

Par Pacific Market Indicators

The latest version of this document should be relied upon to the extent there are inconsistencies with prior publications.

US \$ per Barrel	Par Pacific Indices					Market Cracks			
	Hawaii Index	Wyoming Index	Montana Index	Washington Index	Combined Index	Singapore 3.1.2 to Brent	Wyoming 2.1.1 to WTI	Montana 6.3.2.1 to WTI	Washington 3.1.1.1 to WTI
Time Period									
March 1 - March 31	7.30	24.59	15.09	7.71	10.22	12.30	25.95	24.00	15.42
February 1 - February 28	9.46	19.75	8.30	6.16	8.76	14.46	21.38	18.39	14.16
January 1 - January 31	7.77	16.41	(2.20)	(1.27)	3.24	12.77	17.73	8.67	6.62
2025 - Q1	8.12	20.31	7.07	4.15	7.37	13.12	21.74	17.02	12.01
2024	7.21	16.47	14.39	4.13	9.37	13.36	18.48	21.59	12.11
2024 - Q4	5.52	13.36	5.75	(0.62)	4.88	11.69	16.00	15.31	8.29
2024 - Q3	4.49	17.56	15.32	4.47	8.89	11.00	20.23	26.08	12.62
2024 - Q2	7.41	17.45	19.15	7.25	10.95	12.49	19.33	25.50	15.76
2024 - Q1	12.07	17.23	17.09	5.16	12.83	18.67	18.06	19.17	11.50
2023	13.06	24.48	23.71	9.81	15.46	19.50	27.52	30.15	17.91
2023 - Q4	12.48	16.58	14.80	5.23	11.98	19.44	18.70	23.56	10.83
2023 - Q3	17.88	30.32	28.04	14.00	21.14	23.39	33.38	38.47	24.20
2023 - Q2	8.43	23.11	30.14	10.18	13.14	13.72	26.14	36.04	19.76
2023 - Q1	13.32	27.89	21.81	9.80	14.12	21.22	31.87	22.36	16.78
2022	19.21	26.33	26.84	19.85	20.26	25.43	32.35	35.93	29.58
2022 - Q4	13.71	24.84	28.37	20.43	16.98	22.84	30.76	35.04	27.56
2022 - Q3	18.66	28.15	38.11	28.93	22.92	26.43	35.35	48.56	38.70
2022 - Q2	32.77	37.03	31.67	25.02	31.05	36.80	43.56	43.65	37.12
2022 - Q1	12.54	14.98	8.74	4.59	11.50	16.21	19.40	15.99	14.52
2021	4.22	11.53	9.19	3.57	4.96	6.22	13.95	16.78	11.15
2021 - Q4	7.83	10.43	13.73	5.06	7.42	10.49	14.07	21.59	13.24
2021 - Q3	3.93	18.76	14.55	6.39	6.55	6.20	21.64	22.15	14.17
2021 - Q2	2.41	8.93	6.47	3.10	3.43	4.42	11.07	14.45	11.21
2021 - Q1	2.76	8.04	2.05	(0.14)	2.65	3.78	9.04	8.93	6.07
2020	(1.92)	10.16	9.62	4.92	1.43	3.23	10.02	13.68	9.33
2020 - Q4	0.38	9.54	3.47	1.17	1.15	2.63	9.60	10.95	7.20
2020 - Q3	0.77	9.91	7.44	2.55	2.61	1.90	9.91	14.19	8.67
2020 - Q2	(5.53)	7.92	12.34	4.74	(0.81)	0.01	7.31	13.02	8.82
2020 - Q1	0.94	13.17	15.21	11.19	4.97	7.98	13.17	16.51	12.59
2019	7.38	18.81	17.93	13.02	9.89	10.82	19.08	19.79	18.13
2019 - Q4	7.34	20.03	13.51	15.92	10.69	12.13	19.67	20.38	18.67
2019 - Q3	9.25	21.79	16.18	13.75	11.82	12.51	22.19	22.62	19.35
2019 - Q2	6.44	19.97	15.33	14.82	9.71	9.40	21.14	23.45	21.21
2019 - Q1	6.75	13.38	26.87	7.50	7.57	9.20	13.24	12.61	13.25
2018	9.04	15.81	18.71	14.90	10.26	11.04	17.25	18.86	15.15
2018 - Q4	10.40	23.19	27.12	27.06	12.44	11.27	20.19	21.68	19.10
2018 - Q3	8.46	17.95	20.02	12.19	10.29	11.47	20.91	23.01	15.36
2018 - Q2	7.86	14.83	21.19	12.70	9.18	10.54	17.45	19.64	16.51
2018 - Q1	8.89	7.26	6.44	7.56	8.60	10.97	10.51	11.12	9.62

