

Researched by Industrial Info Resources (Sugar Land, Texas)--IIR's weekly Global Refining Report gives you the latest inside intelligence on outages, derates, shutdowns, closures, delays and more.

.. & now there is an interactive, dynamic <u>Global Refining Capacity Dashboard</u> available to further power your refinery capacity research ..

and IIR has recently formalized an Alliance with Refinery Calc who will play an integral role in being the engine for <u>IIR's Global Refining MarketIntel Platform</u> providing Intel on crude slates, crude runs, product yields, margins, utilization, etc.

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#### **Market Commentary:**

It's all about demand, especially as OPEC+ plans to ramp up their production here in August. And, as OilPrice indicates that demand Rystad now expects for July to average 90.2 million bpd; 90.6 million bpd in August, September, and October; 93 million bpd in November, and 94.7 million bpd in December. This compares to oil demand of more than 99 million bpd last year.

So could be a bit of a challenging stretch ahead for oil markets. More so as there was belief that China's economy would continue to rebound and churn, thereby increasing hydrocarbon consumption. However, as the Washington Post reports, "after a record purchasing spree in April, when crude prices were at rock bottom, China's oil buying has eased off. The amount of oil held in storage tanks in Shandong province, home to the country's independent refiners, has risen by 28% since mid-May and is close to hitting a five-month high. And there is still a huge backlog of vessels waiting off the coast to discharge their cargoes. Some have been there for two months. Meanwhile, processing rates at China's independent refineries started to ease from record levels in mid-June. And massive floods across the country may reduce its demand for gasoline and oil by as much as 5%, according to consultants Facts Global Energy, although the disruption should be short-lived."

Therefore, there is still a lot of uncertainty at this time. Fortunately though within this Global Refining Report, IIR hopes to shed some light on what is transpiring from a Refinery Operations perspective as the Global Refining Index (working with ADUs) illustrates what is happening to crude operationally available capacity and how refineries are de-rating and operating overall in these times. The Global Refinery Maps depict the COVID-19 Impact as well as the non-COVID-19 outages. Area Charts visualize COVID-19 Impact and non-COVID-19 capacity offline in Asia, Europe and North America.

### **Petroleum Refining Highlights**

<u>July 24, 2020</u> IIR continues to monitor plant operations along the Texas Gulf Coast due to the approach of Tropical Storm Hannah. The storm is currently on a path to make landfall south of Corpus Christi, Texas. At this time facilities including Bill Greehey, Flint Hills and Citgo Corpus are expected to remain online during the event. Updates will be published if any new information becomes available.

<u>July 24, 2020</u> IIR has confirmed that **Pemex TRI** continues to maintain normal operations at this time at its 270,000 b/d **Cadereyta, Mexico refinery**, *located in the projected path of Tropical Storm Hanna*. It is expected that the storm will make landfall in the area by this upcoming Sunday/Monday. Separately, the 65,000 b/d



FCCU 1, which was forced to go offline on July 21 due to Equipment issues, continues as such and Pemex personnel evaluates damages to determine shutdown duration. The 6,000 b/d HF Alkylation 2 and 5,000 b/d MTBE 1 under planned repairs since June 8 are still on schedule to be back into operations on August 10. The facility keeps processing at reduced rates due to inventory controls related to company finances by having the 120,000 b/d Combinada 1 (Crude 1) offline and the 150,000 b/d Combinada 2 (Crude 2) running at 125,000 b/d. IIR continues to monitor the refinery situation and will issue an update when more details become available.

<u>July 24, 2020</u> IIR has learned that **Klesch Group** will not operate the 225kbd **Willemstad Isla, Curacao refinery** as previously agreed due to the current spread of COVID-19 and inability to move personnel from Europe to the Island. Authorities are to select new operator in the upcoming months. All processing units, still operated by PDVSA, remain offline due to unplanned events followed by lack of crude and financial issues, and will be kept as such until at least November 2020. Maintenance and repair works performed on major offline units are complete; only preventive work is performed.

