

Table 1
GLJ Petroleum Consultants
Crude Oil and Natural Gas Liquids
Price Forecast
 Effective January 1, 2019

Year	Inflation %	CADUSD Exchange Rate USD/CAD	NYMEX WTI Near Month Contract Crude Oil at Cushing, OK		Brent Blend Crude Oil FOB North Sea	MSW, Light Crude Oil (40 API, 0.3%S) at Edmonton	Bow River Crude Oil Stream Quality at Hardisty	WCS Crude Oil Stream Quality at Hardisty	Heavy Crude Oil Proxy (12 API) at Hardisty	Light Sour Crude Oil (35 API, 1.2%S) at Cromer	Medium Crude Oil (29 API, 2.0%S) at Cromer	Alberta Natural Gas Liquids (Then Current Dollars)				
			Constant 2019 \$ USD/bbl	Then Current USD/bbl	Then Current USD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Spec Ethane CAD/bbl	Edmonton Propane CAD/bbl	Edmonton Butane CAD/bbl	Edmonton CS+ Stream Quality CAD/bbl
2009	0.4	0.8798	72.27	61.78	62.50	66.32	60.18	58.66	54.46	63.84	62.96	N/A	38.03	48.17	68.17	
2010	1.8	0.9711	92.68	79.52	80.25	77.87	68.45	67.27	60.76	76.58	73.76	N/A	46.84	65.91	84.27	
2011	2.9	1.0115	108.94	95.12	110.86	95.53	78.59	77.14	67.64	92.35	88.33	N/A	53.66	74.42	104.17	
2012	1.5	1.0009	104.84	94.21	111.71	86.60	74.42	73.13	63.64	84.51	81.37	N/A	29.04	66.70	100.84	
2013	0.9	0.9711	107.39	97.96	108.77	93.47	76.33	75.01	65.11	92.30	88.13	N/A	38.88	68.81	104.70	
2014	1.9	0.9055	100.99	93.00	99.71	94.58	81.08	81.03	73.73	92.68	89.67	N/A	45.53	69.20	102.44	
2015	1.1	0.7831	51.97	48.78	53.60	57.20	45.50	44.82	39.25	55.49	51.87	N/A	6.49	36.75	60.42	
2016	1.4	0.7551	45.69	43.38	45.05	53.08	39.83	38.96	32.78	51.46	48.84	N/A	13.40	34.49	56.25	
2017	1.6	0.7712	52.91	50.94	54.80	62.84	50.91	50.53	44.63	62.09	59.96	N/A	28.57	44.46	66.86	
2018	2.2	0.7719	66.21	64.74	71.55	70.92	49.92	51.27	41.58	74.58	71.25	N/A	26.91	32.96	80.23	
2019 Q1	0.0	0.750	52.50	52.50	59.50	56.67	41.17	40.67	29.67	55.53	52.70	5.52	22.67	11.33	60.67	
2019 Q2	0.0	0.750	55.00	55.00	62.00	61.33	45.83	45.33	34.00	60.11	57.04	5.52	24.53	18.40	66.00	
2019 Q3	0.0	0.750	57.50	57.50	64.50	64.67	50.50	50.00	41.27	63.37	60.14	5.52	25.87	24.25	69.33	
2019 Q4	0.0	0.750	60.00	60.00	67.00	70.67	55.17	54.67	45.67	69.25	65.72	6.20	28.27	31.80	74.67	
2019 Full Year	0.0	0.750	56.25	56.25	63.25	63.33	48.17	47.67	37.65	62.07	58.90	5.69	25.33	21.45	67.67	
2020	2.0	0.770	61.76	63.00	68.50	75.32	58.94	58.44	51.21	73.82	70.05	7.20	32.39	37.66	79.22	
2021	2.0	0.790	64.40	67.00	71.25	79.75	66.32	65.82	59.51	78.15	74.16	8.51	36.68	47.85	83.54	
2022	2.0	0.810	65.96	70.00	73.00	81.48	68.40	67.90	61.62	79.85	75.78	9.27	39.11	57.04	85.49	
2023	2.0	0.820	66.98	72.50	75.50	83.54	70.62	70.12	63.82	81.87	77.69	10.12	41.77	58.48	87.80	
2024	2.0	0.825	67.93	75.00	78.00	86.06	73.23	72.73	66.45	84.34	80.04	10.42	43.03	60.24	90.30	
2025	2.0	0.825	68.82	77.50	80.50	89.09	76.26	75.76	69.48	87.31	82.85	10.78	44.55	62.36	93.33	
2026	2.0	0.825	70.00	80.41	83.41	92.62	79.78	79.28	73.01	90.77	86.13	11.03	46.31	64.83	96.86	
2027	2.0	0.825	70.00	82.02	85.02	94.57	81.74	81.24	74.96	92.68	87.95	11.27	47.28	66.20	98.81	
2028	2.0	0.825	70.00	83.66	86.66	96.56	83.72	83.22	76.95	94.63	89.80	11.48	48.28	67.59	100.80	
2029+	2.0	0.825	70.00	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	