US \$ per Barrel

Time Period		Crude Pricing									Par Hawaii Crude Differential
		Brent	WTI	ANS (-) Brent	Bakken Guernsey (-) WTI	Bakken Williston (-) WTI	WCS Hardisty (-) WTI	MSW (-) WTI	Syncrude (-) WTI	Brent M1-M3	
March 1	- March 31	71.47	67.94	2.75	(2.01)	(3.21)	(11.10)	(4.36)	(0.96)	1.02	5.00
February 1	- February 28	74.95	71.21	2.97	(1.79)	(3.03)	(13.41)	(5.79)	(2.05)	0.90	5.00
January 1	- January 31	78.35	75.10	0.91	(1.61)	(2.99)	(12.94)	(5.50)	(2.89)	1.70	5.00
2025 - Q1		74.98	71.42	2.18	(1.81)	(3.08)	(12.45)	(5.20)	(1.96)	1.22	5.00
2024		79.86	75.76	1.55	(1.26)	(2.45)	(13.90)	(4.03)	0.18	1.10	6.15
2024 - Q4		74.01	70.32	1.00	(1.22)	(2.54)	(12.27)	(3.68)	(0.42)	0.74	6.17
2024 - Q3		78.71	75.27	1.79	(0.39)	(1.78)	(13.82)	(2.83)	1.81	1.31	6.51
2024 - Q2		85.03	80.66	2.72	(1.45)	(3.16)	(12.52)	(3.07)	2.53	1.30	5.08
2024 - Q1		81.76	76.91	0.68	(2.02)	(2.30)	(17.00)	(6.50)	(3.24)	1.06	6.60
2023		82.17	77.60	0.95	(0.65)	(0.09)	(17.92)	(3.70)	1.32	0.81	6.44
2023 - Q4		82.85	78.53	2.21	(2.20)	(2.50)	(22.78)	(7.34)	(4.12)	1.01	6.96
2023 - Q3		85.92	82.22	3.04	(0.28)	0.19	(16.08)	(2.38)	3.36	1.27	5.51
2023 - Q2		77.73	73.56	1.07	(0.54)	0.43	(13.35)	(2.77)	3.03	0.44	5.29
2023 - Q1		82.10	75.99	(2.51)	0.40	1.52	(19.59)	(2.49)	2.75	0.52	7.90
2022		99.04	94.33	3.27	2.34	2.70	(19.14)	(1.56)	5.20	3.49	6.22
2022 - Q4		88.63	82.64	0.83	2.06	2.45	(28.27)	(2.61)	2.41	1.66	9.13
2022 - Q3		97.70	91.43	5.27	2.81	3.15	(20.54)	(1.44)	8.37	3.94	7.77
2022 - Q2		111.98	108.52	4.67	2.72	2.77	(15.34)	(1.29)	7.56	4.23	4.03
