PLATTS ASIA GASOIL BENCHMARKS
NEXT STAGE OF EVOLUTION

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Environmental concerns, government regulations and advances in technology have progressively led to tighter fuel standards over the last few decades. In many countries around the world that trend has culminated in mandates for gasoil/diesel fuels that contain close to zero sulfur.

In Asia, the first key markets to arrive at that point were Japan and Australia, and a new wave of countries are set to join the group in the years ahead.

Across Asia and the Middle East, new refineries have been built and older ones upgraded, creating a significant increase in the availability of ultra-low sulfur diesel, or ULSD. At the same time, the shutdown of unprofitable refineries in countries with high fuel-quality standards, including Australia and Japan, has created even larger demand centers for these products at regional trading and supply hubs like Singapore.

The result has been a steady rise in the flow of ULSD throughout Asia over the last few years. The share of ULSD in the region's waterborne gasoil trade is set to grow further as more countries in Asia and the Middle East raise their fuel quality standards by the end of this decade.

In line with the shift in Asia's trading dynamics towards cleaner fuels, S&P Global Platts in 2013 updated its benchmark Singapore Gasoil assessment to reflect a grade with lower sulfur content. Platts renamed the benchmark “Singapore Gasoil”, removing any specific reference to sulfur content in the benchmark's name. Platts then updated the specification defined in the benchmark to reflect gasoil containing no more than 500 ppm sulfur, a tenfold reduction from the previously specification of maximum 5,000 ppm.

Platts also lowered the sulfur maximum in its flagship Arab Gulf Gasoil netback assessment to 500 ppm.

At the time, Platts further committed that it would continue to study the market and observe trade flows to ensure the benchmark continues to evolve as the broader industry moves towards even lower-sulfur diesel standards.

Changes in the waterborne trade since then, coupled with new goals set by countries to move to even lower-sulfur fuel, suggest that the time may be approaching for further changes in the benchmark. Platts recognizes its responsibility to the market and stakeholders to ensure its benchmark assessments are robust and remain relevant in ever-changing markets.

Platts is therefore actively considering whether and when to evolve the FOB Singapore Gasoil benchmark assessment to the 10 ppm sulfur grade. This white paper aims to take the discussion further on the evolution of Asia's gasoil benchmark.

Many of the catalysts that drove the previous change in the benchmark to 500 ppm gasoil are at play again, as changes in government regulations and supply-demand fundamentals build momentum for a shift to lower-sulfur fuels in Asia.

In recent years, the volume of 10 ppm gasoil trades reported through the Platts Market on Close (MOC) assessment process has grown substantially. In contrast, 500 ppm gasoil traded more sporadically before it became the primary benchmark in the region in 2013.

Platts benchmark assessments are widely used a reference point for determining the value of short- and long-term physical contracts, as well as financially settled derivatives contracts, that involve a wide variety of counterparties and government entities. Therefore any change in the benchmark would require considerable advance notice.

Platts aims to engage with a wide array of stakeholders and industry participants to discuss the potential changes. Platts intends to give ample notice to all stakeholders of any forthcoming changes in the gasoil benchmark -- the 2013 amendment was announced in mid-2011.

As of August 2016, Platts publishes assessments for four grades of gasoil on a Free on Board Singapore basis: medium-sulfur grade 0.25% sulfur [2,500 ppm]; low-sulfur gasoil 500 ppm and 50 ppm; and ultra-low sulfur diesel 10 ppm. The oldest of those assessments, the 0.25% sulfur grade, was launched in 1999. The newest assessment, 10 ppm, was launched in November 2008.

Since the benchmark assessment, “Singapore Gasoil,” reflects the value of 500 ppm sulfur gasoil, it reflected the same value as the named 500 ppm assessment. This would change if Platts reduces the maximum sulfur content reflected in the “Singapore Gasoil” benchmark. A potential shift to 10 ppm would not require a change in the benchmark's name, but only in the grade it represents. In the Middle East, Platts publishes assessments for four grades of gasoil on an FOB Arab Gulf basis: 0.25% (2,500 ppm), 500 ppm, 50 ppm and 10 ppm. As with FOB Singapore, the 0.25% sulfur assessment was launched in 1999; the most recent assessment, 10 ppm, was launched in April 2015.

For the switch to 500 ppm gasoil in 2013, Platts recommended a differential of $1.70/barrel could be used by counterparties to shift their 0.5% sulfur positions to 500 ppm sulfur. The differential was calculated using the spread between Platts assessments of the two grades during 2011 and early 2012.

Platts recognizes a further change in the benchmark to 10 ppm may benefit from a similar approach to help with transition.

**ASIA’S MOVE TOWARDS CLEANER FUELS**

Platts assessments of different grades of gasoil in Asia are a reflection of the range of fuel grades in use by countries across Asia and the Middle East – all four grades may be used in different
ways in their own right, while they are also regularly blended to meet location-specific sulfur requirements that may differ again. Government regulations dictate the quality of transport fuels, and vary from country to country and region to region.