Historical futures contract price is an average of the daily settlement price of the near month contract over the calendar month.

Table 2
GLJ Petroleum Consultants
Natural Gas and Sulphur
Price Forecast
Effective January 1, 2019

Year	NYMEX Henry Hub		Midwest Price at Chicago	AECO/NIT Spot	Alliance Transfer Pool Spot	Alberta Plant Gate			Saskatchewan Plant Gate Plant Gate			British Columbia		Sulphur FOB Vancouver	Alberta Sulphur at Plant Gate	
	Near Month Contract		Then	Then	Then	Spot			SaskEnergy CAD/MMBtu	Spot CAD/MMBtu	Sumas Spot USD/MMBtu	Westcoast	Spot	USD/lt	CAD/lt	
	Constant	Then	Current	Current	Current	Constant	Current	ARP				Station 2	Plant Gate			
	2019 \$ USD/MMBtu	Current USD/MMBtu	Current USD/MMBtu	Current CAD/MMBtu	Current CAD/MMBtu	2019 \$ CAD/MMBtu	Current CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu			
2009	4.87	4.16	4.05	3.99	N/A	4.44	3.79	3.85	3.87	3.83	3.80	3.90	3.70	57.06	24.57	
2010	5.12	4.40	4.53	4.01	N/A	4.41	3.78	3.77	3.96	3.85	4.12	3.78	3.63	88.94	48.26	
2011	4.62	4.03	4.21	3.62	N/A	3.92	3.42	3.46	3.57	3.58	3.90	3.33	3.18	217.16	171.93	
2012	3.14	2.83	2.92	2.40	N/A	2.46	2.21	2.25	2.31	2.26	2.70	2.30	2.12	201.03	157.91	
2013	4.08	3.73	3.81	3.18	N/A	3.24	2.96	2.98	3.09	3.10	3.71	3.14	2.94	105.74	74.02	
2014	4.64	4.28	5.36	4.50	N/A	4.62	4.26	4.22	4.39	4.42	4.37	4.29	4.07	145.41	110.41	
2015	2.80	2.63	2.85	2.70	N/A	2.63	2.47	2.56	2.71	2.61	2.31	1.80	1.59	139.61	128.14	
2016	2.69	2.55	2.48	2.18	2.36	2.05	1.94	1.93	2.18	2.09	2.18	1.77	1.60	82.96	60.06	
2017	3.14	3.02	3.04	2.19	2.16	2.01	1.93	2.22	2.41	2.29	2.62	1.56	1.34	105.62	61.12	
2018	3.14	3.07	2.78	1.54	2.25	1.36	1.33	1.34	1.60	2.72	2.26	1.24	1.67	135.68	86.45	
2019 Q1	3.00	3.00	2.90	1.80	2.80	1.59	1.59	1.59	1.69	1.90	3.00	1.40	1.19	130.00	123.33	
2019 Q2	3.00	3.00	2.90	1.80	2.55	1.59	1.59	1.59	1.69	1.90	2.70	1.50	1.29	130.00	123.33	
2019 Q3	3.00	3.00	2.90	1.80	2.30	1.59	1.59	1.59	1.69	1.90	2.60	1.50	1.29	130.00	123.33	
2019 Q4	3.00	3.00	2.90	2.00	2.25	1.78	1.78	1.78	1.88	2.10	2.60	1.70	1.49	130.00	123.33	
2019 Full Year	3.00	3.00	2.90	1.85	2.47	1.64	1.64	1.64	1.74	1.95	2.73	1.52	1.32	130.00	123.33	
2020	3.09	3.15	3.05	2.29	2.29	2.03	2.07	2.07	2.17	2.19	2.70	2.04	1.83	132.60	122.21	
2021	3.22	3.35	3.25	2.67	2.67	2.35	2.44	2.44	2.54	2.57	2.90	2.42	2.21	135.25	121.20	
2022	3.30	3.50	3.40	2.90	2.90	2.51	2.66	2.66	2.76	2.80	3.05	2.65	2.43	137.96	120.32	
2023	3.35	3.63	3.53	3.14	3.14	2.69	2.91	2.91	3.01	3.04	3.18	2.94	2.73	140.72	121.61	
2024	3.35	3.70	3.60	3.23	3.23	2.71	2.99	2.99	3.09	3.13	3.25	3.13	2.91	143.53	123.98	
2025	3.35	3.77	3.67	3.34	3.34	2.75	3.10	3.10	3.20	3.24	3.32	3.24	3.02	146.40	127.45	
2026	3.35	3.85	3.75	3.41	3.41	2.76	3.17	3.17	3.27	3.31	3.40	3.31	3.09	149.32	130.99	
2027	3.35	3.93	3.83	3.48	3.48	2.76	3.24	3.24	3.34	3.38	3.48	3.38	3.16	152.31	134.62	
2028	3.35	4.00	3.90	3.54	3.54	2.76	3.30	3.30	3.40	3.44	3.55	3.44	3.22	152.31	134.62	
2029+	3.35	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	2.76	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr