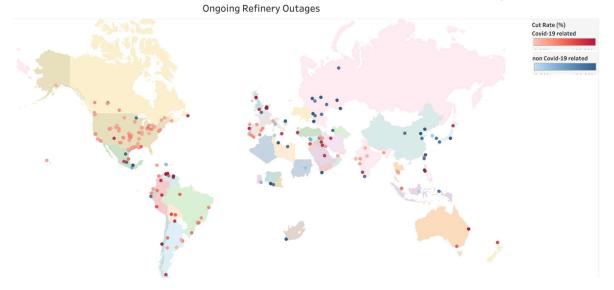
<u>July 24, 2020</u> IIR has confirmed that **Eni Spa** continues the Economic Shutdown at their 247,000 b/d **Sannazzaro Refinery, Italy**. The Unplanned Economic Shutdown of the 42,000 b/d FCC Unit, 38,500 b/d HDC1 and 28,000 HDC2 which began in early March 2020 due to COVID-19 is expected to continue until Mid-August 2020. Meanwhile, the refinery continues to operate at reduced capacity (approx. 40%) until mid-August 2020.

July 24, 2020 Astron Energy has delayed the restart of its 100,000 b/d Cape Town Refinery, South Africa due to a fire that occurred on a heater in the 15,850 b/d Reformer during the restart process on July 2, 2020. The Refinery is tentatively scheduled to restart by December 15, 2020 (previously reported September 15, 2020). The refinery had been under planned major maintenance shutdown since February 2, 2020. Due to the fire, the refinery wide maintenance works have been put on-hold. Major units include the 50,000 b/d Crude Distillation 1, 50,000 b/d Crude Distillation 2, 17,000 b/d FCCU 1 17,000 b/d FCCU 2, 15,850 b/d Reformer, 6,800 b/d Isomerization, 22,600 b/d Diesel Hydrotreater 1, 6,340 b/d Diesel Hydrotreater 2, 17,100 b/d Visbreaker, 6,350 b/d Kerosene Hydrotreater and 23,400 b/d Naphtha Hydrotreater Units.

<u>July 23, 2020</u> **Reliance India Limited (RIL)**, on July 22, 2020 has begun a 30-day planned turnaround of the 380,000 b/d CDU 2 at its 760,000 b/d **Jamnagar SEZ Refinery**, **India**. Expectations are to complete repair and restart the unit by August 20, 2020.



# Map of Global Refineries impacted by COVID-19/non-COVID -- OnGoing Offline Events

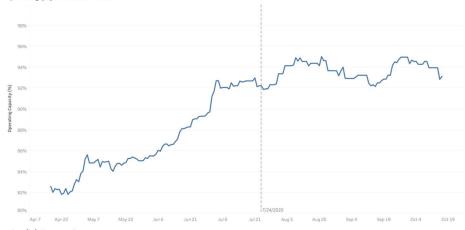


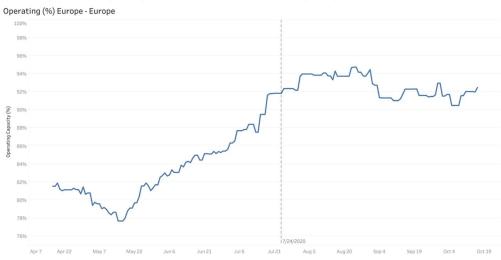
## **Global Refining Index**

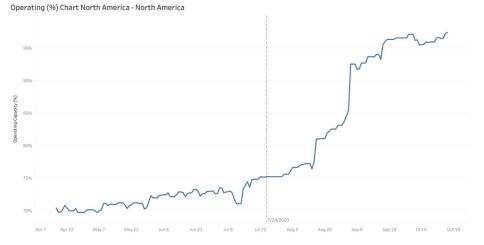
Industrial Info's Global Refining Index (GRI) illustrates how much Refinery Capacity is offline versus Normal Operating Capacity. Illustrating with an Operating % at a World Region - Market Region level how healthy Refineries are.. (see graphics below).

