

North American Downstream Market Advisory

*Subscription service for research, intelligence, analytics, and insights on
North American downstream oil markets and supply chain*

January 2021



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Outline

▶ Executive Summary







- ▶ Prospectus: Market Outlook for U.S. Refined Product Exports to Latin America
- ▶ Downstream Market Review
- ▶ Prospectus: 2020 Global Small-Scale LNG Review
- ▶ In-Depth Insight: Future of Refining – Rationalize, Reduce, and Repurpose
- ▶ Prospectus: North American Downstream Market Advisory

Crack spreads will pick up while fuel demand will remain modest and downstream capex will continue to be lower yoy

Highlights

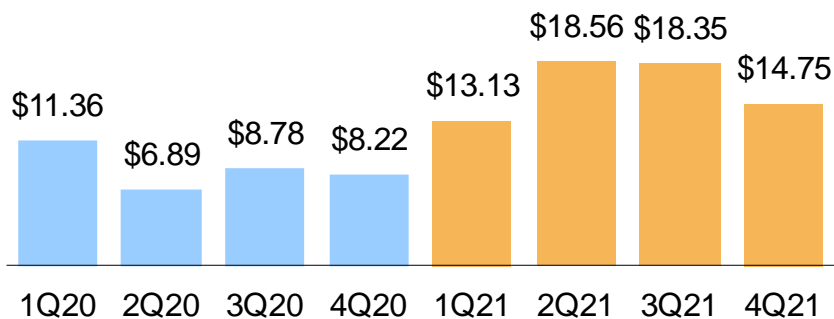
- U.S. Gulf Coast 3-2-1 crack spread will pick up in 1Q 2021 with increased fuel prices coupled with lower crude oil prices
- WTI crude oil prices will remain stable hovering between \$45 to \$55 per barrels throughout 2021 with slow oil demand recovery and continued oil production cuts
- U.S. natural gas prices will remain robust in 1Q 2021 supported by falling production and rising U.S. LNG exports
- U.S. gasoline demand and exports will continue to fall in 1Q 2021 but are expected to pick up in the second half of 2021
- U.S. distillate demand and exports in 1Q 2021 will remain lower yoy but are expected to recover to 2019 levels by the end of 2021
- U.S. downstream companies plan to further cut their capex yoy in 2021 with most of it allocated for sustaining activities including turnarounds

Near-Term Outlook for NA Refining

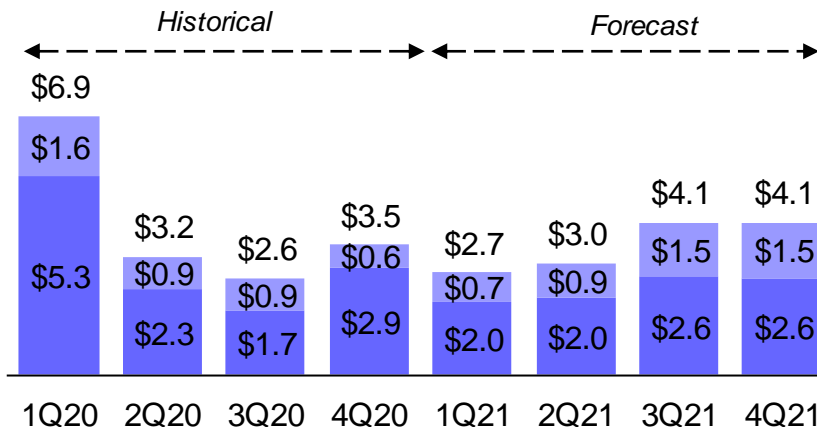
Crack spreads	
Crude oil prices	
Fuel demand	
Utilization	
Turnarounds	
Capital spending	

Refinery crack spreads and utilizations will pick up through the rest of 2021 while refining capex will remain lower yoy