Unless otherwise stated, the gas price reference point is the receipt point on the applicable provincial gas transmission system known as the plant gate.
The plant gate price represents the price before raw gathering and processing charges are deducted.

Table 3
 GLJ Petroleum Consultants
International
Price Forecast
 Effective January 1, 2019

Year	Inflation %	Exchange Rates			NYMEX WTI Near Month Contract Crude Oil at Cushing, OK		Light Louisiana Sweet Crude Oil		Maya Crude Oil		Brent Blend Crude Oil FOB North Sea		NYMEX Henry Hub Near Month Contract		National Balancing Point (UK)	
		CADUSD Exchange Rate	GBPUSD Exchange Rate	EURUSD Exchange Rate	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current
		USD/CAD	USD/GBP	USD/EUR	USD/bbl	CAD/bbl	USD/bbl	CAD/bbl	USD/bbl	CAD/bbl	USD/bbl	CAD/bbl	USD/MMBtu	CAD/MMBtu	USD/MMBtu	CAD/MMBtu
2009	0.4	0.8798	1.5649	1.3930	61.78	69.57	64.31	72.52	56.46	63.55	62.50	70.47	4.16	4.75	4.95	5.68
2010	1.8	0.9711	1.5465	1.3274	79.52	81.85	82.78	85.20	70.29	72.35	80.25	82.58	4.40	4.53	6.39	6.58
2011	2.9	1.0115	1.6038	1.3920	95.12	94.02	112.33	111.03	98.60	97.52	110.86	109.57	4.03	3.98	9.35	9.25
2012	1.5	1.0009	1.5854	1.2861	94.21	94.11	111.77	111.62	99.60	99.50	111.71	111.57	2.83	2.82	9.38	9.37
2013	0.9	0.9711	1.5645	1.3285	97.96	100.95	106.19	109.32	97.26	100.13	108.77	112.04	3.73	3.84	10.50	10.82
2014	1.9	0.9055	1.6472	1.3288	93.00	102.50	94.24	103.88	85.79	94.53	99.71	109.89	4.28	4.72	8.25	9.12
2015	1.1	0.7831	1.5283	1.1097	48.78	62.12	49.43	62.97	44.02	55.99	53.60	68.23	2.63	3.36	6.52	8.31
2016	1.4	0.7551	1.3550	1.1066	43.38	57.33	45.08	59.58	36.40	48.09	45.05	59.54	2.55	3.38	4.66	6.18
2017	1.6	0.7712	1.2890	1.1297	50.94	66.09	54.06	70.09	46.95	60.85	54.80	71.06	3.02	3.92	5.88	7.61
2018	2.2	0.7719	1.3357	1.1816	64.74	83.85	69.76	90.38	62.44	80.96	71.55	92.71	3.07	3.98	7.87	10.21
2019 Q1	0.0	0.750	1.275	1.140	52.50	70.00	58.00	77.33	51.77	69.02	59.50	79.33	3.00	4.00	8.10	10.80
2019 Q2	0.0	0.750	1.275	1.140	55.00	73.33	60.50	80.67	53.94	71.92	62.00	82.67	3.00	4.00	8.10	10.80
2019 Q3	0.0	0.750	1.275	1.140	57.50	76.67	63.00	84.00	56.12	74.82	64.50	86.00	3.00	4.00	8.10	10.80
2019 Q4	0.0	0.750	1.275	1.140	60.00	80.00	65.50	87.33	58.29	77.72	67.00	89.33	3.00	4.00	8.10	10.80
2019 Full Year	0.0	0.750	1.275	1.140	56.25	75.00	61.75	82.33	55.03	73.37	63.25	84.33	3.00	4.00	8.10	10.80
2020	2.0	0.770	1.300	1.150	63.00	81.82	67.00	87.01	59.60	77.40	68.50	88.96	3.15	4.09	7.90	10.26
2021	2.0	0.790	1.300	1.150	67.00	84.81	71.00	89.87	61.99	78.47	71.25	90.19	3.35	4.24	7.75	9.81
2022	2.0	0.810	1.300	1.150	70.00	86.42	74.00	91.36	63.51	78.41	73.00	90.12	3.50	4.32	7.60	9.38
2023	2.0	0.820	1.300	1.150	72.50	88.41	76.50	93.29	65.68	80.10	75.50	92.07	3.63	4.43	7.60	9.27
2024	2.0	0.825	1.300	1.150	75.00	90.91	79.00	95.76	67.86	82.25	78.00	94.55	3.70	4.48	7.60	9.21
2025	2.0	0.825	1.300	1.150	77.50	93.94	81.50	98.79	70.03	84.89	80.50	97.58	3.77	4.57	7.60	9.21
2026	2.0	0.825	1.300	1.150	80.41	97.47	84.41	102.32	72.57	87.96	83.41	101.10	3.85	4.67	7.75	9.39
2027	2.0	0.825	1.300	1.150	82.02	99.42	86.02	104.27	73.97	89.66	85.02	103.05	3.93	4.76	7.90	9.58
2028	2.0	0.825	1.300	1.150	83.66	101.41	87.66	106.25	75.39	91.39	86.66	105.04	4.00	4.85	7.90	9.58
2029+	2.0	0.825	1.300	1.150	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr

