



**Table 1**  
 GLJ Ltd.  
**Domestic Crude Oil and Natural Gas Liquids**  
**Price Forecast**  
 Effective January 1, 2023

Year	Inflation %	CAD/USD Exchange Rate	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 Proxy (12 API) at Hardisty	Light Sour Crude Oil (38 API, 1.1%S) at Cromer	Medium Crude Oil (29 API, 2.0%S) at Cromer	Alberta Natural Gas Liquids (Then Current Dollars) at Edmonton				
			Constant 2023 \$	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Then Current	Ethane	Propane	Butane	Condensate
			USD/bbl	USD/bbl	USD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl	CAD/bbl
2013	0.9	0.971	121.90	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	0.906	114.47	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	0.783	58.94	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	0.755	51.96	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	0.771	60.05	50.94	54.80	62.84	50.91	50.53	44.74	62.09	59.96	N/A	28.57	44.46	66.86	
2018	2.3	0.772	75.10	64.73	71.55	69.22	49.03	49.52	39.42	72.94	69.60	N/A	26.79	32.96	78.60	
2019	1.9	0.754	64.70	57.02	64.24	69.16	59.26	58.75	54.11	69.65	67.97	N/A	16.98	24.29	70.19	
2020	0.7	0.746	43.88	39.44	43.28	45.28	36.21	35.56	30.45	45.45	44.01	N/A	16.25	22.02	49.52	
2021	3.4	0.798	75.18	67.92	70.78	79.71	69.24	68.74	62.14	80.10	77.58	N/A	43.25	51.66	85.47	
2022 (est)	6.9	0.769	100.74	94.23	98.89	119.60	98.16	97.07	89.65	118.57	114.74	N/A	50.08	61.62	121.60	
2023 Q1	0.0	0.735	78.00	78.00	82.00	102.04	68.43	68.03	56.41	103.06	99.49	14.96	40.82	58.16	103.40	
2023 Q2	0.0	0.735	75.00	75.00	80.00	97.96	65.71	65.31	54.10	98.94	95.51	14.17	39.18	55.84	99.32	
2023 Q3	0.0	0.735	74.00	74.00	79.00	96.60	65.71	65.31	54.51	97.56	94.18	13.38	38.64	55.06	97.96	
2023 Q4	0.0	0.735	73.00	73.00	79.00	95.24	64.35	63.95	53.15	96.19	92.86	13.69	38.10	54.29	96.60	
2023 Full Year	0.0	0.735	75.00	75.00	80.00	97.96	66.05	65.65	54.54	98.94	95.51	14.05	39.18	55.84	99.32	
2024	2.0	0.745	73.53	75.00	80.50	95.30	68.86	68.46	58.19	96.26	92.92	15.46	40.50	57.18	99.33	
2025	2.0	0.755	72.50	75.43	81.50	94.50	73.82	73.42	64.87	95.45	92.14	14.42	42.53	56.70	98.58	
2026	2.0	0.765	72.50	76.94	82.00	95.14	80.06	79.66	71.99	96.09	92.76	14.50	42.81	57.08	101.88	
2027	2.0	0.775	72.50	78.48	82.53	95.79	82.31	81.91	74.71	96.75	93.39	14.62	43.10	57.47	102.58	
2028	2.0	0.775	72.50	80.05	84.14	97.70	85.43	85.03	78.15	98.68	95.26	14.93	43.97	58.62	104.63	
2029	2.0	0.775	72.50	81.65	85.85	99.66	87.23	86.83	79.86	100.65	97.17	15.25	44.85	59.79	106.72	
2030	2.0	0.775	72.50	83.28	87.58	101.65	88.95	88.55	81.47	102.66	99.10	15.56	45.74	60.99	108.85	
2031	2.0	0.775	72.50	84.95	89.32	103.68	90.74	90.34	83.13	104.72	101.09	15.88	46.66	62.21	111.03	
2032	2.0	0.775	72.50	86.65	91.11	104.31	92.93	92.53	85.31	105.35	101.70	16.23	46.94	62.59	113.25	
2033+	2.0	0.775	72.50	+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 Ltd.  
**Domestic Natural Gas**  
**Price Forecast**  
Effective January 1, 2023