2022 - Q1		97.90	95.01	2.24	1.77	2.41	(12.67)	(0.91)	2.46	4.13	3.67
2021		70.95	68.11	0.66	(0.37)	(0.55)	(13.43)	(3.71)	(1.49)	1.12	2.00
2021 - Q4		79.66	77.10	1.23	0.30	0.33	(16.44)	(3.65)	(2.58)	1.33	2.66
2021 - Q3		73.23	70.52	0.69	0.06	(0.10)	(12.80)	(3.78)	(1.69)	1.36	2.27
2021 - Q2		69.08	66.17	0.35	(0.89)	(1.19)	(12.80)	(4.03)	(0.96)	0.96	2.01
2021 - Q1		61.32	58.14	0.37	(0.95)	(1.24)	(11.83)	(3.40)	(0.79)	0.81	1.02
2020		43.21	39.34	(1.74)	(2.30)	(4.13)	(12.07)	(5.34)	(3.48)	(0.98)	5.15
2020 - Q4		45.26	42.70	(0.64)	(2.06)	(3.37)	(11.41)	(4.85)	(4.10)	(0.41)	2.25
2020 - Q3		43.34	40.92	(1.38)	(2.54)	(3.56)	(9.69)	(3.85)	(2.35)	(0.79)	1.13
2020 - Q2		33.39	28.00	(4.83)	(1.94)	(4.17)	(9.33)	(5.49)	(4.79)	(2.19)	5.54
2020 - Q1		50.82	45.78	(0.09)	(2.66)	(5.45)	(17.79)	(7.15)	(2.73)	(0.54)	7.04
2019		64.16	57.04	1.78	(2.08)	(3.44)	(13.65)	(4.97)	(0.22)	1.00	3.44
2019 - Q4		62.42	56.87	3.14	(2.16)	(4.95)	(19.04)	(6.26)	(1.51)	1.39	4.79
2019 - Q3		62.03	56.44	2.01	(3.12)	(4.64)	(12.64)	(4.12)	1.05	1.10	3.26
2019 - Q2		68.47	59.91	1.14	(1.64)	(2.53)	(12.54)	(5.59)	0.04	1.42	2.95
2019 - Q1		63.83	54.90	0.73	(1.37)	(1.57)	(10.49)	(3.94)	(0.49)	0.07	2.45
2018		71.69	64.90	0.02	(1.71)	(4.08)	(26.46)	(11.18)	(6.36)	0.37	2.00
2018 - Q4		68.60	59.34	0.07	(6.52)	(10.39)	(34.88)	(22.55)	(19.40)	(0.09)	0.87
2018 - Q3		75.84	69.43	(0.29)	(0.71)	(2.38)	(27.94)	(10.54)	(4.23)	0.11	3.00
2018 - Q2		74.97	67.91	(0.15)	(0.14)	(1.55)	(17.75)	(6.68)	(2.46)	0.76	2.68
2018 - Q1		67.23	62.89	0.44	0.41	(2.18)	(25.82)	(5.57)	(0.05)	0.71	2.07