Global Refinery Index Table--July 24, 2020

World Reg	Market Reg	U Capacity (bbl/d)	Covid Related cap off (bbl/d)	non-COVID-19 related cap off (bbl/d)	Available capacity (bbl/d)	COVID-19 Related Cut Rate (%)	non-COVID-19 Related Cut Rate (%)	Operating capacity (%
Africa	Total	2,641,200	0	549,700	2,091,500	0%	21%	79%
Asia	Central Asia	2,676,500	0	84,000	2,592,500	096	3%	97%
	East Asia	23,033,700	560,000	1,464,000	21,009,700	2%	6%	91%
	South Asia	5,549,900	481,480	17,000	5,051,420	9%	0%	91%
	Southeast Asia	4,860,300	128,000	224,000	4,508,300	3%	5%	93%
	Western Asia	7,497,214	417,120	238,600	6,841,494	6%	3%	91%
	Total	43,617,614	1,586,600	2,027,600	40,003,414	496	5%	92%
Europe	Eastern Europe	2,248,249	0	160,000	2,088,249	096	7%	93%
	Northern Europe	2,767,400	200,000	0	2,567,400	7%	0%	93%
	Russia	6,247,486	0	768,349	5,479,137	0%	12%	88%
	Southern Europe	4,295,858	835,485	53,280	3,407,093	19%	1%	79%
	Western Europe	5,580,500	358,000	515,600	4,706,900	6%	9%	84%
	Total	21,139,493	1,393,485	1,497,229	18,248,779	7%	7%	86%
Middle	Caribbean	457,040	265,340	13,600	178,100	58%	3%	39%
America	Central America	19,000	0	0	19,000	0%	0%	100%
	Total	476,040	265,340	13,600	197,100	56%	3%	41%
North	Atlantic Canada	430,000	190,000	0	240,000	44%	0%	56%
America	Great Lakes	2,374,000	540,600	45,000	1,788,400	23%	2%	75%
	Mexico	1,615,000	272,650	700,500	641,850	17%	43%	40%
	Mid Atlantic	23,000	6,900	0	16,100	30%	0%	70%
	Midwest	928,000	194,750	0	733,250	21%	0%	79%
	Northeast	883,500	231,000	0	652,500	26%	0%	74%
	Ontario	392,000	44,600	165,500	181,900	11%	42%	46%
	Quebec	395,000	79,000	0	316,000	20%	0%	80%
	Rocky Mountains	811,900	167,080	0	644,820	21%	0%	79%
	Southeast	700,100	188,850	0	511,250	27%	0%	73%
	Southwest	9,192,300	1,736,135	95,000	7,361,165	19%	1%	80%
	West Coast	2,898,300	874,300	0	2,024,000	30%	0%	70%
	Western Canada	848,080	141,295	22,000	684,785	17%	3%	81%
	Total	21,491,180	4,667,160	1,028,000	15,796,020	22%	5%	74%
Oceania	Oceania	619,750	140,000	135,000	344,750	23%	22%	56%
	Total	619,750	140,000	135,000	344,750	23%	22%	56%
South	South America	5,176,450	1,355,965	707,575	3,112,910	26%	14%	60%
America	Total	5,176,450	1,355,965	707,575	3,112,910	26%	14%	60%
<b>Grand Total</b>		95,161,727	9,408,550	5,958,704	79,794,473	10%	6%	84%