Key countries in the region including Japan, South Korea, Taiwan, Singapore, Australia and New Zealand moved to what is essentially sulfur-free diesel from as early as 2009. In recent years, the drive to adopt ultra-low sulfur diesel in countries in Asia, Africa and the Middle East has gained momentum, fueled by more stringent emission standards amid efforts to improve air quality in Asia’s bustling cities.

Two of the world’s biggest oil consumers China and India have also drawn up new regulations to further tighten sulfur standards in fuels by 2017. China is targeting a nationwide shift to 10 ppm sulfur diesel for on-road vehicles by January 2017. The mining and agricultural sectors are expected to make the move in January 2018. India introduced 50 ppm sulfur diesel in some metropolitan areas in 2010, and since then the number of cities adopting Euro 4-equivalent standards has risen to more than 60. India is expected to switch to 50 ppm sulfur diesel nationwide by April 2017, and has plans to adopt Euro 6 compliant fuels by 2019.

In Australia, the closure of half its refining capacity in recent years has turned the country the biggest buyer of 10 ppm gasoil in Asia with imports rising by 44% between 2012 and 2015.

At the region’s primary oil trading hub of Singapore, refineries upgraded to produce 10 ppm gasoil from 500 ppm and 0.5% gasoil before 2013, in line with tighter national sulfur emissions standards set by the National Environment Agency. Singapore adopted Euro 5-equivalent diesel specifications in January 2014. To meet domestic and export demand, three of the four refineries in Singapore have been upgraded to produce 10 ppm sulfur diesel.

These factors and others have contributed to the growth of traded volumes of 10 ppm gasoil in the open market steadily since 2013. That trend is expected to continue as destination markets continue to evolve towards cleaner fuels.

Within Southeast Asia, Thailand tightened sulfur emission standards to Euro-4 compliant fuels in recent years. The Philippines switched to 50 ppm sulfur diesel from 500 ppm sulfur in January 2016. Vietnam has drawn up plans to shift to 50 ppm sulfur diesel when its second refinery Nghi Son Refinery and Petrochemicals LLC comes online, slated for end-2017. Malaysia plans to switch to 10 ppm gasoil when its new RAPID refinery, in Southern Johor, comes online around 2020.

500 PPM TO REMAIN A KEY REFERENCE IN NEAR TERM

Much of the growth in trade of 10 ppm gasoil has been driven by new demand coming into the market, as well as fresh supplies from recently built or upgraded refineries.

Meanwhile, trade in higher sulfur gasoil grades has also seen steady growth, suggesting that the current benchmark grade - 500 ppm - remains a robust reference for the region at the moment.

Bangladesh, Vietnam, Sri Lanka and Myanmar shifted from 0.25% and 0.5% sulfur gasoil to the lower sulfur grade in recent years, filling in the void left by Singapore and Thailand when both countries tightened their standards from 500 ppm. Data from government agency IE Singapore shows that among the top 10 export destinations for Singapore gasoil in 2014 and 2015, all except Australia, Netherlands and Hong Kong import gasoil with sulfur content of 500 ppm or higher. Key destinations include Malaysia, Indonesia, South Africa, Vietnam, Sri Lanka, Bangladesh, Myanmar and Angola, and they collectively account for 70-80% of total gasoil exports from Singapore to the top 10 destinations.

Since the switch to 500 ppm as a benchmark in 2013, trading activity in the grade has surged and today accounts for a majority of deals across the region and in the wholesale Singapore market. A vast number of physical supply contracts and retail diesel prices across Asia and the Middle East are now linked to the 500 ppm benchmark.

The transition underway in the market towards ULSD points to a possible longer term decline in share of 500 ppm trade within Asia Pacific over the next several years. In recent years, this has been reflected in the Platts MCC process, as the share of 500 ppm trades in the overall mix fell to 70% year to date in 2016 from its high of 84% in 2013.

TOP 10 EXPORT DESTINATIONS IN 2014 FOR GASOIL FROM SINGAPORE

Source: JODI

0 200 400 600 800 1000 1200
0 2000 4000 6000
2012 2013 2014 2015

Source: IE Singapore

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Gasoil with even higher sulfur content has seen a drastic drop in liquidity. The share of 0.25% sulfur gasoil deals in the Platts MOC fell from 6% in 2013 to 0.2% in 2014. There were no trades of 0.25% sulfur gasoil in 2015 and year to date in 2016 during the Platts MOC process.

Buying demand for high sulfur gasoil is also on the decline in Indonesia, the region’s third largest gasoil importer from the trading hub of Singapore. Indonesia has seen a 33% decline in imports of 0.3% sulfur gasoil since 2013 due to sluggish mining demand and increased blending of domestic biodiesel, according to data from Statistics Indonesia.