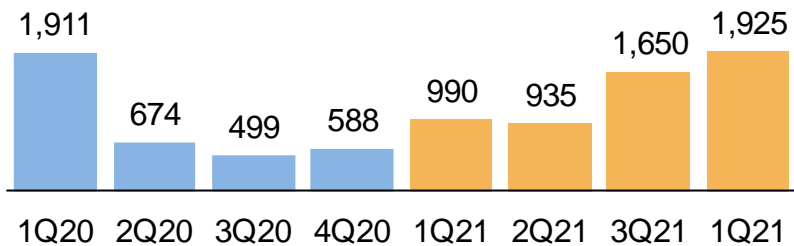
U.S. Gulf Coast Crack Spread
(USD Per Barrel)



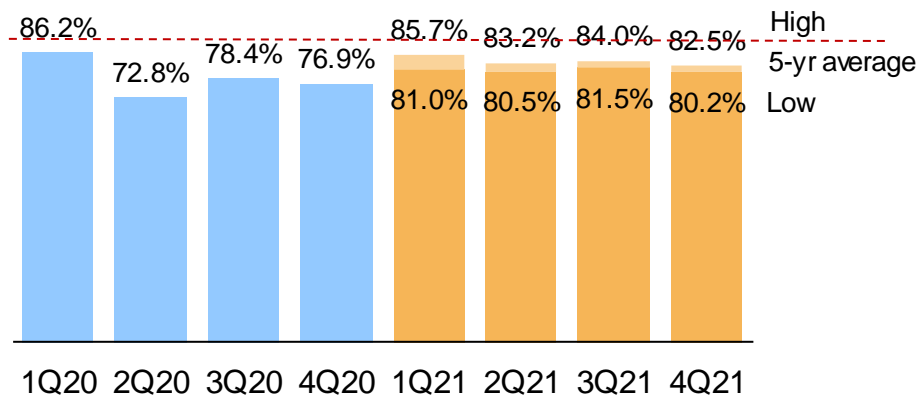
North American Downstream Capex
(USD Billion)



Announced / Planned Refinery Outages
(Thousand Barrels Per Day)



U.S. Refining Capacity Utilization Rate
(Percentage)



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Market Outlook for U.S. Refined Product Exports to Latin America



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Downstream news: Refinery sales, upgrades, restarts, and rehabilitation, and new petrochemical capacity planned

Capital Projects

- Arq will invest \$40 million into the St. Rose, LA industrial facility to produce cleaner hydrocarbon fuel blends to be used in power generation and maritime industries.
- Nigeria's state oil firm NNPC plans to raise \$1 billion in a prepayment with trading firms to rehabilitate its 210,000-bpd Port Harcourt refinery. The largest refinery complex in the country will be run by private companies afterwards to reduce fuel imports.

Restarts and Upgrades

- Limetree Bay refinery in St. Croix, U.S. Virgin Islands, recently began producing gasoline and diesel. The plant struggled to bring units online earlier due to repeated operational disruptions and weaker IMO 2020-compliant fuel demand.
- Petroperu will issue \$1 billion in bonds to complete modernization of Talara refinery to 95,000 bpd from 65,000 bpd with an investment of \$4.7 billion which will reduce Peruvian fuel imports going forward.