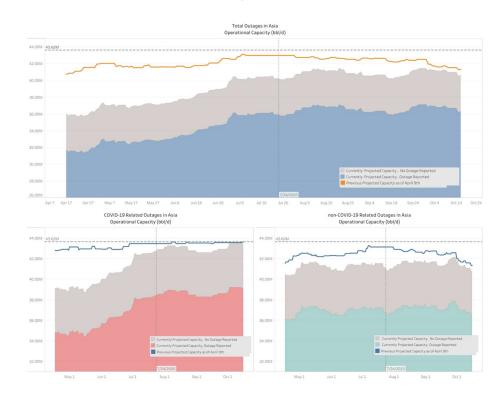


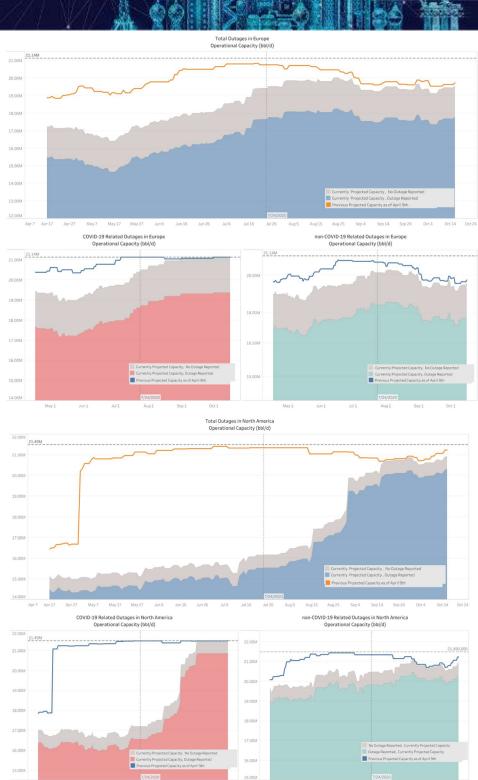




	Operational Capacity (88I/d) Currently vs. Previously Projected Capacity																											
		19-Apr-20	26-Apr-20	03-May-20	10-May-20	17-May-20	24-May-20	31-May-20	07-Jun-20	14-Jun-20	21-Jun-20	28-Jun-20	05-Jul-20	12-Jul-20	19-Jul-20	26-Jul-20	02-Aug-20	09-Aug-20	16-Aug-20	23-Aug-20	30-Aug-20	05-Sep-20	13-Sep-20	20-Sep-20	27-Sep-20	04-0ct-20	11-0ct-20	18-Oct-20
Africa	Daily Available Cap	1,645,730	1,504,301	1,504,301	1,649,730	1,883,730	1,978,730	1,984,087	1,984,980	2,046,980	2,093,480	2,092,349	2,091,500	2,091,500	2,091,500	2,097,271	2,124,786	2,135,471	2,138,100	2,138,100	2,145,243	2,100,200	1,868,486	1,815,771	1,843,629	1,852,200	1,852,200	1,852,200
	Prev Available Daily Cap (As of April 9th)	2,053,000	2,175,857	2,233,000	2,335,857	2,353,000	2,353,000	2,344,257	2,342,800	2,342,800	2,342,800	2,348,629	2,353,000	2,362,200	2,362,200	2,347,914	2,262,200	2,262,200	2,262,200	2,262,200	2,269,343	2,252,200	2,252,200	2,252,200	2,273,629	2,282,200	2,282,200	2,282,200
	Capacity Delta	-407,270	-671,556	-728,699	-686,127	-469,270	-374,270	-360,170	-357,820	-295,820	-249,320	-256,280	-261,500	-270,700	-270,700	-250,643	-137,414	-126,729	-124,100	-124,100	-124,100	-152,000	-383,714	-436,429	-430,000	-430,000	-430,000	-430,000
	Operating Capacity (%)	62%	57%	57%	62%	71%	75%	75%	75%	78%	79%	79%	79%	79%	79%	79%	80%	81%	81%	81%	81%	80%	71%	69%	70%	70%	70%	70%
Asia	Daily Available Cap	35,814,769	36,217,309	37,111,204	36,927,389	36,995,559	37,161,749	37,319,660	37,721,925	38,293,730	38,841,093	39,696,419	40,182,277	40,364,097	40,306,554	40,295,105	40,976,000	41,263,714	41,210,143	40,887,857	40,648,214	40,610,843	40,337,128	40,954,057	41,343,043	41,157,671	40,756,643	40,235,881
	Prev Available Daily Cap (As of April 9th)	41,365,064	41,670,907	42,049,157	41,675,728	41,587,443	41,667,443	41,609,928	41,641,928	41,771,643	42,088,071	42,582,357	42,981,785	42,985,214	42,985,214	42,951,214	42,759,357	42,639,128	42,690,043	42,533,185	42,598,043	42,611,043	42,263,900	42,436,828	42,247,671	41,656,414	41,446,128	41,337,081
	Capacity Delta	-5,550,295	-5,453,598	4,937,953	-4,748,339	4,591,884	-4,505,694	4,290,268	-3,920,004	-3,477,912	-3,246,978	-2,885,938	-2,799,509	-2,621,117	-2,678,660	-2,656,109	-1,783,357	-1,375,414	-1,479,900	-1,645,329	-1,949,829	-2,000,200	-1,926,771	-1,482,771	-904,629	-498,743	-689,486	-1,101,200
	Operating Capacity (%)	82%	83%	85%	85%	85%	85%	86%	86%	88%	89%	91%	92%	93%	92%	92%	94%	95%	94%	94%	93%	93%	92%	94%	95%	94%	93%	92%
