at field locations.
 - [5] Edmonton condensate from GMPFirstEnergy.