

Deloitte Resource Evaluation & Advisory
Canadian Domestic Forecast
Base Case Forecast Effective September 30 2017

		Price Inflation Rate	Cost Inflation Rate	CAD to USD Exchange Rate	Crude Oil Pricing						Natural Gas Liquids Pricing Edmonton Par Prices				Natural Gas Pricing					Sulphur		
					WTI at Cushing Oklahoma US\$/bbl	WTI at Cushing Oklahoma US\$/bbl	Edmonton City Gate C\$/bbl	Edmonton City Gate C\$/bbl	WCS 20.5 Deg. API Hardisty C\$/bbl	Bow River 25 Deg. API Hardisty C\$/bbl	Heavy Oil 12 Deg. API Hardisty C\$/bbl	Ethane C\$/bbl	Propane C\$/bbl	Butane C\$/bbl	Pentanes + Condensate C\$/bbl	Alberta Reference Average Price C\$/mcf	Alberta AECO Average Price C\$/mcf	Alberta AECO Average Price C\$/mcf	B.C. Direct Sales C\$/mcf	NYMEX Henry Hub US\$/Mcf	NYMEX Henry Hub US\$/Mcf	Alberta Plant Gate C\$/lt
					Real	Current	Real	Current	Current	Current	Current	Current	Current	Current	Current	Current	Real	Current	Current	Current	Real	Current
H	2007	2.5%	2.5%	1.008	\$92.45	\$88.04	\$89.73	\$85.46	\$55.50	\$56.23	\$41.66	\$16.12	\$56.33	\$69.86	\$92.06	\$5.48	\$6.16	\$5.87	\$5.59	\$7.10	\$6.76	\$87.57
i	2008	2.4%	2.4%	0.943	\$102.31	\$99.57	\$105.62	\$102.80	\$82.95	\$83.90	\$73.08	\$22.59	\$56.96	\$83.54	\$109.77	\$7.88	\$8.38	\$8.16	\$8.20	\$9.11	\$8.86	\$303.83
s	2009	0.3%	0.3%	0.880	\$62.95	\$61.65	\$67.49	\$66.10	\$58.66	\$59.80	\$54.40	\$11.61	\$34.62	\$56.21	\$69.49	\$3.85	\$4.04	\$3.96	\$4.17	\$4.03	\$3.95	(\$5.08)
t	2010	1.8%	1.8%	0.971	\$83.24	\$79.40	\$81.58	\$77.80	\$67.22	\$68.18	\$60.62	\$11.53	\$45.19	\$68.79	\$84.02	\$3.76	\$4.20	\$4.01	\$4.01	\$4.60	\$4.39	\$56.94
o	2011	2.9%	2.9%	1.012	\$99.24	\$94.88	\$99.92	\$95.54	\$77.12	\$78.42	\$69.60	\$10.30	\$52.41	\$86.98	\$105.24	\$3.46	\$3.80	\$3.63	\$3.34	\$4.18	\$4.00	\$101.60
r	2012	1.5%	1.5%	1.001	\$96.47	\$94.11	\$88.74	\$86.57	\$73.10	\$74.41	\$64.07	\$6.73	\$30.80	\$75.47	\$99.67	\$2.25	\$2.45	\$2.39	\$2.29	\$2.82	\$2.75	\$126.81
i	2013	0.9%	0.9%	0.972	\$100.76	\$97.91	\$96.08	\$93.36	\$74.97	\$76.29	\$65.49	\$8.68	\$38.54	\$77.44	\$103.52	\$2.98	\$3.27	\$3.17	\$3.11	\$3.84	\$3.73	\$62.17
c	2014	1.9%	1.9%	0.906	\$96.15	\$93.26	\$96.91	\$94.00	\$81.06	\$81.49	\$73.70	\$12.46	\$42.93	\$59.43	\$101.47	\$4.22	\$4.64	\$4.50	\$4.16	\$4.53	\$4.39	\$88.99
a	2015	1.1%	1.1%	0.783	\$49.96	\$48.69	\$58.49	\$57.00	\$44.80	\$45.23	\$39.63	\$7.49	\$5.35	\$33.70	\$55.15	\$2.56	\$2.76	\$2.69	\$1.81	\$2.70	\$2.63	\$107.45
l	2016	1.4%	1.4%	0.755	\$43.79	\$43.15	\$52.98	\$52.22	\$38.90	\$39.23	\$34.08	\$6.04	\$8.71	\$31.45	\$52.43	\$1.93	\$2.19	\$2.16	\$1.75	\$2.55	\$2.52	\$45.40
2	9 Mths H	1.6%	1.6%	0.766	\$49.20	\$49.20	\$60.46	\$60.46	\$48.84	\$49.17	\$44.21	\$6.54	\$21.88	\$38.39	\$61.47	\$2.26	\$2.35	\$2.35	\$1.88	\$3.01	\$3.01	\$36.56
0	3 Mths F	0.0%	0.0%	0.800	\$50.00	\$50.00	\$57.50	\$57.50	\$45.50	\$47.50	\$44.50	\$5.60	\$20.15	\$34.50	\$57.50	\$1.80	\$2.00	\$2.00	\$1.60	\$3.10	\$3.10	\$35.00