Refinery Sales

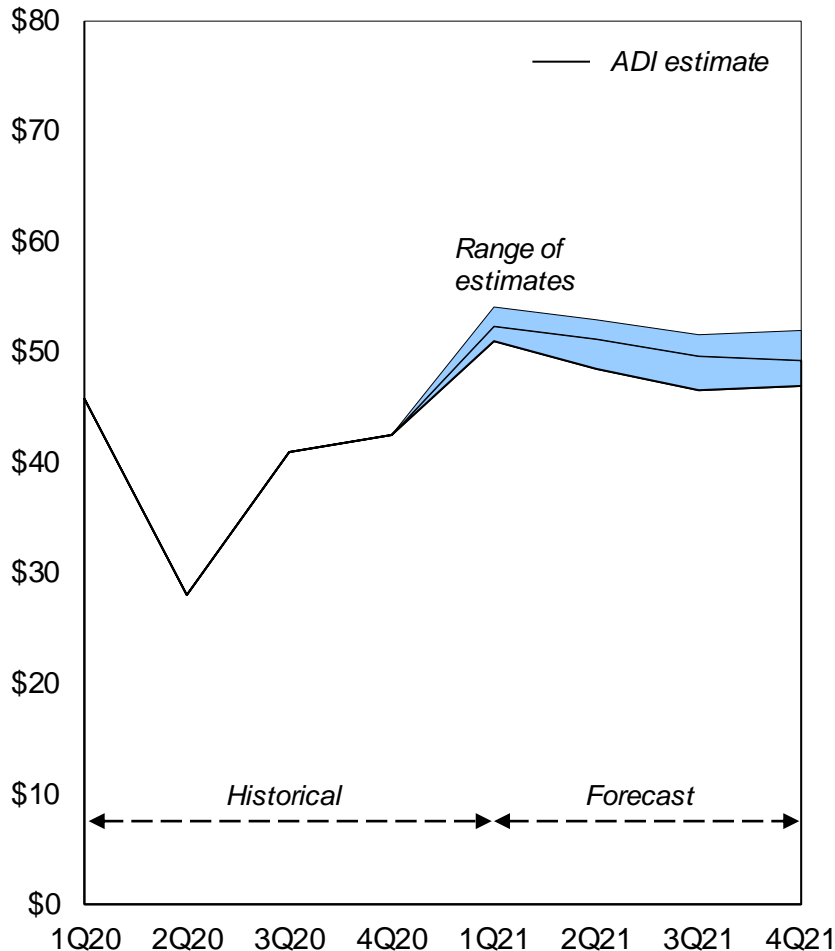
- Trinidad and Tobago seek a buyer for its state-run 140,000-bpd Petrotrin refinery that ceased operations two years ago to curtail losses. The government requires \$4 billion to run and upgrade the refinery and repay \$2 billion debt.
- Brazilian group Ultrapar Participacoes is leading talks to acquire Petrobras' 200,000-bpd Refap refinery in the state of Rio Grande do Sul. The move will strengthen the position of private investors in Latin America's largest fuel market.

Petrochemical Integration

- OMV is expanding and modernizing its cracker units and petrochemical cold section at its Burghausen Refinery in Germany to increase the site's ethylene and propylene production capacity by the third quarter of 2022.
- Sinopec has selected Wood for \$120 million EPC services to expand the company's refinery in the Hainan Free Trade Zone in South China to produce up to 1 million tons of ethylene derivatives and refined products annually.

WTI crude oil prices will remain stable throughout 2021 with slow oil demand recovery and continuous oil production cuts

WTI Spot & Forecast Prices (USD Per Barrel)