Par Pacific Indices

We believe the Par Pacific Indices are the most representative market indicators for our refineries' financial performance.

Hawaii Index is calculated as follows:

Singapore 3.1.2 crack

(-) Par Hawaii Crude Differential. Note, the midpoint of the Par Hawaii Crude Differential guidance range of \$4.75 to \$5.25 per barrel is used to calculate the monthly Hawaii Index.

Wyoming Index is calculated as follows:

Wyoming 2.1.1 crack

(-) Wyoming crude cost, calculated as 100% Bakken Guernsey differential to WTI on a one-month lag

(-) Other cost of sales, including inflation-adjusted product delivery costs and yield loss expense, based on historical averages and management's estimates

Montana Index is calculated as follows:

Montana 6.3.2.1 crack

(-) Montana crude cost, calculated as 60% WCS differential to WTI, 20% MSW differential to WTI, and 20% Syncrude differential to WTI. The Montana crude cost is lagged by three-months and includes an inflation-adjusted crude delivery cost, based on historical averages and management's estimates

(-) Other cost of sales, including inflation-adjusted product delivery costs, yield loss expense, taxes and tariffs, and product discounts, based on historical averages and management's estimates

Washington Index is calculated as follows:

Washington 3.1.1.1 crack

(-) Washington crude cost, calculated as 67% Bakken Williston differential to WTI and 33% WCS Hardisty differential to WTI. The Washington crude cost is lagged by one-month and includes an inflation-adjusted crude delivery cost, based on historical averages and management's estimates

(-) Other cost of sales, including inflation-adjusted product delivery costs, yield loss expense and state and local taxes, based on historical averages and management's estimates

The Combined Index is calculated as the throughput-weighted average of each regional index for periods under ownership. As such, the throughput-weighted index contemplates the Montana index following June 1, 2023, and the Washington index following January 12, 2019. The Q1-25 Combined Index is based on the midpoint of regional throughput guidance and Hawaii crude differential guidance provided herein.

Market Cracks:

Singapore 3.1.2 crack is calculated by taking 1 part gasoline (RON 92) and 2 parts distillates (Sing Jet & Sing Gasoil) as created from a barrel of Brent Crude.

Wyoming 2.1.1 crack is calculated by taking 1 part gasoline (Rockies gasoline) and 1 part distillate (USGC ULSD and USGC Jet) as created from a barrel of WTI Crude, less 100% of the RVO cost for gasoline & ULSD.

Montana 6.3.2.1 crack is calculated by taking 3 parts gasoline (Billings E10 and Spokane E10), 2 parts distillate (Billings USLD and Spokane ULSD), and 1 part asphalt (Rocky Mountain Rail Asphalt) as created from a barrel of WTI Crude, less 100% of the RVO cost for gasoline & ULSD. Asphalt pricing is lagged by one-month.

Washington 3.1.1.1 crack is calculated by taking 1 part gasoline (Tacoma E10), 1 part distillate (Tacoma ULSD) and 1 part secondary products (USGC VGO and Rocky Mountain Rail Asphalt) as created from a barrel of WTI Crude, less 100% of the RVO cost for gasoline & ULSD. Asphalt pricing is lagged by one-month.

Crude Prices:

ANS differential to Brent influences the Hawaii Refinery's financial performance. Source: Argus.

Bakken Guernsey differential to WTI influences the Wyoming Refinery's financial performance. Source: Platts

Bakken Williston differential to WTI influences the Washington Refinery's financial performance. Source: Platts

Western Canadian Select differential to WTI influences the Washington and Montana Refineries' financial performance. Source: Platts

Mixed Sweet Blend (MSW) differential to WTI influences the Montana Refinery's financial performance. Source: Argus

Syncrude differential to WTI influences the Montana Refinery's financial performance. Source: Argus

Brent M1 - M3 is an instructive directional indicator for market structure, which influences the Hawaii Refinery's financial performance.

Par Hawaii crude differential reflects the Hawaii refinery's actual delivered crude differential to Brent. Note, the midpoint of the Par Hawaii Crude Differential guidance range of \$4.75 to \$5.25 per barrel is used to calculate the monthly Hawaii Index.

Quarterly Throughput Guidance (Q1-25):

Hawaii: 79,000 - 82,000 bpd

Montana: 48,000 - 52,000 bpd

Wyoming: Approximately 6,000 bpd

Washington: 37,000 - 39,000 bpd

The preceding data is for informational purposes only and is not to be relied upon as an indicator of Par Pacific's past or future financial results. This data is general industry information and management's estimates and does not reflect prices paid or received by Par Pacific, other than the Par Hawaii Crude Differential, which reflects the difference in price between Brent and the actual price Par Pacific pays for crude oil delivered to the Hawaii refinery (inclusive of adjustments for quality, energy content, transportation and other fees, derivatives, and regional/local differentials). The data was compiled from publicly available information, various industry publications, other published industry sources, and our own internal data and estimates. Although this data is believed to be reliable, Par Pacific has not had this information verified by independent sources. Par Pacific does not make any representation as to the accuracy of the data and does not undertake any obligation to update, revise or continue to provide the data.

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