Historical futures contract price is an average of the daily settlement price of the near month contract over the calendar month.

Table 4
 GLJ Petroleum Consultants
US Liquids and Natural Gas
Price Forecast
 Effective January 1, 2019

Year	US Natural Gas Liquids (Then Current Dollars)					US Natural Gas (Then Current Dollars)				
	Conway					Mont Belvieu				
	80%-20% E/P Mix USD/bbl	Propane USD/bbl	Butane USD/bbl	Condensate USD/bbl	Ethane USD/bbl	Propane USD/bbl	Butane USD/bbl	Condensate USD/bbl	Rockies Natural Gas USD/MMBtu	Algonquin City-Gates Natural Gas USD/MMBtu
2019 Q1	7.50	27.30	34.13	48.83	10.50	31.50	36.75	50.92	2.70	4.40
2019 Q2	7.50	28.60	35.75	51.15	10.50	33.00	38.50	53.35	2.70	4.40
2019 Q3	7.50	29.90	37.38	53.48	10.50	34.50	40.25	55.78	2.70	4.40
2019 Q4	7.50	31.20	39.00	55.80	10.50	36.00	42.00	58.20	2.70	4.40
2019 Full Year	7.50	29.25	36.56	52.31	10.50	33.75	39.38	54.56	2.70	4.40
2020	7.88	32.76	40.95	58.59	11.03	37.80	44.10	61.11	2.85	4.55
2021	8.38	34.84	43.55	62.31	11.72	40.20	46.90	64.99	3.05	4.55
2022	8.75	36.40	45.50	65.10	12.25	42.00	49.00	67.90	3.20	4.50
2023	9.08	37.70	47.13	67.42	12.71	43.50	50.75	70.33	3.33	4.63
2024	9.25	39.00	48.75	69.75	12.95	45.00	52.50	72.75	3.40	4.70
2025	9.42	40.30	50.38	72.08	13.19	46.50	54.25	75.17	3.47	4.77
2026	9.63	41.81	52.27	74.78	13.47	48.25	56.29	78.00	3.55	4.85
2027	9.83	42.65	53.31	76.28	13.75	49.21	57.41	79.56	3.63	4.93
2028	10.00	43.50	54.38	77.80	14.00	50.20	58.56	81.15	3.70	5.00
2029	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr

Butane prices at Conway and Mont Belvieu represent a blended price of two thirds normal butane and one third iso-butane.

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