7	Avg.	N/A	N/A	0.775	\$49.40	\$49.40	\$59.72	\$59.72	\$48.01	\$48.75	\$44.28	\$6.31	\$21.45	\$37.42	\$60.48	\$2.15	\$2.26	\$2.26	\$1.81	\$3.03	\$3.03	\$36.17
F	2017	0.0%	0.0%	0.800	\$50.00	\$50.00	\$57.50	\$57.50	\$45.50	\$47.50	\$44.50	\$5.60	\$20.15	\$34.50	\$57.50	\$1.80	\$2.00	\$2.00	\$1.60	\$3.10	\$3.10	\$35.00
o	2018	2.0%	2.0%	0.820	\$52.00	\$53.05	\$58.55	\$59.70	\$44.40	\$46.45	\$41.35	\$6.60	\$20.90	\$35.85	\$69.70	\$2.15	\$2.30	\$2.35	\$1.95	\$3.15	\$3.20	\$35.70
r	2019	2.0%	2.0%	0.830	\$55.00	\$57.20	\$61.45	\$63.95	\$48.35	\$50.40	\$45.20	\$7.45	\$22.35	\$38.35	\$63.95	\$2.45	\$2.55	\$2.65	\$2.25	\$3.20	\$3.35	\$36.40
e	2020	2.0%	2.0%	0.840	\$60.00	\$63.65	\$66.65	\$70.75	\$54.80	\$56.95	\$51.65	\$8.35	\$24.80	\$42.45	\$70.75	\$2.75	\$2.80	\$2.95	\$2.55	\$3.25	\$3.45	\$37.15
c	2021	2.0%	2.0%	0.850	\$65.00	\$70.35	\$71.75	\$77.65	\$61.45	\$63.60	\$58.20	\$8.50	\$27.15	\$46.60	\$77.65	\$2.80	\$2.80	\$3.05	\$2.60	\$3.30	\$3.55	\$37.90
a	2022	2.0%	2.0%	0.850	\$70.00	\$77.30	\$77.65	\$85.75	\$69.15	\$71.40	\$65.85	\$9.10	\$30.05	\$51.45	\$85.75	\$3.05	\$2.95	\$3.25	\$2.80	\$3.40	\$3.75	\$38.65
s	2023	2.0%	2.0%	0.850	\$70.00	\$78.85	\$77.65	\$87.45	\$70.55	\$72.80	\$67.20	\$9.80	\$30.65	\$52.50	\$87.45	\$3.25	\$3.10	\$3.50	\$3.05	\$3.55	\$4.00	\$39.40
t	2024	2.0%	2.0%	0.850	\$70.00	\$80.40	\$77.65	\$89.20	\$71.95	\$74.25	\$68.50	\$10.80	\$31.25	\$53.55	\$89.20	\$3.60	\$3.35	\$3.85	\$3.40	\$3.75	\$4.30	\$40.20
	2025	2.0%	2.0%	0.850	\$70.00	\$82.00	\$77.65	\$91.00	\$73.40	\$75.75	\$69.90	\$11.65	\$31.85	\$54.60	\$91.00	\$3.95	\$3.55	\$4.15	\$3.70	\$3.90	\$4.55	\$41.00
	2026	2.0%	2.0%	0.850	\$70.00	\$83.65	\$77.65	\$92.80	\$74.85	\$77.25	\$71.30	\$12.05	\$32.50	\$55.70	\$92.80	\$4.05	\$3.60	\$4.30	\$3.80	\$3.95	\$4.70	\$41.85
	2027	2.0%	2.0%	0.850	\$70.00	\$85.35	\$77.65	\$94.65	\$76.35	\$78.80	\$72.70	\$12.45	\$33.15	\$56.80	\$94.65	\$4.20	\$3.65	\$4.45	\$3.95	\$4.00	\$4.90	\$42.65
	2028	2.0%	2.0%	0.850	\$70.00	\$87.05	\$77.65	\$96.55	\$77.90	\$80.40	\$74.15	\$12.70	\$33.80	\$57.95	\$96.55	\$4.30	\$3.65	\$4.55	\$4.05	\$4.00	\$4.95	\$43.50
	2029	2.0%	2.0%	0.850	\$70.00	\$88.80	\$77.65	\$98.50	\$79.45	\$82.00	\$75.65	\$12.95	\$34.50	\$59.10	\$98.50	\$4.40	\$3.65	\$4.65	\$4.10	\$4.00	\$5.05	\$44.40
	2030	2.0%	2.0%	0.850	\$70.00	\$90.55	\$77.65	\$100.45	\$81.05	\$83.65	\$77.15	\$13.20	\$35.20	\$60.30	\$100.45	\$4.45	\$3.65	\$4.70	\$4.20	\$4.00	\$5.15	\$45.30
	2031	2.0%	2.0%	0.850	\$70.00	\$92.35	\$77.65	\$102.45	\$82.65	\$85.30	\$78.70	\$13.45	\$35.90	\$61.50	\$102.45	\$4.55	\$3.65	\$4.80	\$4.30	\$4.00	\$5.30	\$46.20
	2032	2.0%	2.0%	0.850	\$70.00	\$94.20	\$77.65	\$104.50	\$84.30	\$87.00	\$80.30	\$13.75	\$36.60	\$62.70	\$104.50	\$4.65	\$3.65	\$4.90	\$4.35	\$4.00	\$5.40	\$47.10
	2033	2.0%	2.0%	0.850	\$70.00	\$96.10	\$77.65	\$106.60	\$86.00	\$88.75	\$81.90	\$14.00	\$37.35	\$63.95	\$106.60	\$4.75	\$3.65	\$5.00	\$4.45	\$4.00	\$5.50	\$48.05