Europe	Daily Available Cap	17,150,710	17,127,831	16,829,992	16,564,754	16,670,223	17,192,533	17,427,048	17,643,883	17,875,550	18,010,986	18,149,172	18,588,150	18,831,408	19,428,540	19,556,218	19,859,743	19,834,406	19,832,884	19,932,998	19,617,536	19,279,116	19,463,019	19,377,693	19,444,564	19,232,279	19,480,864	19,652,693
	Prev Available Daily Cap (As of April 9th)	19,017,096	19,234,505	19,404,847	19,187,525	19,166,795	19,382,984	19,763,170	19,882,727	20,452,579	20,510,607	20,596,607	20,792,036	20,813,893	20,789,035	20,718,436	20,695,922	20,694,728	20,491,898	20,385,612	20,017,822	19,653,116	19,774,162	19,666,550	19,790,850	19,590,554	19,666,864	19,838,693
	Capacity Delta	-1,856,386	-2,106,674	-2,574,855	-2,622,771	-2,496,572	-2,190,451	-2,336,122	-2,238,844	-2,577,028	-2,499,621	-2,447,435	-2,203,885	-1,982,485	-1,360,496	-1,162,218	-836,179	-860,321	-659,014	-453,614	-400,286	-374,000	-311,143	-288,857	-346,286	-358,286	-185,000	-186,000
	Operating Capacity (%)	81%	81%	80%	78%	79%	81%	82%	83%	85%	85%	86%	88%	89%	92%	93%	94%	94%	91%	94%	93%	91%	92%	92%	92%	91%	92%	93%
Middle America	Daily Available Cap	181,700	181,700	181,700	181,700	181,700	181,700	184,700	181,700	172,129	182,529	197,100	218,100	221,600	221,600	225,043	245,700	245,700	245,700	245,700	232,129	251,037	371,759	364,384	400,371	453,040	453,040	453,040
	Prev Available Daily Cap (As of April 9th)	229,700	267,191	273,440	273,440	273,440	273,440	273,440	275,726	259,440	254,440	361,069	471,040	476,040	476,040	476,040	476,040	476,040	476,040	476,040	462,469	457,040	457,040	459,754	473,040	469,040	469,040	469,040
	Capacity Delta	-48,000	-85,491	-91,740	-91,740	-91,740	-91,740	-88,740	-94,026	-87,311	-71,911	-163,969	-252,940	-254,440	-254,440	-250,997	-230,340	-230,340	-230,340	-230,340	-230,340	-206,003	-85,281	-95,370	-72,669	-16,000	-16,000	-16,000
	Operating Capacity (%)	30%	30%	33%	30%	32%	38%	39%	30%	36%	38%	41%	46%	47%	47%	47%	52%	52%	52%	52%	49%	53%	78%	77%	84%	95%	95%	95%
North America	Daily Available Cap	15,030,285	15,022,026	15,077,084	15,257,976	15,238,753	15,246,176	15,513,484	15,562,584	15,628,770	15,642,727	15,686,413	15,507,320	15,838,927	16,136,049	16,176,220	16,394,377	16,571,999	17,478,606	17,826,374	19,373,129	20,038,987	20,430,487	20,735,680	20,747,323	20,591,680	20,819,323	20,930,013
	Prev Available Daily Cap (As of April 9th)	16,735,735	17,704,948	20,715,287	20,816,616	20,901,359	21.091,859	21,113,787	21,227,716	21,293,501	21,304,930	21,367,787	21,369,216	21,336,537	21,346,180	21,346,180	21,346,180	21,261,751	21,050,680	21,122,109	21,100,180	20,858,069	20,761,013	20,805,680	20,870,894	20,819,680	21,143,323	21,237,013
