

September 03, 2019

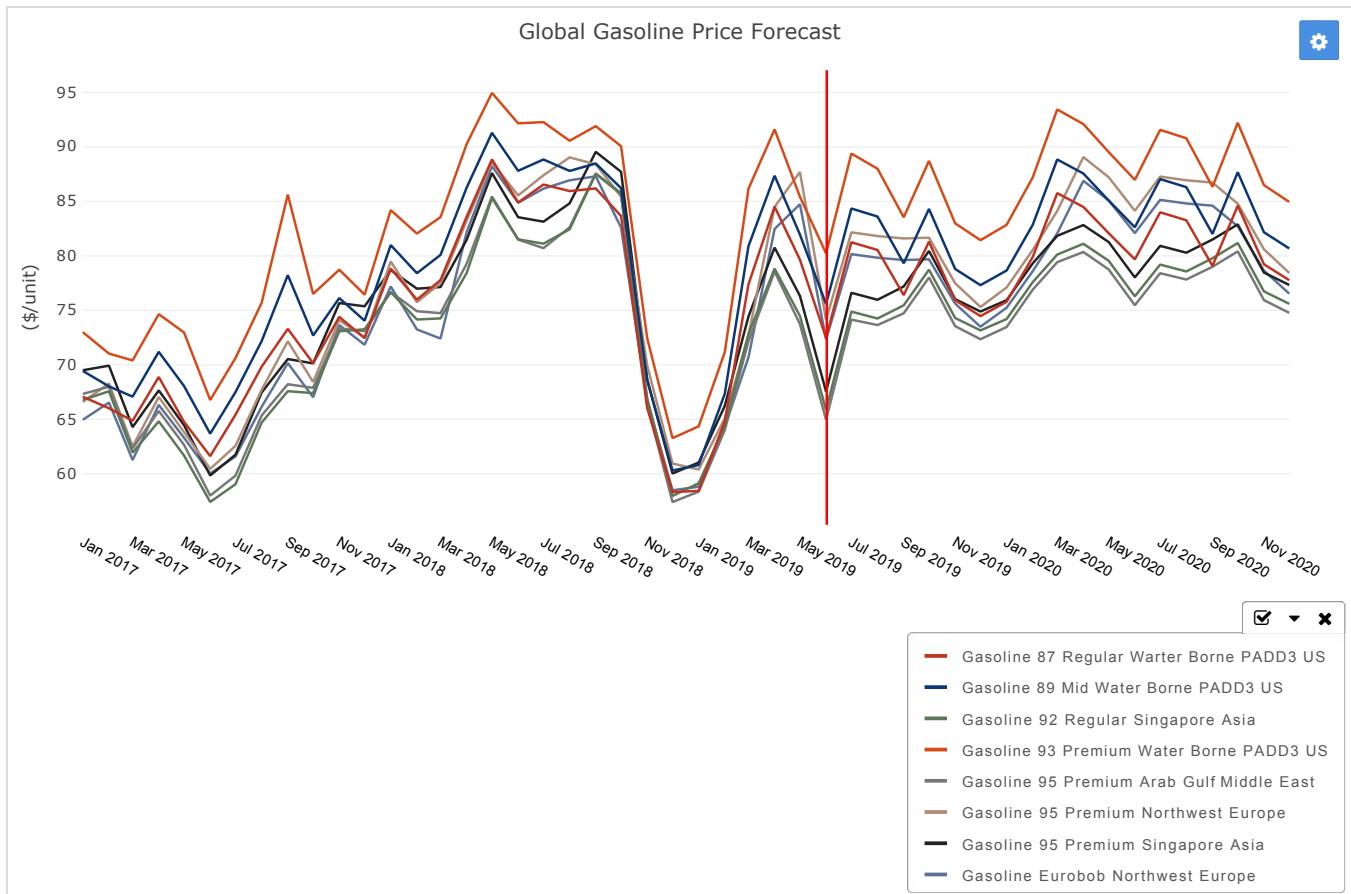
Stratas Energy Perspectives - Global Fuel Quality Snapshot

Energy Snapshots: The Energy Snapshots cover the eight energy-sector categories Global Oil, Global NGLs, Global Natural Gas, Global Refined Products, Global Fuel Quality, Global Automotive, North American Midstream, and Macro-Level are now offered as part of our service -- [Stratas Energy Perspectives](#).