	2034	2.0%	2.0%	0.850	\$70.00	\$98.00	\$77.65	\$108.75	\$87.75	\$90.55	\$83.50	\$14.30	\$38.10	\$65.25	\$108.75	\$4.85	\$3.65	\$5.10	\$4.55	\$4.00	\$5.60	\$49.00
	2035	2.0%	2.0%	0.850	\$70.00	\$100.00	\$77.65	\$110.90	\$89.50	\$92.35	\$85.20	\$14.55	\$38.85	\$66.55	\$110.90	\$4.95	\$3.65	\$5.20	\$4.65	\$4.00	\$5.70	\$50.00
	2036	2.0%	2.0%	0.850	\$70.00	\$102.00	\$77.65	\$113.10	\$91.25	\$94.20	\$86.90	\$14.85	\$39.65	\$67.90	\$113.10	\$5.05	\$3.65	\$5.30	\$4.75	\$4.00	\$5.85	\$51.00
	2036+	2.0%	2.0%	0.850	0.0%	2.0%	0.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	2.0%	2.0%	0.0%	2.0%	2.0%	2.0%

- Notes:
- All prices are in Canadian dollars except WTI and NYMEX gas which are in U.S. dollars
 - Edmonton city gate prices based on historical light oil par prices posted by the government of Alberta and Net Energy differential futures (40 Deg. API < 0.5% Sulphur)
 - Natural Gas Liquid prices are forecasted at Edmonton therefore an additional transportation cost must be included to plant gate sales point
 - 1 Mcf is equivalent to 1 mmbtu
 - Real prices listed in 2017 dollars with no escalation considered
 - Alberta gas prices, except AECO, include an average cost of service to the plant gate
 - NGL prices have been switched from a mix reference to a spec reference



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Deloitte Resource Evaluation & Advisory
Canadian Domestic Forecast - Additional Crude Reference Prices
Base Case Forecast Effective September 30 2017

				Crude Oil Pricing											Natural Gas
		Price Inflation Rate	Cost Inflation Rate	CAD to USD Exchange Rate	WTI at Cushing Oklahoma US\$/bbl Real	WTI at Cushing Oklahoma US\$/bbl Current	Edmonton City Gate C\$/bbl Real	Edmonton City Gate C\$/bbl Current	Lt. Sour 35 Deg. API Cromer, SK C\$/bbl Current	MSO 31 Deg. API Hardisty C\$/bbl Current	Bow River 25 Deg. API Hardisty C\$/bbl Current	WCS 20.5 Deg. API Hardisty C\$/bbl Current	Heavy Oil 12 Deg. API Hardisty C\$/bbl Current	Synbit (AWB) 70% Bitumen 30% Cond. 21 Deg. API C\$/bbl Current	Ontario Dawn Reference Point C\$/mcf Current
H	2007	2.5%	2.5%	1.008	\$104.27	\$88.04	\$101.20	\$85.46	\$76.71	\$67.81	\$56.23	\$55.50	\$41.66	\$56.78	\$6.86
i	2008	2.4%	2.4%	0.943	\$115.03	\$99.57	\$118.76	\$102.80	\$95.28	\$92.40	\$83.90	\$82.95	\$73.08	\$84.08	\$9.88
s	2009	0.3%	0.3%	0.880	\$69.53	\$61.65	\$74.54	\$66.10	\$64.04	\$63.76	\$59.80	\$58.66	\$54.40	\$58.92	\$4.80
t	2010	1.8%	1.8%	0.971	\$89.27	\$79.40	\$87.48	\$77.80	\$76.40	\$72.32	\$68.18	\$67.22	\$60.62	\$67.64	\$4.79
o	2011	2.9%	2.9%	1.012	\$104.81	\$94.88	\$105.53	\$95.54	\$92.13	\$83.39	\$78.42	\$77.12	\$69.60	\$80.29	\$4.34
r	2012	1.5%	1.5%	1.001	\$100.92	\$94.11	\$92.83	\$86.57	\$84.27	\$77.53	\$74.41	\$73.10	\$64.07	\$74.75	\$3.11
i	2013	0.9%	0.9%	0.972	\$103.40	\$97.91	\$98.59	\$93.36	\$91.76	\$82.65	\$76.29	\$74.97	\$65.49	\$76.90	\$4.13
