

## Par Pacific Market Indices

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

US \$ per Barrel		Hawaii Index	Rockies Index	Washington Index	Crude Prices						
		Singapore 3.1.2 to Brent	RVO Adj. USGC 3.2.1 to WTI	RVO Adj. PNW 3.1.1.1 to WTI	Brent	WTI	ANS	Bakken Clearbrook	WCS Hardisty	Brent M1-M3	Par Hawaii Crude Differential
September 2	- September 8	25.11	28.00	37.58	90.04	87.15	92.33	87.69	68.09	1.45	
August 26	- September 1	28.64	32.37	41.36	86.24	82.41	88.26	82.95	64.35	1.04	
August 1	August 31	27.54	34.36	39.77	85.10	81.32	87.17	81.98	63.87	0.92	
July 1	- July 31	17.77	26.36	28.74	80.16	76.03	82.34	79.33	62.80	0.65	
2023 - Q2		13.72	21.65	25.13	77.73	73.56	78.26	75.37	60.07	0.44	5.29
2023 - Q1		21.22	26.55	25.30	82.10	75.99	79.01	79.14	56.67	0.52	7.90
<b>2022 - YE</b>		<b>25.43</b>	<b>28.55</b>	<b>35.27</b>	<b>99.04</b>	<b>94.33</b>	<b>98.76</b>	<b>96.37</b>	<b>73.28</b>	<b>3.49</b>	<b>6.22</b>
2022 - Q4		22.84	24.30	30.11	88.63	82.64	87.89	85.54	53.52	1.66	9.13
2022 - Q3		26.43	29.01	40.58	97.70	91.43	98.84	94.37	69.02	3.94	7.77
2022 - Q2		36.80	42.24	47.23	111.98	108.52	112.17	109.80	90.25	4.23	4.03
2022 - Q1		16.21	18.24	22.66	97.90	95.01	96.13	95.84	79.90	4.13	3.67
<b>2021 - YE</b>		<b>6.22</b>	<b>10.98</b>	<b>13.69</b>	<b>70.95</b>	<b>68.11</b>	<b>70.56</b>	<b>67.65</b>	<b>53.90</b>	<b>1.12</b>	<b>2.00</b>
2021 - Q4		10.49	12.77	15.76	79.66	77.10	79.74	76.94	59.71	1.33	2.66
2021 - Q3		6.20	12.57	15.83	73.23	70.52	72.66	70.45	56.95	1.36	2.27
2021 - Q2		4.42	10.18	13.46	69.08	66.17	68.58	65.55	53.10	0.96	2.01
2021 - Q1		3.78	8.49	9.77	61.32	58.14	61.07	57.43	46.12	0.81	1.02
<b>2020 - YE</b>		<b>3.23</b>	<b>6.65</b>	<b>10.26</b>	<b>43.21</b>	<b>39.34</b>	<b>42.20</b>	<b>38.07</b>	<b>28.53</b>	<b>(0.98)</b>	<b>5.15</b>
2020 - Q4		2.63	4.77	8.73	45.26	42.70	44.82	40.89	31.57	(0.41)	2.25
2020 - Q3		1.90	5.58	8.45	43.34	40.92	42.75	40.00	31.62	(0.79)	1.13
2020 - Q2		0.01	5.85	8.67	33.39	28.00	30.28	28.23	22.19	(2.19)	5.54
2020 - Q1		7.98	10.36	15.15	50.82	45.78	51.07	43.19	28.71	(0.54)	7.04
<b>2019 - YE</b>		<b>10.82</b>	<b>15.52</b>	<b>20.37</b>	<b>64.16</b>	<b>57.04</b>	<b>65.00</b>	<b>56.44</b>	<b>43.42</b>	<b>1.00</b>	<b>3.44</b>
2019 - Q4		12.13	13.81	20.78	62.42	56.87	64.32	55.85	37.70	1.39	4.79
2019 - Q3		12.51	16.39	19.90	62.03	56.44	62.98	55.46	43.61	1.10	3.26
2019 - Q2		9.40	18.21	24.25	68.47	59.91	68.29	59.23	47.37	1.42	2.95
2019 - Q1		9.20	13.69	16.50	63.83	54.90	64.39	55.18	44.91	0.07	2.45
<b>2018 - YE</b>		<b>11.04</b>	<b>14.43</b>	<b>19.28</b>	<b>71.69</b>	<b>64.90</b>	<b>71.54</b>	<b>61.89</b>	<b>38.27</b>	<b>0.37</b>	<b>2.00</b>
2018 - Q4		11.27	13.09	20.45	68.60	59.34	69.53	51.34	25.31	(0.09)	0.87
2018 - Q3		11.47	16.15	18.42	75.84	69.43	75.26	67.04	40.33	0.11	3.00
2018 - Q2		10.54	16.50	21.99	74.97	67.91	73.93	67.19	49.76	0.76	2.68
2018 - Q1		10.97	12.10	16.36	67.23	62.89	67.20	61.55	36.84	0.71	2.07
<b>2017 - YE</b>		<b>10.75</b>	<b>13.36</b>	<b>16.19</b>	<b>54.67</b>	<b>50.69</b>	<b>54.42</b>	<b>51.45</b>	<b>38.45</b>	<b>(0.08)</b>	<b>0.35</b>
2017 - Q4		10.59	13.90	17.28	61.46	55.30	61.31	56.96	38.74	0.59	1.58
2017 - Q3		11.68	16.10	18.84	52.17	48.20	52.04	49.33	38.16	0.03	0.56
2017 - Q2		10.10	11.81	14.27	50.79	48.15	50.61	48.33	38.55	(0.59)	0.05
2017 - Q1		10.28	10.69	13.36	54.08	51.33	53.45	51.15	38.29	(0.51)	(1.31)

**Singapore 3.1.2 to Brent is calculated as follows:**

Calculated by taking 1 part gasoline (RON 92), and 2 parts middle distillates (Sing Jet & Sing Gasoil) as created from a barrel of Brent Crude.

**RVO Adj. USGC 3.2.1 to WTI is calculated as follows:**

Calculated by taking 2 parts gasoline (USGC gasoline) and 1 part distillate (USGC ULSD) as created from a barrel of WTI Crude, less 100% of the RVO cost.

**RVO Adj. PNW 3.1.1.1 to WTI is calculated as follows:**

Calculated by taking 1 part gasoline (PNW Suboctane), 1 part distillate (PNW ULSD) and 1 part VGO (USGC VGO) as created from a barrel of WTI Crude, less 100% of the RVO cost for gasoline & distillate.

**Crude Market Indicators:**

ANS crude price influences the Hawaii Refinery's financial performance. Source: Platts.

Bakken Clearbrook crude price influences the Washington and Wyoming Refineries' financial performance. Source: Platts

Western Canadian Select crude price influences the Washington Refinery's financial performance. Source: Platts

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. The Q3-2023 estimated differential is a \$5.00 - 5.50/bbl premium to Brent.

The preceding data is for informational purposes only and is not reflective or intended to be an indicator of Par Pacific's past or future financial results. This data is general industry information 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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