This service is focused on empowering industry leaders and decision-makers with strategic insights across the energy sector and related sectors, including transportation, power and petrochemicals. Additionally, the service includes videos, webinars and databases. Clients also have access to data tools, interactive custom charting with the ability for data downloads, and mapping tools. Furthermore, clients will have access to analysts and consultants from across our practice areas -- macro, upstream, midstream, downstream and Fuel & transportation -- on as-needed basis. To learn more or subscribe please [Contact Us](#)

Gasoline Octane

Region: Fuel Price Type:



Sources: Platts, Bloomberg, and Stratas Advisors' forecasting model from cited historical data

Most countries are reviewing gasoline specifications and trying to align gasoline parameters with regional or international standards. Even if some regions are already harmonized, it will still take some time for others to achieve this goal.

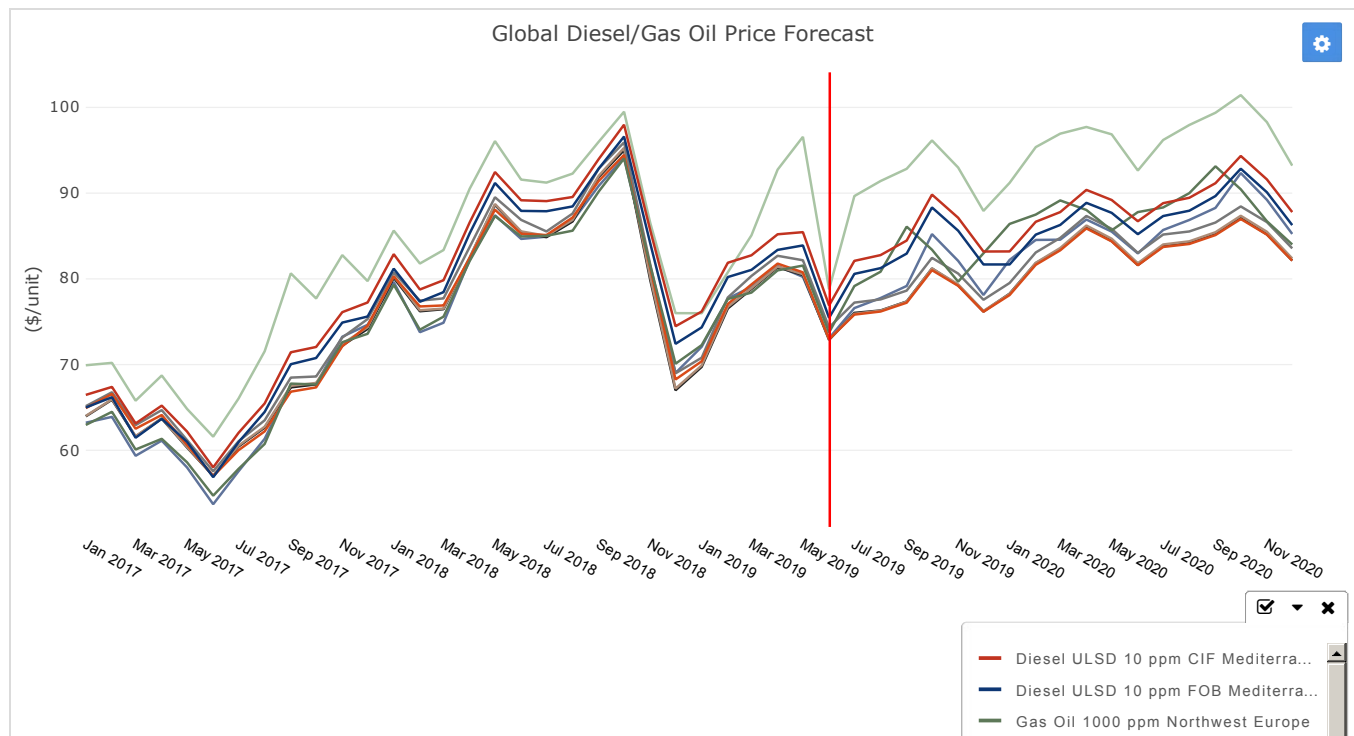
Developing countries are primarily focusing on reducing sulfur content, but also looking at decreasing benzene, aromatics and olefins content. Both developing and developed countries alike have plans to further increase octane to enable advanced emission control technologies on vehicles. The time frame for implementation of stricter harmonized standards will vary country by country, since there are different configurations in place for their refining industries, varying fuel import sources, diverse vehicle fleets and/or erratic political and market conditions.