c	2014	1.9%	1.9%	0.906	\$97.56	\$93.26	\$98.33	\$94.00	\$92.91	\$89.39	\$81.49	\$81.06	\$73.70	\$82.03	\$5.76
a	2015	1.1%	1.1%	0.783	\$49.96	\$48.69	\$58.49	\$57.00	\$55.46	\$54.70	\$45.23	\$44.80	\$39.63	\$44.28	\$3.72
l	2016	1.4%	1.4%	0.755	\$43.79	\$43.15	\$52.98	\$52.22	\$51.37	\$48.29	\$39.23	\$38.90	\$34.08	\$39.58	\$3.46
2	9 Mths H	1.6%	1.6%	0.766	\$49.20	\$49.20	\$60.46	\$60.46	\$59.64	\$57.11	\$49.17	\$48.84	\$44.21	\$49.38	\$4.01
0	3 Mths F	0.0%	0.0%	0.800	\$50.00	\$50.00	\$57.50	\$57.50	\$56.50	\$53.50	\$47.50	\$45.50	\$44.50	\$48.40	\$3.90
1															
7	Avg.	N/A	N/A	0.775	\$49.40	\$49.40	\$59.72	\$59.72	\$58.86	\$56.21	\$48.75	\$48.01	\$44.28	\$49.14	\$3.98
F	2017	0.0%	0.0%	0.800	\$50.00	\$50.00	\$57.50	\$57.50	\$56.50	\$53.50	\$47.50	\$45.50	\$44.50	\$48.40	\$3.90
o	2018	2.0%	2.0%	0.820	\$52.00	\$53.05	\$58.55	\$59.70	\$58.70	\$55.65	\$46.45	\$44.40	\$41.35	\$46.85	\$4.20
r	2019	2.0%	2.0%	0.830	\$55.00	\$57.20	\$61.45	\$63.95	\$62.90	\$59.75	\$50.40	\$48.35	\$45.20	\$50.80	\$4.25
e	2020	2.0%	2.0%	0.840	\$60.00	\$63.65	\$66.65	\$70.75	\$69.65	\$66.50	\$56.95	\$54.80	\$51.65	\$57.35	\$4.35
c	2021	2.0%	2.0%	0.850	\$65.00	\$70.35	\$71.75	\$77.65	\$76.60	\$73.35	\$63.60	\$61.45	\$58.20	\$64.05	\$4.50
a	2022	2.0%	2.0%	0.850	\$70.00	\$77.30	\$77.65	\$85.75	\$84.65	\$81.30	\$71.40	\$69.15	\$65.85	\$71.80	\$4.70
s	2023	2.0%	2.0%	0.850	\$70.00	\$78.85	\$77.65	\$87.45	\$86.30	\$82.95	\$72.80	\$70.55	\$67.20	\$73.25	\$5.00
t	2024	2.0%	2.0%	0.850	\$70.00	\$80.40	\$77.65	\$89.20	\$88.05	\$84.60	\$74.25	\$71.95	\$68.50	\$74.70	\$5.35
	2025	2.0%	2.0%	0.850	\$70.00	\$82.00	\$77.65	\$91.00	\$89.80	\$86.30	\$75.75	\$73.40	\$69.90	\$76.20	\$5.70
	2026	2.0%	2.0%	0.850	\$70.00	\$83.65	\$77.65	\$92.80	\$91.60	\$88.00	\$77.25	\$74.85	\$71.30	\$77.75	\$5.85
	2027	2.0%	2.0%	0.850	\$70.00	\$85.35	\$77.65	\$94.65	\$93.45	\$89.80	\$78.80	\$76.35	\$72.70	\$79.30	\$6.05
	2028	2.0%	2.0%	0.850	\$70.00	\$87.05	\$77.65	\$96.55	\$95.30	\$91.55	\$80.40	\$77.90	\$74.15	\$80.90	\$6.15
	2029	2.0%	2.0%	0.850	\$70.00	\$88.80	\$77.65	\$98.50	\$97.20	\$93.40	\$82.00	\$79.45	\$75.65	\$82.50	\$6.30
	2030	2.0%	2.0%	0.850	\$70.00	\$90.55	\$77.65	\$100.45	\$99.15	\$95.25	\$83.65	\$81.05	\$77.15	\$84.15	\$6.40
	2031	2.0%	2.0%	0.850	\$70.00	\$92.35	\$77.65	\$102.45	\$101.15	\$97.20	\$85.30	\$82.65	\$78.70	\$85.85	\$6.55
	2032	2.0%	2.0%	0.850	\$70.00	\$94.20	\$77.65	\$104.50	\$103.15	\$99.10	\$87.00	\$84.30	\$80.30	\$87.55	\$6.65
	2033	2.0%	2.0%	0.850	\$70.00	\$96.10	\$77.65	\$106.60	\$105.20	\$101.10	\$88.75	\$86.00	\$81.90	\$89.30	\$6.80
	2034	2.0%	2.0%	0.850	\$70.00	\$98.00	\$77.65	\$108.75	\$107.35	\$103.15	\$90.55	\$87.75	\$83.50	\$91.10	\$6.95
	2035	2.0%	2.0%	0.850	\$70.00	\$100.00	\$77.65	\$110.90	\$109.50	\$105.20	\$92.35	\$89.50	\$85.20	\$92.90	\$7.05
	2036	2.0%	2.0%	0.850	\$70.00	\$102.00	\$77.65	\$113.10	\$111.65	\$107.30	\$94.20	\$91.25	\$86.90	\$94.75	\$7.20
