

Table 1
 GLJ Petroleum Consultants
Domestic Crude Oil and Natural Gas Liquids
Price Forecast
 Effective January 1, 2020

Year	Inflation %	CADUSD Exchange Rate USD/CAD	WTI Crude Oil (39.6 API, 0.24%S) Cushing, OK		Brent Spot Crude Oil (38.3 API, 0.37%S) UK	MSW, Light Crude Oil (40 API, 0.3%S) at Edmonton	Bow River Crude Oil (21.4 API, 2.8%S) at Hardisty	WCS Crude Oil (20.9 API, 3.5%S) at Hardisty	Heavy Crude Oil (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) at Edmonton				
			Constant 2020 \$ 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	Ethane CAD/bbl	Propane CAD/bbl	Butane CAD/bbl	Condensate CAD/bbl
2010	1.8	0.9711	94.46	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	111.04	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	106.84	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	109.45	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	102.92	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	52.97	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	46.58	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	53.93	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	2.3	0.7719	67.46	64.73	71.55	69.22	49.03	49.52	39.80	72.94	69.60	N/A	26.79	32.96	78.60	
2019 (est)	1.9	0.7538	58.09	57.01	63.95	69.15	59.26	58.75	54.09	69.64	67.96	N/A	17.10	24.07	69.98	
2020 Q1	0.0	0.760	61.00	61.00	67.00	71.71	55.66	55.26	46.17	70.99	69.56	7.02	28.68	48.76	82.24	
2020 Q2	0.0	0.760	61.00	61.00	67.00	71.71	58.29	57.89	51.37	70.99	69.56	5.82	28.68	48.76	76.32	
2020 Q3	0.0	0.760	61.00	61.00	67.00	71.71	59.61	59.21	53.08	70.99	69.56	5.82	28.68	48.76	76.32	
2020 Q4	0.0	0.760	61.00	61.00	67.00	71.71	59.61	59.21	53.08	70.99	69.56	7.02	28.68	48.76	76.32	
2020 full	0.0	0.760	61.00	61.00	67.00	71.71	58.29	57.89	50.92	70.99	69.56	6.42	28.68	48.76	77.80	
2021	2.0	0.770	61.76	63.00	68.00	74.03	61.44	61.04	54.58	73.29	71.81	7.36	31.09	51.82	79.22	
2022	2.0	0.780	63.44	66.00	71.00	76.92	64.50	64.10	57.33	76.15	74.62	8.05	34.62	54.62	83.33	
2023	2.0	0.780	64.08	68.00	73.00	80.13	67.07	66.67	59.71	79.33	77.72	8.39	36.06	56.89	86.54	
2024	2.0	0.780	64.67	70.00	75.00	82.69	69.63	69.23	62.27	81.87	80.21	8.73	37.21	58.71	89.10	
2025	2.0	0.780	65.21	72.00	76.00	85.26	72.19	71.79	64.83	84.40	82.70	9.08	38.37	60.53	91.67	
2026	2.0	0.780	65.71	74.00	78.00	87.82	74.76	74.36	67.40	86.94	85.19	9.29	39.52	62.35	94.23	
2027	2.0	0.780	66.00	75.81	79.81	90.14	77.08	76.68	69.72	89.24	87.44	9.48	40.56	64.00	96.55	
2028	2.0	0.780	66.00	77.33	81.33	92.09	79.03	78.63	71.67	91.17	89.33	9.69	41.44	65.38	98.50	
2029	2.0	0.780	66.00	78.88	82.88	94.08	81.02	80.62	73.65	93.14	91.25	9.91	42.33	66.79	100.49	
2030+	2.0	0.780	66.00	+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
Domestic Natural Gas
Price Forecast
Effective January 1, 2020