Around the world, current gasoline octane grades range widely from RON 80 to RON 100 (or AKI 81 to 91 in the Americas) (see Reports & Analysis, [Nov. 26, 2018](#)). Most countries have two or more grades available on their markets. In general, regular grades dominate the gasoline pool with octane ratings of RON 80 to RON 97 (or AKI 81 to 87). However, six of the top 10 markets outside of the Americas do not share a common gasoline grade, highlighting the difficulty in achieving globally harmonized standards. In the Americas, the 87 AKI grade is a common grade.

Indonesia and Tajikistan are recent examples of plans to gradually phase out lower octane gasoline grades, which are often used in motorcycles, very old vehicles or by off-road applications such as fishing boats, agricultural machinery or small spark-ignition engines of non-road mobile machinery. Indonesia's national oil company Pertamina is also in the process of replacing RON 88 gasoline grade with RON 90 on the market though no information has been given on the timeline of its full replacement. At the same time, as high as RON 100 gasoline can be found in Asian countries like Japan, Malaysia, Philippines and several European countries.

Diesel/Gas Oil

Region: Fuel Price Type:





Sources: Platts, Bloomberg, and Stratas Advisors' forecasting model from cited historical data

In Africa, only Benin is expected to switch from 3,500 ppm to 50 ppm in 2019, a move that was delayed in both 2017 and 2018. However, the implementation timeline is still unknown at this stage due to the possibility of fuel prices increasing in the country. Thus the risk of yet another delay is high.

In the Asia Pacific, only Brunei is expected to switch from 1,000 ppm to 10 ppm by Q4 of 2019. India and Malaysia have announced plans to change to 10 ppm from April and September 2020 respectively.

In the Middle East, both Iran and Kuwait have delayed their sulfur reduction plans from 2018 to 2019, when Iran plans to reduce its diesel sulfur limit from 10,000 ppm to 50 ppm, while Kuwait intends to reduce its diesel sulfur limit from 2,000 ppm to 10 ppm. Stratas Advisors expects that it is unlikely for the changes in Iran to take place on time due to delays in necessary refinery upgrades. On the other hand for Kuwait, Stratas Advisors expects refinery upgrades to complete in time for the switch to 10 ppm locally.