Year	Henry Hub		Alberta			Saskatchewan			British Columbia		Huntingdon/ Sumas Spot	Dawn @ Ontario
	Constant 2023 \$ USD/MMBtu	Then Current USD/MMBtu	AECO/NIT Spot CAD/MMBtu	Plant Gate Spot CAD/MMBtu	ARP CAD/MMBtu	Empress CAD/MMBtu	Plant Gate SaskEnergy CAD/MMBtu	Spot CAD/MMBtu	Westcoast Station 2 CAD/MMBtu	Spot Plant Gate CAD/MMBtu		
2013	4.64	3.73	3.18	2.96	2.98	3.14	3.09	3.10	3.14	2.94	3.71	4.07
2014	5.26	4.28	4.50	4.26	4.22	4.72	4.39	4.42	4.29	4.07	4.37	5.98
2015	3.18	2.63	2.70	2.47	2.56	2.89	2.71	2.61	1.80	1.59	2.31	2.99
2016	3.06	2.55	2.18	1.94	1.93	2.36	2.18	2.09	1.77	1.60	2.18	2.56
2017	3.56	3.02	2.19	1.93	2.22	2.60	2.41	2.29	1.56	1.34	2.62	3.05
2018	3.56	3.07	1.54	1.33	1.36	3.06	1.68	2.71	1.24	1.03	3.60	3.09
2019	2.87	2.53	1.81	1.59	1.48	2.52	1.73	2.20	1.02	0.75	4.70	2.44
2020	2.38	2.13	2.26	2.03	2.00	2.24	2.45	2.05	2.21	1.94	2.16	1.88
2021	4.12	3.71	3.65	3.37	3.27	3.93	3.94	3.70	3.35	3.05	3.94	3.63
2022 (est)	6.97	6.51	5.38	5.06	5.13	6.45	5.78	6.25	4.57	4.21	8.15	6.07
2023 Q1	5.00	5.00	4.63	4.30	4.30	4.88	4.80	4.45	4.53	4.09	7.42	4.95
2023 Q2	4.75	4.75	4.39	4.07	4.07	4.64	4.57	4.21	4.29	3.86	5.00	4.70
2023 Q3	4.50	4.50	4.16	3.84	3.84	4.41	4.34	3.98	4.06	3.63	4.40	4.45
2023 Q4	4.60	4.60	4.26	3.93	3.93	4.51	4.43	4.08	4.16	3.72	4.50	4.55
2023 Full Year	4.71	4.71	4.36	4.04	4.04	4.61	4.54	4.18	4.26	3.83	5.33	4.66
2024	4.41	4.50	4.77	4.44	4.44	4.82	4.69	4.59	4.72	4.29	4.40	4.45
2025	4.10	4.27	4.47	4.14	4.14	4.52	4.39	4.29	4.47	4.03	4.17	4.22
2026	4.10	4.35	4.49	4.17	4.17	4.54	4.42	4.31	4.49	4.06	4.25	4.30
2027	4.10	4.44	4.53	4.20	4.20	4.58	4.45	4.35	4.53	4.09	4.34	4.39
2028	4.10	4.53	4.62	4.29	4.29	4.67	4.54	4.44	4.62	4.18	4.43	4.48
2029	4.10	4.62	4.71	4.38	4.38	4.76	4.63	4.53	4.71	4.27	4.52	4.57
2030	4.10	4.71	4.80	4.47	4.47	4.85	4.72	4.62	4.80	4.37	4.61	4.66
2031	4.10	4.80	4.89	4.56	4.56	4.94	4.81	4.71	4.89	4.46	4.70	4.75
2032	4.10	4.90	4.99	4.66	4.66	5.04	4.91	4.81	4.99	4.56	4.80	4.85
2033+	4.10	+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 Ltd.  
**International Crude Oil**  
**Price Forecast**  
Effective January 1, 2023