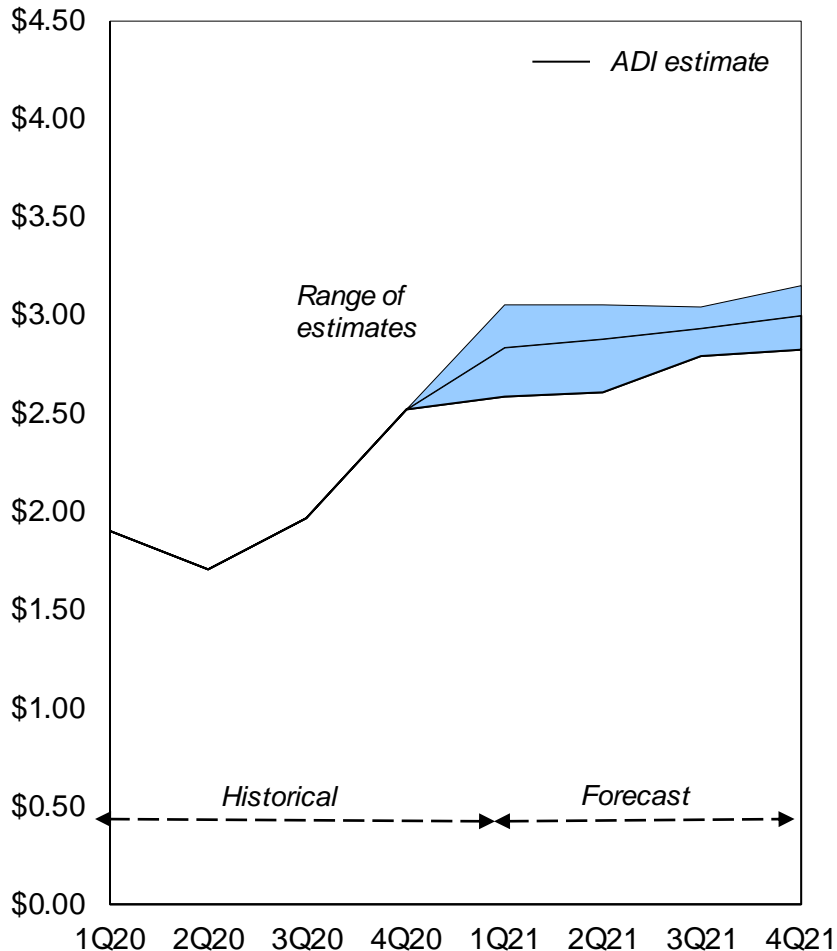


Discussion

- **Crude oil price outlook**
 - WTI crude oil prices picked up steadily at the end of 4Q 2020 and beginning of 1Q 2021
 - ADI forecasts it to remain between \$45 to \$55 for the rest of 2021
- **Crude oil demand outlook**
 - Crude oil demand is expected to pick up slowly with increasing economic recovery aligned with recent COVID-19 vaccines approval and administration
 - U.S. crude oil exports to refiners in Asia and Europe will also remain supported by consistent production cuts announced by OPEC+ nations
- **Crude oil supply outlook**
 - U.S. oil production averaged 11.3 million bpd in 2020 but fall by 2% in 2021 due to ...
 - ... lower drilling and well curtailments

U.S. natural gas prices will remain robust in 1Q 2021 supported by falling production and rising U.S. LNG exports

Henry Hub Spot & Forecast Prices (USD Per Million Btu)