Year	Henry Hub		Alberta				Saskatchewan			British Columbia		Huntingdon/ Sumas Spot	Dawn @ Ontario
	Constant	Then	AECO/NIT	Plant Gate		Plant Gate		Westcoast	Spot				
	2020 \$	Current	Spot	Spot	ARP	Empress	SaskEnergy	Spot	Station 2	Plant Gate			
	USD/MMBtu	USD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	CAD/MMBtu	USD/MMBtu	USD/MMBtu	
2010	5.22	4.40	4.01	3.78	3.77	3.91	3.96	3.85	3.78	3.63	4.12	4.76	
2011	4.70	4.03	3.62	3.42	3.46	3.41	3.57	3.58	3.33	3.18	3.90	4.39	
2012	3.20	2.83	2.40	2.21	2.25	2.30	2.31	2.26	2.30	2.12	2.70	3.04	
2013	4.16	3.73	3.18	2.96	2.98	3.14	3.09	3.10	3.14	2.94	3.71	4.07	
2014	4.73	4.28	4.50	4.26	4.22	4.72	4.39	4.42	4.29	4.07	4.37	5.98	
2015	2.86	2.63	2.70	2.47	2.56	2.89	2.71	2.61	1.80	1.59	2.31	2.99	
2016	2.74	2.55	2.18	1.94	1.93	2.36	2.18	2.09	1.77	1.60	2.18	2.56	
2017	3.20	3.02	2.19	1.93	2.22	2.60	2.41	2.29	1.56	1.34	2.62	3.05	
2018	3.20	3.07	1.54	1.33	1.36	3.06	1.68	2.71	1.24	1.03	3.60	3.09	
2019 (est)	2.58	2.53	1.81	1.57	1.36	2.06	1.70	2.15	1.01	0.76	4.71	2.49	
2020 Q1	2.30	2.30	2.25	2.02	2.02	2.55	2.12	2.25	2.05	1.76	1.85	2.27	
2020 Q2	2.40	2.40	1.90	1.67	1.67	2.20	1.77	1.90	1.70	1.41	1.95	2.37	
2020 Q3	2.50	2.50	1.90	1.67	1.67	2.20	1.77	1.90	1.70	1.41	2.05	2.47	
2020 Q4	2.50	2.50	2.25	2.02	2.02	2.55	2.12	2.25	2.05	1.76	2.05	2.47	
2020 full	2.42	2.42	2.08	1.85	1.85	2.38	1.95	2.08	1.88	1.59	1.97	2.40	
2021	2.70	2.75	2.35	2.12	2.12	2.65	2.22	2.25	2.20	1.91	2.30	2.72	
2022	2.79	2.90	2.55	2.31	2.31	2.85	2.41	2.45	2.40	2.11	2.45	2.87	
2023	2.83	3.00	2.65	2.41	2.41	2.95	2.51	2.55	2.55	2.26	2.55	2.97	
2024	2.86	3.10	2.75	2.51	2.51	3.05	2.61	2.65	2.65	2.36	2.65	3.07	
2025	2.90	3.20	2.85	2.61	2.61	3.15	2.71	2.75	2.85	2.56	2.75	3.17	
2026	2.90	3.27	2.91	2.67	2.67	3.21	2.77	2.81	2.91	2.62	2.82	3.24	
2027	2.90	3.33	2.97	2.72	2.72	3.27	2.82	2.87	2.97	2.67	2.88	3.30	
2028	2.90	3.40	3.03	2.79	2.79	3.33	2.89	2.93	3.03	2.73	2.95	3.37	
2029	2.90	3.47	3.09	2.85	2.85	3.39	2.95	2.99	3.09	2.80	3.02	3.44	
2030+	2.90	+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	

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 Crude Oil
Price Forecast
 Effective January 1, 2020