	2036+	2.0%	2.0%	0.850	0.0%	2.0%	0.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Notes: - All prices are in Canadian dollars except WTI and NYMEX gas which are in U.S. dollars
- Edmonton city gate prices based on historical light oil par prices posted by the government of Alberta and Net Energy differential futures (40 Deg. API < 0.5% Sulphur)
- 1 Mcf is equivalent to 1 mmbtu
- Real prices listed in 2017 dollars with no escalation considered
Sarnia price is Edmonton Sweet (MSW) delivered to Sarnia, Ontario
Synbit is a combined bitumin (70%) and Condensate (30%) stream equivalent to the Acces Western Blend (AWB).



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**Deloitte Resource Evaluation & Advisory
International Forecast
Base Case Forecast Effective September 30 2017
Real Prices**

	Crude Oil Pricing																
	Average WTI	Alaskan North Slope	California Kern River	Louisiana Heavy Sweet	Louisiana Light Sweet	MARS Blend	Wyoming Sweet	Brent Spot	Gulf Coast Argus Sour Crude Index	Average OPEC Basket	Venezuelan Merely	Nigerian Bonny Light	Arabia UAE Dubai Feteih	Mexico Maya	Russia Urals	Indonesia Minas	
	Spot US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	
	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	
F 2017	\$50.00	\$42.00	\$46.00	\$49.00	\$48.00	\$44.50	\$46.50	\$53.00	\$44.50	\$51.25	\$46.00	\$53.50	\$52.25	\$45.50	\$52.00	\$48.75	
o 2018	\$52.00	\$44.00	\$48.00	\$51.00	\$50.00	\$46.50	\$48.50	\$53.00	\$46.50	\$51.25	\$46.00	\$53.50	\$52.25	\$45.50	\$52.00	\$48.75	
r 2019	\$55.00	\$47.00	\$51.00	\$54.00	\$53.00	\$49.50	\$51.50	\$56.00	\$49.50	\$54.25	\$49.00	\$56.50	\$55.25	\$48.50	\$55.00	\$51.75	
e 2020	\$60.00	\$52.00	\$56.00	\$59.00	\$58.00	\$54.50	\$56.50	\$61.00	\$54.50	\$59.25	\$54.00	\$61.50	\$60.25	\$53.50	\$60.00	\$56.75	
c 2021	\$65.00	\$57.00	\$61.00	\$64.00	\$63.00	\$59.50	\$61.50	\$66.00	\$59.50	\$64.25	\$59.00	\$66.50	\$65.25	\$58.50	\$65.00	\$61.75	
a 2022	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
s 2023	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
t 2024	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2025	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2026	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2027	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2028	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2029	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2030	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2031	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2032	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2033	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2034	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2035	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2036	\$70.00	\$62.00	\$66.00	\$69.00	\$68.00	\$64.50	\$66.50	\$71.00	\$64.50	\$69.25	\$64.00	\$71.50	\$70.25	\$63.50	\$70.00	\$66.75	