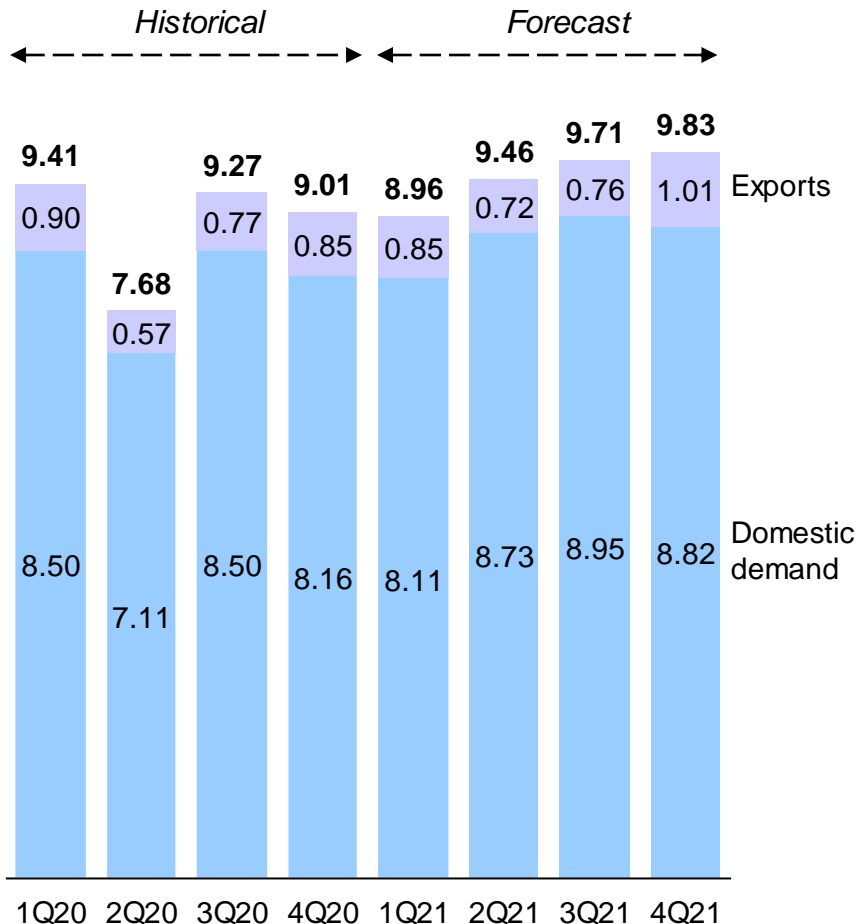


Discussion

- **Natural gas price outlook**
 - Natural gas spot prices will continue to rise in 1Q 2021 and ADI expects Henry Hub spot prices to stay below \$3.20 per MMBtu in the rest of 2021
- **Natural gas demand outlook**
 - Although natural gas demand fell in the U.S. due to warmer temperature, U.S. LNG exports stayed at record level
 - Higher Henry Hub natural prices will keep U.S. gas demand for power, residential, and commercial sectors low in 2021
- **Natural gas supply outlook**
 - Natural gas supply is expected to fall in 1Q 2021 due to reduced associated gas production but ...
 - ... higher oil demand and prices may grow natural gas production in the upcoming months

U.S. gasoline demand and exports will continue to fall in 1Q 2021 but are expected to pick up in the second half of 2021

U.S. Motor Gasoline Demand (Million Barrels Per Day)

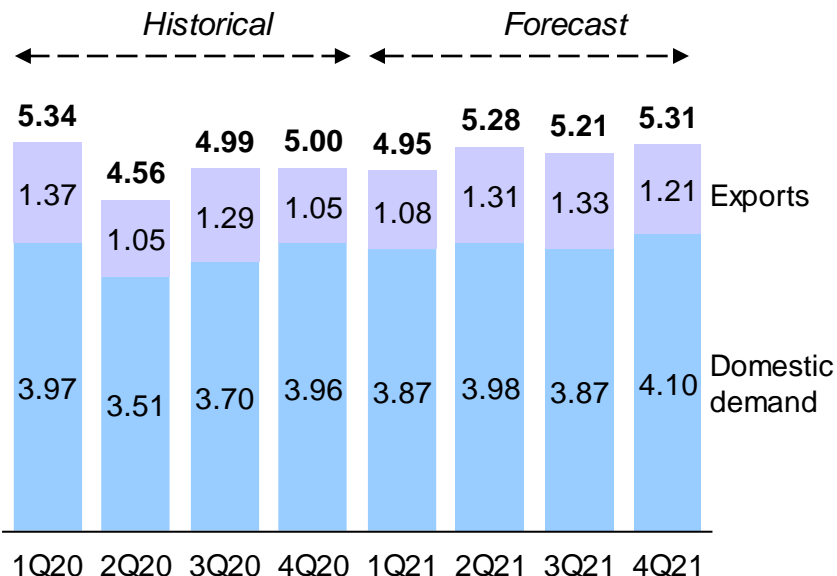


Discussion

- **U.S. gasoline demand outlook**
 - U.S. gasoline consumption is expected to average 8.1 million bpd in 1Q 2021 which will be 5% lower year-over-year
 - Reduced commutes due to work-from-home amid COVID-19 will limit gasoline demand growth in the first half of 2021
- **U.S. gasoline supply outlook**
 - U.S. total gasoline stocks including gasoline blending components in the beginning of 1Q 2021 remained at ~244 million barrels, 5.6% lower year over year and 2.3% lower than the 2016–20 average as gasoline production fell due to lower refinery utilization
- **U.S. gasoline exports outlook**
 - U.S. gasoline exports in 1Q 2021 is expected to remain consistent with the prior quarter at 0.85 million barrels per day and 6% lower yoy due to slower demand growth across the globe from the COVID-19 pandemic

U.S. distillate demand and exports in 1Q 2021 will remain lower yoy but are expected to recover to 2019 levels faster

U.S. Distillates Demand (Million Barrels Per Day)