	United States		Europe	Latin America		Mideast Gulf and Mediterranean						Africa	Asia-Pacific		Russia / C.I.S.	
	Cushing, OK WTI	Louisiana LLS*	UK Brent	Mexico Maya	Colombia Vasconia	Oman DME	OPEC Basket	Abu Dhabi Murban	Iran Iran Heavy	Algeria Saharan	Iraq Basrah Light	Nigeria Bonny Light	Indonesia Minas	Malaysia Tapis	Russia ESPO**	Russia Sokol
	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	34.8 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	0.29% 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
2023	75.00	76.50	80.00	70.00	75.00	77.59	79.20	80.23	75.12	81.00	79.35	79.85	76.00	83.00	65.60	72.00
2024	75.00	76.50	80.50	71.50	75.50	78.00	79.70	80.75	75.50	81.50	79.85	80.25	76.50	83.50	66.01	72.45
2025	75.43	76.93	81.50	72.00	76.50	79.00	80.70	81.75	76.50	82.50	80.85	81.25	77.50	84.50	73.35	77.42
2026	76.94	78.44	82.00	73.00	77.00	79.50	81.20	82.25	77.00	83.00	81.35	81.75	78.00	85.00	81.18	82.82
2027	78.48	79.98	82.53	74.46	78.54	81.09	82.82	83.90	78.54	84.66	82.98	83.39	79.56	86.70	81.70	83.36
2028	80.05	81.55	84.14	75.95	80.11	82.71	83.43	85.57	80.11	86.35	84.64	85.05	81.15	88.43	83.34	85.02
2029	81.65	83.15	85.85	77.47	81.71	84.37	85.10	87.28	81.71	88.08	86.33	86.75	82.77	90.20	84.99	86.71
2030	83.28	84.78	87.58	79.02	83.35	86.05	86.83	89.03	83.35	89.84	88.06	88.49	84.43	92.01	86.70	88.46
2031	84.95	86.45	89.32	80.60	85.01	87.77	88.57	90.81	85.01	91.64	89.82	90.26	86.12	93.85	88.43	90.21
2032	86.65	88.15	91.11	82.21	86.71	89.53	93.62	92.63	86.71	93.47	91.61	92.06	87.84	95.72	90.02	91.84
2033+	+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.

GLJ Forecasts a variety of other benchmarks that may not be presented and can be obtained upon request.



**Table 4**  
 GLJ Ltd.  
**International Natural Gas & LNG**  
**Price Forecast**  
 Effective January 1, 2023

Year	US Natural Gas						European Natural Gas			Asia-Pacific	India
	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
2023	4.71	4.46	5.20	7.90	5.57	4.21	28.00	30.00	26.00	24.00	6.45
2024	4.50	4.35	4.30	6.38	4.35	4.00	24.15	25.15	23.15	23.15	5.69
2025	4.27	4.12	4.07	6.15	4.12	3.77	20.00	20.75	19.00	20.50	5.40
2026	4.35	4.20	4.15	6.23	4.20	3.85	14.00	14.75	13.00	14.50	4.88
2027	4.44	4.29	4.24	6.32	4.29	3.94	10.75	11.50	9.75	11.90	4.63
2028	4.53	4.38	4.33	6.41	4.38	4.03	10.98	11.73	9.98	12.13	4.60
2029	4.62	4.47	4.42	6.50	4.47	4.12	11.20	11.96	10.20	12.36	4.68
2030	4.71	4.56	4.51	6.59	4.56	4.21	11.43	12.20	10.43	12.60	4.87
2031	4.80	4.65	4.60	6.68	4.65	4.30	11.66	12.45	10.66	12.85	5.07
2032	4.90	4.75	4.70	6.78	4.75	4.40	11.89	12.70	10.89	13.10	5.37
2033+	+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 Ltd.  
**Natural Gas Liquids**  
**Price Forecast**  
Effective January 1, 2023