2036+	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

	Natural Gas Pricing								Ethanol
	USD to GBP Exchange Rate	USD to EUR Exchange Rate	NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mtn. Opal	UK NBP	India Domestic Gas	U.S. CBOT Ethanol
	Rate	Rate	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/gal. Real
F 2017	1.300	1.200	\$3.10	\$2.75	\$2.80	\$2.80	\$5.80	\$2.90	\$1.50
o 2018	1.300	1.200	\$3.15	\$2.80	\$2.85	\$2.85	\$5.85	\$3.20	\$1.50
r 2019	1.300	1.200	\$3.20	\$2.85	\$2.90	\$2.90	\$5.90	\$3.25	\$1.50
e 2020	1.300	1.200	\$3.25	\$2.90	\$2.95	\$2.95	\$5.95	\$3.30	\$1.50
c 2021	1.300	1.200	\$3.30	\$2.95	\$3.00	\$3.00	\$6.00	\$3.35	\$1.50
a 2022	1.300	1.200	\$3.40	\$3.05	\$3.10	\$3.10	\$6.10	\$3.40	\$1.50
s 2023	1.300	1.200	\$3.55	\$3.20	\$3.25	\$3.25	\$6.25	\$3.50	\$1.50
t 2024	1.300	1.200	\$3.75	\$3.40	\$3.45	\$3.45	\$6.45	\$3.65	\$1.50
2025	1.300	1.200	\$3.90	\$3.55	\$3.60	\$3.60	\$6.60	\$3.85	\$1.50
2026	1.300	1.200	\$3.95	\$3.60	\$3.65	\$3.65	\$6.65	\$4.00	\$1.50
2027	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.05	\$1.50
2028	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2029	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2030	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2031	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2032	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2033	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2034	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2035	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2036	1.300	1.200	\$4.00	\$3.65	\$3.70	\$3.70	\$6.70	\$4.10	\$1.50
2036+	1.300	1.200	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Notes: Venezuelan Merely replaced BCF-17 in the OPEC basket March 1, 2009.



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Deloitte Resource Evaluation & Advisory
International Forecast
Base Case Forecast Effective September 30 2017
Escalated Prices

		USD to GBP Exchange Rate	USD to EUR Exchange Rate	Crude Oil Pricing																Natural Gas					Ethanol
				Average WTI Spot US\$/bbl	Alaska North Slope US\$/bbl	California Kern River US\$/bbl	Louisiana Heavy Sweet US\$/bbl	Louisiana Light Sweet US\$/bbl	MARS Blend US\$/bbl	Wyoming Sweet US\$/bbl	Brent Spot US\$/bbl	Gulf Coast Argus Sour Crude Index US\$/bbl	Average OPEC Basket US\$/bbl	Venezuelan Merly US\$/bbl	Nigerian Bonny Light US\$/bbl	Arabia UAE Dubai Fethah US\$/bbl	Mexico Maya US\$/bbl	Russia Urals US\$/bbl	Indonesia Minas US\$/bbl	NYMEX Henry Hub US\$/Mcf	Permian Waha US\$/Mcf	San Juan Ignacio US\$/Mcf	Rocky Mtn. Opal US\$/Mcf	UK NBP US\$/Mcf	U.S. CBOT Ethanol US\$/gal.
				Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated	Escalated
H 2007	2.037	1.435	\$88.04	\$78.60	\$76.82	\$82.90	\$86.28	\$76.57	\$77.57	\$85.71	N/A	\$82.35	N/A	\$86.59	\$80.81	\$73.01	\$85.14	\$87.53	\$6.76	\$5.97	\$5.87	\$3.24	\$3.90	\$0.00	