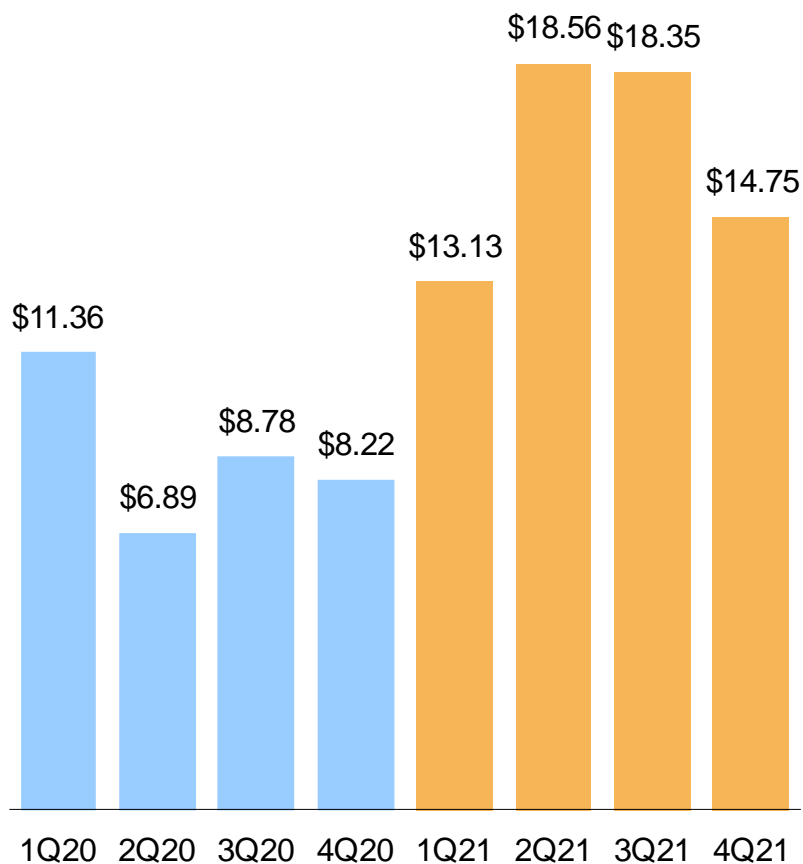


Discussion

- **U.S. distillate demand outlook**
 - U.S. distillate consumption in 1Q 2021 will average 3.87 million barrels per day, 5% lower year-over-year
 - U.S. distillate demand is expected to recover faster through the rest of 2021 aligned with growth in economy and freight activity
- **U.S. distillate supply outlook**
 - U.S. distillate stocks in the beginning of 1Q 2021 rose to 162 million barrels, 12.3% higher yoy and 6.8% higher than the 2016–20 average
 - U.S. distillates stocks is expected to fall in the upcoming quarters due to growth in domestic consumption as well as exports
- **U.S. diesel export outlook**
 - U.S. distillate exports in 1Q 2021 will remain 1.08 million barrels per day, 21.2% lower yoy due to slower recovery in the global economy amid resurgence of COVID-19 cases

USGC 3-2-1 crack spreads in 1Q 2021 will pick up amid rising gasoline and distillate prices coupled with lower oil prices

U.S. Gulf Coast 3-2-1 Crack Spreads (USD Per Barrel)