Year	Canadian Natural Gas Liquids					US Natural Gas Liquids							Asia/Europe/Other	
	Edmonton					Conway			Mont Belvieu				Far East Index	
	Ethane CAD/bbl	Propane CAD/bbl	Butane CAD/bbl	Condensate CAD/bbl	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	Propane USD/bbl	Butane USD/bbl
2023	14.05	39.18	55.84	99.32	15.08	41.25	52.50	68.25	16.49	42.75	51.00	69.00	52.00	60.00
2024	15.46	40.50	57.18	99.33	14.40	41.25	52.50	68.25	15.75	42.75	51.00	69.00	48.30	56.35
2025	14.42	42.53	56.70	98.58	13.66	41.49	52.80	68.64	14.94	43.00	51.29	69.40	44.83	52.98
2026	14.50	42.81	57.08	101.88	13.92	42.32	53.86	70.02	15.22	43.86	52.32	70.78	45.10	53.30
2027	14.62	43.10	57.47	102.58	14.21	43.16	54.94	71.42	15.54	44.73	53.37	72.20	45.39	53.64
2028	14.93	43.97	58.62	104.63	14.50	44.03	56.03	72.85	15.85	45.63	54.43	73.65	46.28	54.69
2029	15.25	44.85	59.79	106.72	14.78	44.91	57.15	74.30	16.17	46.54	55.52	75.12	47.22	55.80
2030	15.56	45.74	60.99	108.85	15.07	45.80	58.30	75.78	16.49	47.47	56.63	76.62	48.17	56.93
2031	15.88	46.66	62.21	111.03	15.36	46.72	59.47	77.30	16.80	48.42	57.77	78.15	49.13	58.06
2032	16.23	46.94	62.59	113.25	15.68	47.66	60.65	78.85	17.15	49.39	58.92	79.72	50.11	59.22
2033+	+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 Ltd.  
**International Exchange Rates**  
**Forecast**  
 Effective January 1, 2023

Year	Inflation %	Canada CADUSD Exchange Rate CAD/USD	UK GBPUSD Exchange Rate GBP/USD	Euro EURUSD Exchange Rate EUR/USD	Norway NOKUSD Exchange Rate USD/NOK	Australia AUDUSD Exchange Rate AUD/USD	China USDCNY Exchange Rate USD/CNY	Japan USDJPY Exchange Rate USD/JPY
2023	0.0	0.735	1.160	1.075	8.600	0.710	6.88	135.00
2024	2.0	0.745	1.200	1.100	8.600	0.720	6.90	140.00
2025	2.0	0.755	1.230	1.150	8.600	0.740	6.90	140.00
2026	2.0	0.765	1.275	1.170	8.600	0.740	6.90	140.00
2027	2.0	0.775	1.300	1.170	8.600	0.740	6.90	140.00
2028	2.0	0.775	1.300	1.170	8.600	0.740	6.90	140.00
2029	2.0	0.775	1.300	1.170	8.600	0.740	6.90	140.00
2030	2.0	0.775	1.300	1.170	8.600	0.740	6.90	140.00
2031	2.0	0.775	1.300	1.170	8.600	0.740	6.90	140.00
2032	2.0	0.775	1.300	1.170	8.600	0.740	6.90	140.00
2033+	2.0	0.775	1.300	1.170	8.600	0.740	6.90	140.00

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



**Table 7**  
 GLJ Ltd.  
**Power and Refined Products**  
**Forecast**  
 Effective January 1, 2023

Year	Electricity	Hydrogen	Canadian Fuels			US Fuels		
	Alberta AESO CAD/MWh	Alberta SMR w/o CCS & Capex CAD/kg	Diesel ULS* CAD/Ltr	Gasoline Regular CAD/Ltr	Heating Oil CAD/Ltr	Diesel ULS* USD/Gallon	Gasoline Regular USD/Gallon	Heating Oil USD/Gallon
2023	152.60	0.74	1.52	1.47	1.42	3.60	3.30	2.63
2024	143.15	0.81	1.48	1.43	1.38	3.60	3.30	2.63
2025	111.70	0.76	1.46	1.42	1.37	3.62	3.32	2.64
2026	103.32	0.76	1.47	1.43	1.38	3.69	3.39	2.69
2027	104.10	0.77	1.48	1.44	1.39	3.77	3.45	2.75
2028	106.21	0.79	1.51	1.47	1.42	3.84	3.52	2.80
2029	108.32	0.80	1.54	1.49	1.45	3.92	3.59	2.86
2030	110.43	0.82	1.58	1.52	1.47	4.00	3.66	2.91
2031	112.54	0.83	1.61	1.56	1.50	4.08	3.74	2.97
2032	114.88	0.85	1.62	1.56	1.51	4.16	3.81	3.03
2033+	+2.0%/yr	+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 in CAD/Litre

US fuel prices are national average prices in USD/Gallon

\* ULS - Ultra Low Sulphur