i 2008	1.852	1.470	\$99.57	\$91.24	\$87.20	\$103.62	\$100.82	\$94.61	\$88.38	\$96.85	N/A	\$94.05	N/A	\$100.24	\$93.48	\$83.83	\$94.51	\$100.25	\$8.86	\$7.44	\$7.20	\$6.52	\$6.14	\$1.84	
s 2009	1.565	1.393	\$61.65	\$54.84	\$48.66	\$58.78	\$60.29	\$56.51	\$51.73	\$61.49	N/A	\$60.86	N/A	\$53.01	\$61.65	\$56.41	\$60.70	\$39.23	\$3.95	\$3.43	\$3.34	\$3.14	\$4.53	\$1.72	
t 2010	1.546	1.328	\$79.40	\$72.17	\$72.83	\$78.16	\$79.32	\$75.60	\$70.44	\$79.68	\$75.60	\$77.38	\$69.68	\$70.70	\$73.04	\$70.07	\$78.01	\$0.00	\$4.39	\$4.16	\$4.09	\$3.94	\$6.48	\$1.80	
o 2011	1.604	1.392	\$94.88	\$98.47	\$103.11	\$107.12	\$108.03	\$105.37	\$87.41	\$111.26	\$105.37	\$107.45	\$97.88	\$88.28	\$106.19	\$98.95	\$109.19	\$0.00	\$4.00	\$3.88	\$3.82	\$3.80	\$9.03	\$2.51	
r 2012	1.586	1.286	\$94.11	\$98.35	\$103.69	\$107.18	\$107.19	\$104.82	\$85.04	\$111.99	\$104.82	\$109.50	\$100.11	\$111.61	\$109.11	\$99.74	\$110.50	\$55.32	\$2.75	\$2.64	\$2.64	\$2.67	\$9.47	\$2.31	
i 2013	1.565	1.329	\$97.91	\$95.85	\$101.38	\$105.80	\$106.19	\$101.80	\$89.97	\$108.64	\$101.80	\$105.51	\$96.71	\$111.41	\$105.51	\$98.06	\$108.05	\$107.54	\$3.73	\$3.62	\$3.64	\$3.64	\$10.66	\$2.04	
c 2014	1.647	1.329	\$93.26	\$86.45	\$90.38	\$96.16	\$94.25	\$92.95	\$83.50	\$99.02	\$92.95	\$96.19	\$86.79	\$100.77	\$96.61	\$85.79	\$98.01	\$98.63	\$4.39	\$4.28	\$4.28	\$4.34	\$8.24	\$1.93	
a 2015	1.529	1.110	\$48.69	\$41.34	\$44.75	\$48.38	\$48.32	\$46.57	\$41.59	\$52.39	\$46.57	\$49.52	\$41.17	\$52.99	\$50.96	\$44.02	\$51.94	\$49.24	\$2.63	\$2.43	\$2.45	\$2.45	\$6.53	\$1.50	
l 2016	1.355	1.107	\$43.15	\$33.26	\$37.02	\$40.49	\$40.34	\$36.37	\$38.65	\$43.56	\$36.37	\$40.68	\$33.96	\$43.95	\$41.32	\$36.40	\$42.09	\$41.05	\$2.52	\$2.29	\$2.30	\$2.30	\$4.66	\$1.53	
F 2017	1.300	1.200	\$50.00	\$42.00	\$46.00	\$49.00	\$48.00	\$44.50	\$46.50	\$53.00	\$44.50	\$51.25	\$46.00	\$53.50	\$52.25	\$45.50	\$52.00	\$48.75	\$3.10	\$2.75	\$2.80	\$2.80	\$5.80	\$1.50	
o 2018	1.300	1.200	\$53.05	\$44.90	\$48.95	\$52.00	\$51.00	\$47.45	\$49.45	\$54.05	\$47.45	\$52.30	\$46.90	\$54.55	\$53.30	\$46.40	\$53.05	\$49.75	\$3.20	\$2.85	\$2.90	\$2.90	\$5.95	\$1.55	
r 2019	1.300	1.200	\$57.20	\$48.90	\$53.05	\$56.20	\$55.15	\$51.50	\$53.60	\$58.25	\$51.50	\$56.45	\$51.00	\$58.80	\$57.50	\$50.45	\$57.20	\$53.85	\$3.35	\$2.95	\$3.00	\$3.00	\$6.15	\$1.55	
e 2020	1.300	1.200	\$63.65	\$55.20	\$59.45	\$62.60	\$61.55	\$57.85	\$59.95	\$64.75	\$57.85	\$62.90	\$57.30	\$65.25	\$63.95	\$56.75	\$63.65	\$60.20	\$3.45	\$3.10	\$3.15	\$3.15	\$6.30	\$1.60	
c 2021	1.300	1.200	\$70.35	\$61.70	\$66.05	\$69.30	\$68.20	\$64.40	\$66.55	\$71.45	\$64.40	\$69.55	\$63.85	\$72.00	\$70.65	\$63.30	\$70.35	\$66.85	\$3.55	\$3.20	\$3.25	\$3.25	\$6.50	\$1.60	
a 2022	1.300	1.200	\$77.30	\$68.45	\$72.85	\$76.20	\$75.10	\$71.20	\$73.40	\$78.40	\$71.20	\$76.45	\$70.65	\$78.95	\$77.55	\$73.40	\$77.30	\$73.70	\$3.75	\$3.35	\$3.40	\$3.40	\$6.75	\$1.65	