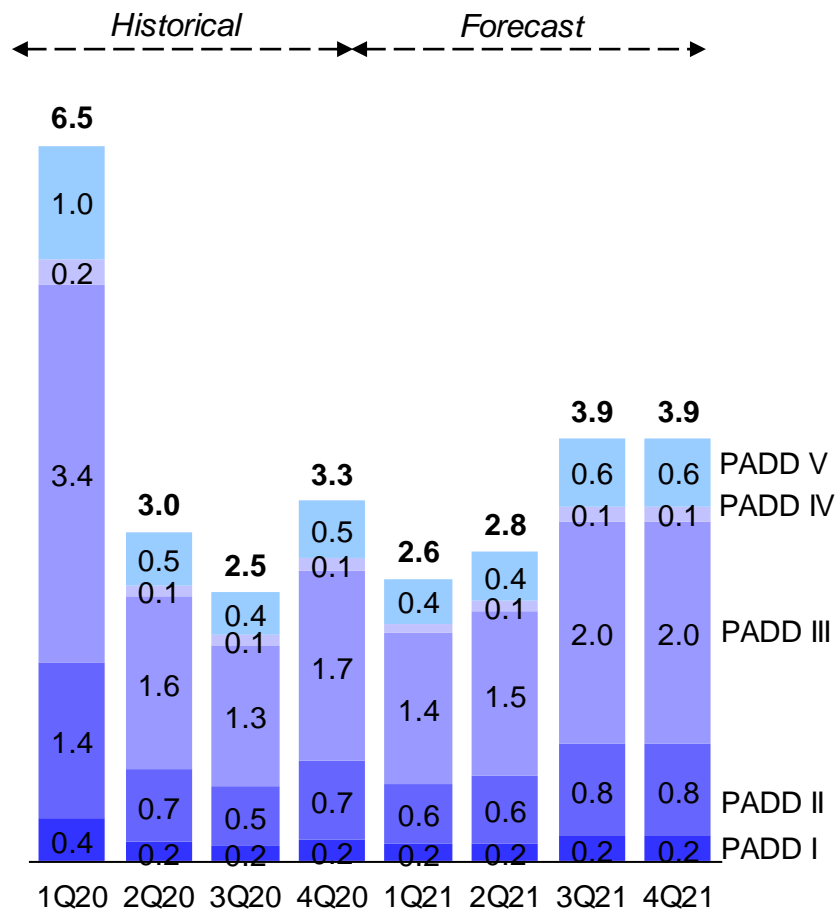


Discussion

- U.S. Gulf Coast 3-2-1 crack spread will pick up in 1Q 2021 with increased prices for both gasoline and distillate and consistently lower crude oil prices
- U.S Gulf Coast crack spread is expected to pickup further in the upcoming quarters with expectations of near-term fuel demand recovery due to coronavirus vaccine approvals and administration
- U.S. distillates demand will pick up faster than that of gasoline, contributing to the higher crack spread in the upcoming quarters
- U.S. crude oil prices will also hover between \$45 to \$55 per barrel supporting U.S. Gulf Coast 3-2-1 crack spread through the rest of 2021
- However, the crack spreads will likely not reach pre-COVID levels until the end of 2021

U.S. downstream companies plan to further cut their capex yoy in 2021 with most of it allocated for sustaining activities

U.S. Downstream Capex By PADD (USD Billion)



Discussion

- U.S. downstream companies will maintain a capex cut of 10-15% yoy in 2021 with respect to post-COVID guidance in 2020 due to slower pace of fuel demand recovery expected in 2021
- U.S. downstream companies will continue to spend capex mostly for sustaining activities in the near-term and shift turnarounds mostly to the second half of 2021
- Growth capex will be deterred until fuel demand recovers to pre-COVID levels with only essential high-valued projects going forward

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2020 Global Small-Scale LNG Review



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Future of refining: Rationalize, reduce, and repurpose

Future of refining: Rationalize, reduce, and repurpose



January 2021

The global refining sector has been severely hit by the outbreak of COVID-19 pandemic with dramatic cuts to fuel demand. In 2020, global oil demand was ~91.3 million barrels per day (MMbpd), almost 9% lower year over year. Most of the fuel demand destruction came from the transportation sector as countries across the world began to impose lockdowns for containing the virus. This led to an oversupply of fuels in the market with rising inventories impacting refining margins severely. In response, refiners across the globe lowered their utilization rates, shifted product yields, cut growth and sustaining capital spending, deferred turnarounds and growth projects, and accelerated decisions to shut down refineries or convert them into renewable fuels plant and terminals.

Fuel demand will pick up but will likely not reach the pre-pandemic level until 2023. Jet fuel demand will take longer to recover than gasoline and diesel demand.

While global fuel demand continues to remain subdued, some regions are facing more hurdles than others with the resurgence of a new strain of COVID-19 and new lockdowns. On the flip side, recent progress in approval and administration of different COVID-19 vaccines and government stimulus programs coupled with eased lockdowns in major Asian economies have shown signs of hope which can support both the global economy and fuel demand going forward. Against this backdrop, we share ADI's research and outlook for the refining sector in 2021 and beyond.

Fuel demand will reach 2019 levels by 2023

Global fuel demand destruction for gasoline and diesel has fallen in the second half of 2020 with easing lockdowns. Growing personal preference for road travel over air travel has supported gasoline demand while significantly distressing jet fuel demand. Further, e-commerce related trucking activity has kept diesel demand fairly consistent. In the fourth quarter of 2020 global fuel demand was down only ~6% year-over-year at 94.7 MMbpd which is expected to rebound by 5.6 MMbpd in 2021 and achieve pre-pandemic level of recovery by the end of 2023.