	United States		Europe	Latin America		Mideast Gulf and Mediterranean					Africa	Asia-Pacific		Russia / C.I.S.		
	Cushing, OK	Louisiana	UK	Mexico	Colombia	Oman	OPEC	Abu Dhabi	Iran	Algeria	Iraq	Nigeria	Indonesia	Malaysia	Russia	Russia
	WTI	LLS*	Brent	Maya	Vasconia	DME	Basket	Murban	Iran Heavy	Saharan	Basrah Light	Bonny Light	Minas	Tapis	ESPO**	Urals
	39.6 API	35.6 API	38.3 API	21.8 API	24.5 API	34 API	32.7 API	40.2 API	30.2 API	45.3 API	30.5 API	33.4 API	35.3 API	45.2 API	34.8 API	31.7 API
	0.24% S	0.37% S	0.37% S	3.33% S	0.95% S	2.00% S	1.77% S	0.79% S	1.77% S	0.09% S	2.90% S	0.16% S	0.09% S	0.03% S	0.62% S	1.35% S
Year	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl	USD/bbl
2020	61.00	67.00	67.00	60.30	64.00	67.75	67.25	69.00	59.50	68.50	70.50	68.00	66.25	71.00	70.00	64.00
2021	63.00	68.00	68.00	61.20	64.00	68.25	67.75	70.00	60.50	69.50	71.50	69.00	64.00	72.00	71.00	65.00
2022	66.00	71.00	71.00	63.90	66.00	71.25	70.75	73.00	63.50	72.50	74.50	72.00	67.00	75.00	74.00	68.00
2023	68.00	73.00	73.00	65.70	68.00	73.25	72.75	75.00	65.50	74.50	76.50	74.00	69.00	77.00	76.00	70.00
2024	70.00	75.00	75.00	67.50	70.00	75.25	74.75	77.00	67.50	76.50	78.50	76.00	71.00	79.00	78.00	72.00
2025	72.00	77.00	76.00	68.40	71.00	76.25	75.75	78.00	68.50	77.50	79.50	77.00	72.00	80.00	79.00	73.00
2026	74.00	79.00	78.00	70.20	73.00	78.25	77.75	80.00	70.50	79.50	81.50	79.00	74.00	82.00	81.00	75.00
2027	75.81	80.81	79.81	71.83	74.81	80.06	79.56	81.81	72.31	81.31	83.31	80.81	75.81	83.81	82.81	76.81
2028	77.33	82.33	81.33	73.20	76.33	81.58	81.08	83.33	73.83	82.83	84.83	82.33	77.33	85.33	84.33	78.33
2029	78.88	83.88	82.88	74.59	77.88	83.13	82.63	84.88	75.38	84.38	86.38	83.88	78.88	86.88	85.88	79.88
2030+	+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	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr

* LLS - Light Louisiana Sweet

** ESPO - Eastern Siberian Pacific Ocean Blend

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
International Natural Gas & LNG
Price Forecast
 Effective January 1, 2020

	US Natural Gas						European Natural Gas			Asia-Pacific	India
Year	Henry Hub Natural Gas USD/MMBtu	Midwest @ Chicago USD/MMBtu	Rockies Natural Gas USD/MMBtu	Algonquin Natural Gas USD/MMBtu	Malin Natural Gas USD/MMBtu	Permian Natural Gas USD/MMBtu	NBP Natural Gas USD/MMBtu	TTF Natural Gas USD/MMBtu	Russian Natural Gas USD/MMBtu	JKM Natural Gas USD/MMBtu	India Domestic Natural Gas USD/MMBtu
2020	2.42	2.33	2.13	3.83	2.22	1.17	5.40	5.35	5.30	5.80	3.23
2021	2.75	2.65	2.45	3.95	2.55	1.75	6.00	5.95	5.90	6.40	3.20
2022	2.90	2.80	2.60	3.90	2.70	2.40	6.50	6.45	6.40	6.90	3.25
2023	3.00	2.90	2.70	4.00	2.80	2.50	7.00	6.95	6.90	7.40	3.30
2024	3.10	3.00	2.80	4.10	2.90	2.60	7.25	7.20	7.15	7.65	3.35
2025	3.20	3.10	2.90	4.20	3.00	2.70	7.50	7.45	7.40	7.90	3.40
2026	3.27	3.17	2.97	4.27	3.07	2.77	7.70	7.65	7.60	8.10	3.45
2027	3.33	3.23	3.03	4.33	3.13	2.83	7.80	7.75	7.70	8.20	3.50
2028	3.40	3.30	3.10	4.40	3.20	2.90	7.90	7.85	7.80	8.30	3.55
2029	3.47	3.37	3.17	4.47	3.27	2.97	8.00	7.95	7.90	8.40	3.60
2030+	+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

NBP - National Balancing Point LNG

JKM - Japanese Korean Marker LNG

TTF - Title Transfer Facility LNG

Russian Gas - Average European import border price

Table 5
 GLJ Petroleum Consultants
Natural Gas Liquids
Price Forecast
 Effective January 1, 2020