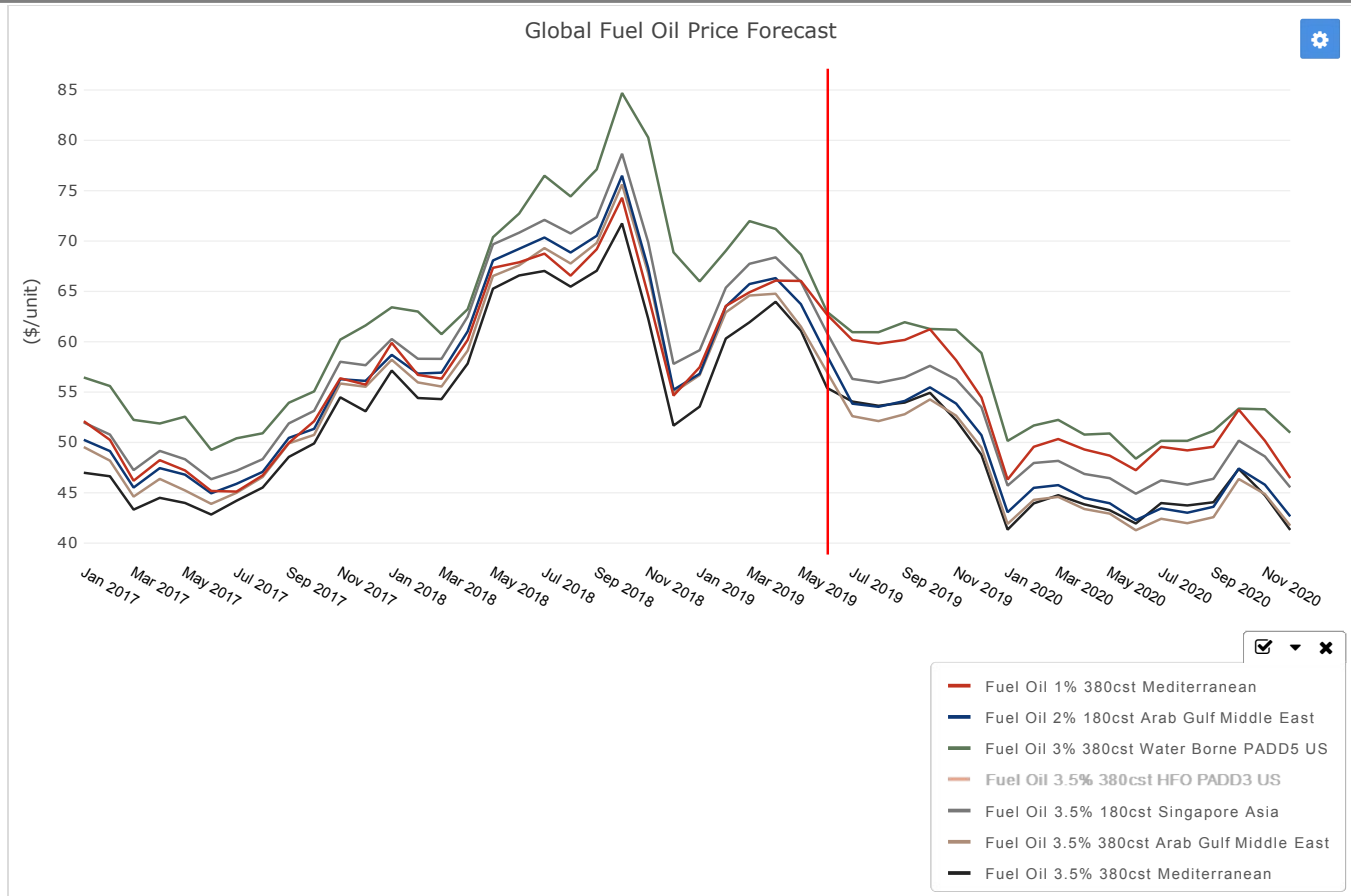
In the Russia & CIS region, Moldova plans to legislate the reduction of its diesel sulfur limit from 2,000 ppm to 10 ppm by September 2019, while Kyrgyzstan has delayed the switch of 500/350 ppm sulfur diesel to 50/10 ppm from 2018 to 2019. Stratas Advisors expects that it is likely for Moldova and Kyrgyzstan to lower their diesel sulfur limits on time. As for Tajikistan and Turkmenistan, there are plans for sulfur reduction to 10 ppm in 2020, although the exact implementation dates are unknown at this stage.

Looking across the world beyond 2020, several countries are planning or have confirmed plans to reduce their diesel sulfur limits to 50 ppm further and below. Many of the changes will take place in the regions of Asia Pacific, Latin America, the Middle East, and Russia & CIS.

As a step towards full implementation of more stringent standards, several larger countries such as Brazil, China, and India have taken the route of requiring 10 ppm or 50 ppm sulfur diesel in major cities ahead of the rest of the country. Generally, unconfirmed plans to reduce sulfur will only proceed depending on the progress of refinery upgrades of desulfurization units or distribution of the lower-sulfur diesel product on schedule.

Fuel Oil

Region	Fuel Price Type
All Regions	Fuel Oil Prices



Sources: Platts, Bloomberg, and Stratas Advisors' forecasting model from cited historical data

Globally, a continued focus on reducing pollutants is leading to wide-ranging changes in fuel quality standards, the most notable of which is of course IMO 2020. The shipping industry has limited options rather than to use HFO ($S \leq 0.5\%$ S m/m) or other compliant fuels. Even though MGO 0.1% can be readily used without modifying the ships, an increased number of shipping companies are opting for exhaust gas cleaning systems (aka scrubbers) highlighting that they are willing to continue using HFO ($S > 2\%$ S m/m). The shipping industry as a result will face increasing capital expenditures and operating costs. Increasing number of shipping companies are opting for EGCS to take advantage of an anticipated decrease in HFO ($S > 2\%$ S m/m) prices. About 3,800 ships, which are estimated to be installed with EGCS by 2020, will continue using HFO ($S > 2\%$ S m/m).