Jet fuel demand will take longer to recover

In 2021, fuel demand is expected to reach 97% of the pre-pandemic level except for jet fuel that will likely continue struggling due to lower

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ADI's new advisory will provide a comprehensive, strategic, and insightful view of the downstream oil and gas industry

Research Goals

1

Downstream industry performance and profitability assessment and forecast

2

Downstream capital spending, investment outlook, and industry projects by key players

3

Issues and outlook for the downstream supply chain

4

Profiles and analyses of industry players, trends, projects, and news

Select Insights

- Crude oil pricing, supply, and forecast
- Fuel and product demand and outlook
- Refinery crack spreads and margins
- Plant utilization rates and turnarounds
- Industry outlook with risks and drivers
- Industry investment drivers and analyses
- Capital spending and forecast by region
- Breakdown of capital spending by key segments across the supply chain
- Key industry projects by player
- Trends and opportunities in supply chain
- Outlook for key parts of the value chain
- Winners and losers across key scenarios
- Supplier profiles and business models
- Profiles of industry players and projects
- Summaries and analyses of industry news
- Signposts and milestones for key trends
- Strategic insights and future scenarios

Frequent and regular updates will cover a wide range of metrics and issues in the North American downstream market

1

Industry Performance and Market Analytics

Capacity utilization rates	Product supply and demand analyses	Capital and operating costs	Commodity price scenarios in near- and mid-term
Regulatory landscape	Maintenance and turnaround plans	Regional supply and demand analyses	Players strategies and global competition

2

Strategic Insights

Corporate strategy review and analysis	Asset / competitive strategy review and analysis	Investment strategy review and analysis	Geopolitical strategy review and analysis
Industry-wide supply and demand analyses	Risk management strategy review and analysis	Operations / technology strategy review and analysis	Processing needs and costs

3

Stakeholder Analyses

Operator profiles and analyses	Supplier and supply chain assessments	Industry news summaries and analyses	Stakeholder outlook
Competitive landscape	Stakeholder outlook in key scenarios	Technology and industry / supply chain impacts	Supply chain outlook

In addition, ADI will review every month a topic in depth covering the entire downstream value and supply chains



[Refining Capex Outlook Post-COVID](#)



[Global Methanol Outlook](#)



[Refineries' Road to Recovery – PADD Level Analysis](#)



[Crude Oil to Chemicals](#)



[Riches to Rags – Downstream O&G in Perfect Storm](#)



[Rising Octane Value and Aromatics Markets](#)



[Global Crude Oil Supply-Demand Scenarios Post COVID](#)



[Strategic Issues in U.S. West Coast Refining Market](#)



[Hydrogen Market Outlook](#)



[Global Biodiesel and Renewable Diesel Markets' Outlook](#)



[Digital Initiatives in Downstream Oil and Gas](#)



[The Wave Isn't Temporary – Cracker Cycle Continues](#)

Our research service will offer several deliverables to provide rich, data-driven insights into the downstream market

	Deliverable	Format	Frequency
1	Monthly market snapshot	Report	Monthly
2	Market data and analytics	Spreadsheet	Monthly
3	Industry insights	Report	Monthly
4	Quarterly conference call	Interactive conference call	Quarterly
5	Analyst access	Live	On-demand
6	Complimentary admission to ADI Forum	Conference	Annual

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Refiners	Engineering, procurement, and construction (EPC) companies
Chemical companies	Process licensors
Traders	Catalyst vendors
Investors	Industrial gas players
Financial institutions	Equipment manufacturers
Government agencies	Service providers

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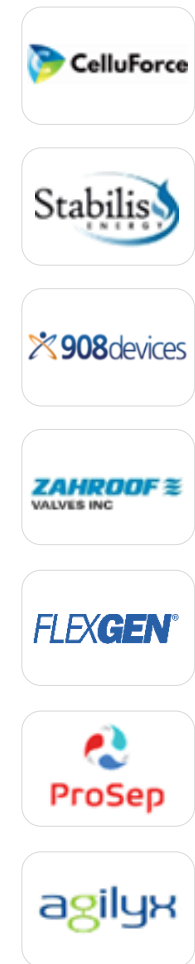
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