	Capacity Delta	-1,705,450	-2,682,922	-5,638,203	-5,558,640	-5,662,606	-5,845,683	-5,600,303	5,665,131	-5,664,731	-5,662,203	-5,681,374	-5,861,896	-5,497,610	-5,210,131	-5,169,960	4,951,803	-4,689,753	-3,572,074	-3,295,735	-1,727,051	819,081	-330,526	-70,000	-123,571	-228,000	-324,000	-307,000
	Operating Capacity (%)	70%	70%	70%	71%	71%	71%	72%	72%	73%	73%	73%	72%	74%	75%	75%	76%	72%	81%	83%	90%	93%	95%	96%	97%	96%	97%	97%
Oceania	Daily Available Cap	552,250	543,679	490,821	412,250	412,250	412,250	412,250	412,250	412,250	412,250	373,679	344,750	344,750	344,750	344,750	344,750	344,750	344,750	344,750	535,464	589,750	589,750	589,750	589,750	589,750	589,750	589,750
	Prev Available Daily Cap (As of April 9th)	562,250	572,250	540,821	462,250	462,250	442,250	442,250	442,250	442,250	461,536	509,750	509,750	509,750	509,750	509,750	509,750	509,750	509,750	509,750	604,036	619,750	619,750	619,750	619,750	619,750	619,750	619,750
	Capacity Delta	-10,000	-28,571	-50,000	-50,000	-50,000	-30,000	-30,000	-30,000	-30,000	-49,286	-136,071	-165,000	-165,000	-165,000	-165,000	-165,000	-165,000	-165,000	-165,000	-68,571	-30,000	-30,000	-30,000	-30,000	-30,000	-30,000	-30,000
	Operating Capacity (%)	89%	80%	79%	67%	67%	67%	67%	67%	67%	67N	60%	56%	56%	56%	56%	56%	56%	56%	56%	86%	95%	95%	95%	95%	95%	95%	95%
South America	Daily Available Cap	2,546,590	2,435,869	2,467,905	2,472,879	2,486,261	2,599,759	2,620,664	2,826,541	2,859,991	2,884,835	3,017,335	3,146,581	3,206,289	3,121,897	3,326,158	3,873,914	4,067,450	4,088,350	4,088,350	4,305,779	4,373,950	4,419,379	4,426,950	4,433,807	4,589,379	4,795,950	4,812,617
N. N. C.	Prev Available Daily Cap (As of April 9th)	4,033,700	4,172,257	4,517,657	4,473,307	4,730,450	4,730,450	4,833,479	4,889,221	4,910,650	4,910,650	5,022,079	5,110,621	5,111,450	5,111,450	5,111,450	5,111,450	5,088,736	5,058,450	5,058,450	4,912,021	4,853,450	4,898,879	4,905,450	4,906,450	5,052,879	5,111,450	5,111,450
	Capacity Delta	-1,487,110	-1,736,388	-2,049,752	-2,000,429	-2,244,189	-2,130,691	-2,212,815	-2,062,681	-2,050,659	-2,025,815	-2,004,744	1,964,040	-1,905,161	-1,989,553	-1,785,292	-1,237,536	-1,021,286	-970,100	-970,100	-606,243	-479,500	-479,500	-479,500	-472,643	-463,500	-315,500	-298,833
	Operating Capacity (%)	49%	47%	48%	48%	48%	50%	51%	55%	55%	56%	58%	61%	62%	60%	64%	75%	79%	79%	79%	83%	84%	85%	86%	86%	89%	93%	93%

## Global Regional Available Operational Capacity. COVID-19 Impact & non-COVID related outages







# Map of Global Refineries impacted by COVID-19/non-COVID - Future(Delayed) Offline Events