Year	Canadian Natural Gas Liquids					US Natural Gas Liquids							Asia/Europe/Other	
	Edmonton			Condensate CAD/bbl	E/P Mix* USD/bbl	Conway			Mont Belvieu			Far East Index		
	Ethane CAD/bbl	Propane CAD/bbl	Butane CAD/bbl			Propane USD/bbl	Butane USD/bbl	Condensate USD/bbl	Ethane USD/bbl	Propane USD/bbl	Butane USD/bbl	Condensate USD/bbl	Propane USD/bbl	Butane USD/bbl
2020	6.42	28.68	48.76	77.80	4.85	24.40	31.11	54.90	9.09	30.50	33.55	56.73	36.85	43.55
2021	7.36	31.09	51.82	79.22	5.50	25.20	32.13	56.70	10.31	31.50	34.65	58.59	37.40	44.20
2022	8.05	34.62	54.62	83.33	5.80	26.40	33.66	59.40	10.88	33.00	36.30	61.38	39.05	46.15
2023	8.39	36.06	56.89	86.54	6.00	27.20	34.68	61.20	11.25	34.00	37.40	63.24	40.15	47.45
2024	8.73	37.21	58.71	89.10	6.20	28.00	35.70	63.00	11.63	35.00	38.50	65.10	41.25	48.75
2025	9.08	38.37	60.53	91.67	6.40	28.80	36.72	64.80	12.00	36.00	39.60	66.96	41.80	49.40
2026	9.29	39.52	62.35	94.23	6.54	29.60	37.74	66.60	12.26	37.00	40.70	68.82	42.90	50.70
2027	9.48	40.56	64.00	96.55	6.66	30.32	38.66	68.23	12.49	37.90	41.70	70.50	43.90	51.88
2028	9.69	41.44	65.38	98.50	6.80	30.93	39.44	69.60	12.75	38.67	42.53	71.92	44.73	52.86
2029	9.91	42.33	66.79	100.49	6.94	31.55	40.23	70.99	13.01	39.44	43.38	73.36	45.58	53.87
2030+	+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	+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.

*Conway E/P mix is blended at 80%-20%

Table 6
 GLJ Petroleum Consultants
International Exchange Rates
Forecast
 Effective January 1, 2020

Year	Inflation %	Canada CADUSD Exchange Rate CAD/USD	UK GBPUSD Exchange Rate GBP/USD	Euro EURUSD Exchange Rate EUR/USD	Australia AUDUSD Exchange Rate AUD/USD	China USDCNY Exchange Rate USD/CNY	Japan USDJPY Exchange Rate USD/JPY
2020	0.0	0.760	1.300	1.120	0.690	7.00	110.00
2021	2.0	0.770	1.300	1.135	0.720	6.75	110.00
2022	2.0	0.780	1.300	1.150	0.750	6.50	110.00
2023	2.0	0.780	1.300	1.150	0.780	6.50	110.00
2024	2.0	0.780	1.300	1.150	0.800	6.50	110.00
2025	2.0	0.780	1.300	1.150	0.800	6.50	110.00
2026	2.0	0.780	1.300	1.150	0.800	6.50	110.00
2027	2.0	0.780	1.300	1.150	0.800	6.50	110.00
2028	2.0	0.780	1.300	1.150	0.800	6.50	110.00
2029	2.0	0.780	1.300	1.150	0.800	6.50	110.00
2030+	2.0	0.780	1.300	1.150	0.800	6.50	110.00

GLJ Forecasts a variety of other exchange rates that can be obtained upon request.

Table 7
 GLJ Petroleum Consultants
Power and Refined Products
Forecast
 Effective January 1, 2020

	Electricity	Canadian Fuels			US Fuels		
Year	Alberta AESO CAD/MWh	Diesel ULS* CAD/Ltr	Gasoline Regular CAD/Ltr	Heating Oil CAD/Ltr	Diesel ULS* USD/Gallon	Gasoline Regular USD/Gallon	Heating Oil USD/Gallon
2020	51.89	1.31	1.30	1.19	2.04	1.83	2.01
2021	58.75	1.35	1.34	1.23	2.11	1.89	2.08
2022	63.76	1.40	1.39	1.28	2.21	1.98	2.18
2023	66.25	1.46	1.45	1.33	2.28	2.04	2.24
2024	68.76	1.51	1.50	1.37	2.34	2.10	2.31
2025	71.28	1.55	1.54	1.42	2.41	2.16	2.38
2026	72.84	1.60	1.59	1.46	2.48	2.22	2.44
2027	74.18	1.64	1.63	1.50	2.54	2.27	2.50
2028	75.74	1.68	1.67	1.53	2.59	2.32	2.55
2029+	77.30	1.71	1.70	1.56	2.64	2.37	2.60
2030+	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr	+2.0%/yr

Canadian fuel prices are national average prices

US fuel prices are an average of Gulf Coast and New York Harbor

* ULS - Ultra Low Sulphur