s 2023	1.300	1.200	\$78.85	\$69.80	\$74.35	\$77.70	\$76.60	\$72.65	\$74.90	\$79.95	\$72.65	\$78.00	\$72.05	\$80.50	\$79.10	\$71.50	\$78.85	\$75.15	\$4.00	\$3.60	\$3.65	\$3.65	\$7.05	\$1.70	
t 2024	1.300	1.200	\$80.40	\$71.20	\$75.80	\$79.25	\$78.10	\$74.10	\$76.40	\$81.55	\$74.10	\$79.55	\$73.50	\$82.15	\$80.70	\$72.95	\$80.40	\$76.65	\$4.30	\$3.90	\$3.95	\$3.95	\$7.40	\$1.70	
2025	1.300	1.200	\$82.00	\$72.65	\$77.35	\$80.85	\$79.65	\$75.55	\$77.90	\$83.20	\$75.55	\$81.15	\$75.00	\$83.75	\$82.30	\$74.40	\$82.00	\$78.20	\$4.55	\$4.15	\$4.20	\$4.20	\$7.75	\$1.75	
2026	1.300	1.200	\$83.65	\$74.10	\$78.90	\$82.45	\$81.25	\$77.10	\$79.45	\$84.85	\$77.10	\$82.75	\$76.50	\$85.45	\$83.95	\$75.90	\$83.65	\$79.75	\$4.70	\$4.30	\$4.35	\$4.35	\$7.95	\$1.80	
2027	1.300	1.200	\$85.35	\$75.60	\$80.45	\$84.10	\$82.90	\$78.65	\$81.05	\$86.55	\$78.65	\$84.40	\$78.00	\$87.15	\$85.65	\$77.40	\$85.35	\$81.35	\$4.90	\$4.45	\$4.50	\$4.50	\$8.15	\$1.85	
2028	1.300	1.200	\$87.05	\$77.10	\$82.05	\$85.80	\$84.55	\$80.20	\$82.70	\$88.30	\$80.20	\$86.10	\$79.60	\$88.90	\$87.35	\$78.95	\$87.05	\$83.00	\$4.95	\$4.55	\$4.60	\$4.60	\$8.35	\$1.85	
2029	1.300	1.200	\$88.80	\$78.65	\$83.70	\$87.50	\$86.25	\$81.80	\$84.35	\$90.05	\$81.80	\$87.85	\$81.15	\$90.70	\$89.10	\$80.55	\$88.80	\$84.65	\$5.05	\$4.65	\$4.70	\$4.70	\$8.50	\$1.90	
2030	1.300	1.200	\$90.55	\$80.20	\$85.40	\$89.25	\$87.95	\$83.45	\$86.00	\$91.85	\$83.45	\$89.60	\$82.80	\$92.50	\$90.90	\$82.15	\$90.55	\$86.35	\$5.15	\$4.70	\$4.80	\$4.80	\$8.65	\$1.95	
2031	1.300	1.200	\$92.35	\$81.80	\$87.10	\$91.05	\$89.70	\$85.10	\$87.75	\$93.70	\$85.10	\$91.35	\$84.45	\$94.35	\$92.70	\$83.80	\$92.35	\$88.10	\$5.30	\$4.80	\$4.90	\$4.90	\$8.85	\$2.00	
2032	1.300	1.200	\$94.20	\$83.45	\$88.85	\$92.85	\$91.50	\$86.80	\$89.50	\$95.55	\$86.80	\$93.20	\$86.15	\$96.25	\$94.55	\$85.45	\$94.20	\$89.85	\$5.40	\$4.90	\$5.00	\$5.00	\$9.00	\$2.00	
2033	1.300	1.200	\$96.10	\$85.10	\$90.60	\$94.70	\$93.35	\$88.55	\$91.30	\$97.45	\$88.55	\$95.05	\$87.85	\$98.15	\$96.45	\$87.15	\$96.10	\$91.65	\$5.50	\$5.00	\$5.10	\$5.10	\$9.20	\$2.05	
2034	1.300	1.200	\$98.00	\$86.80	\$92.40	\$96.60	\$95.20	\$90.30	\$93.10	\$99.40	\$90.30	\$96.95	\$89.60	\$100.10	\$98.35	\$88.90	\$98.00	\$93.45	\$5.60	\$5.10	\$5.20	\$5.20	\$9.40	\$2.10	
2035	1.300	1.200	\$100.00	\$88.55	\$94.25	\$98.55	\$97.10	\$92.10	\$95.00	\$101.40	\$92.10	\$98.90	\$91.40	\$102.10	\$100.35	\$90.70	\$100.00	\$95.35	\$5.70	\$5.20	\$5.30	\$5.30	\$9.55	\$2.15	
2036	1.300	1.200	\$102.00	\$90.30	\$96.15	\$100.50	\$99.05	\$93.95	\$96.90	\$103.45	\$93.95	\$100.90	\$93.25	\$104.15	\$102.35	\$92.50	\$102.00	\$97.25	\$5.85	\$5.30	\$5.40	\$5.40	\$9.75	\$2.20	
2036+	1.300	1.200	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	

Notes: Venezuelan Merly replaced BCF-17 in the OPEC basket March 1, 2009.



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