While 500 ppm gasoil remains the dominant reference price for both physical and derivatives markets in Asia, the growth in trade of 10 ppm gasoil in recent years is seen as an important turning point for the industry. In the Platts MOC process, the share of 10 ppm sulfur gasoil trades has jumped from just 9% in 2013 to 30% year to date in 2016 that’s also driving a nascent flow of derivatives settling against the Platts 10 ppm gasoil physical assessment.

These trends in Asia mean the region is joining a global shift towards low-sulfur, or virtually no-sulfur, diesel and gasoil. In the US, a clear switch to ULSD happened over the past decade as key states limited sulfur content in distillate fuels used for heating: beginning with New York in July 2012 and followed by Connecticut in mid-2014.

With the underlying physical markets changing, the New York Mercantile Exchange announced in April 2012 that it would amend the contract specifications for its key Heating Oil futures contract from 0.2% sulfur to 15 ppm from May 2013.

In Europe, the automotive diesel market transitioned to 10 ppm sulfur via the Euro V specifications that came into force in the European Union in 2009. Some remaining pockets of demand for high-sulfur gasoil – such as the heating oil market in Germany – were further reduced by tax incentives to switch to 50ppm. The key European futures contract, ICE Gasoil, was amended from February 2015 contract to reflect 10 ppm ULSD.

The ICE futures contract is bought and sold by traders together with Singapore 500 ppm gasoil swaps to lock in an east-west spread or EFS which acts as a hedge against exposure to the physical flow of gasoil between Middle East and/or India and Europe.

**MIDDLE EAST, AFRICA MAKING THE MOVE**

The shift towards ultra-low sulfur diesel has been particularly prominent in the Persian Gulf and Africa in recent years, with these regions outpacing Asia Pacific with the adoption of clean fuels between 2013 and 2016.

As of 2016, the United Arab Emirates, parts of East Africa and Israel have all set domestic standards for gasoil with sulfur levels at 50 ppm or lower. Alongside the increase in demand...
for ULSD, production for the grade has also surged during this period with the commissioning of three new refineries in the Middle East.

Two of those are owned by Saudi Aramco in joint partnership with Sinopec and Total, while the third is an expansion of Abu Dhabi National Oil Co.'s Ruwais refinery. Put together, these three plants can produce an estimated 700,000-800,000 barrels a day of ULSD when run at full capacity.

At the same time, ADNOC converted most of its diesel production capacity to 10 ppm from 500 ppm since the nationwide launch of 10 ppm on-road diesel specifications in July 2014. Meanwhile, Bahrain's Bapco completed a $10-billion refinery modernization project that enabled it to produce 10 ppm in 2013 and has recently raised its 10 ppm production to meet rising demand.

Today, most exporters in the Middle East – Abu Dhabi, Bahrain, Qatar, Oman, Dubai and parts of Saudi Arabia – are producing 10 ppm sulfur diesel. Among the few remaining producers of high-sulfur gasoil exporters, Kuwait is starting up a greenfield Al-Zour refinery and planning upgrades at its Mina Abdullah and Mina al-Ahmadi refineries. These projects will enable it to produce and export 10 ppm diesel from mid-2018.

Among importers, Iraq, Yemen, Pakistan and Egypt represent the last few pockets of demand for 500 ppm sulfur and high-sulfur gasoil, and now account for only a fraction of overall trade. Saudi Arabia, previously the largest importer of 500 ppm gasoil in the region, is targeting a shift to 50 or 10 ppm likely before the end of 2017.

Despite a drop in its imports after erecting new refineries, Saudi Arabia still remains the single largest buyer of gasoil in the region with average imports of 1 million mt/month in 2015, and 645,000 mt/month on average between January and April this year, according to data from JODI.

Several projects are underway in the kingdom to accomplish its goal of producing near-zero-sulfur fuels from 2016. These include the Ras Tanura Refinery Clean Fuels and Aromatics project, the Riyadh Refinery Clean Transportation Fuel project, the Saudi Aramco Mobil Refinery Co. (SAMREF) Clean Fuels project and the PetroRabigh Clean Fuels project.

In East Africa, key importers Tanzania, Kenya, Rwanda, Uganda and Burundi have all tightened their sulfur standards for diesel to 50 ppm since January 2015. South Africa currently consumes both 50 ppm and 500 ppm sulfur gasoil, and has no plans so far to shift to 10 ppm diesel.

Platts in April 2015 launched assessments for the FOB Arab Gulf 10 ppm gasoil, underscoring the growth in both demand and supply side of the ULSD market in Middle East and Africa.

**CONCLUSION**

It is clear that the drive towards ULSD East of Suez has regained the momentum of the last decade, and that by the turn of the next decade 10ppm will likely be the pre-eminent distillate fuel in the region. The benchmark price assessment should reflect the most widely traded and most fungible grade of gasoil in order to ensure that it remains robust and relevant. This means that the benchmark should be ready move to the low sulfur grade in coming years.

That is not to say that all distillate fuel in Asia and the Middle East will be ultra low sulfur. A benchmark functions by providing a key reference within a web of inter-related markets, providing a common point of comparison across multiple locations, times and price spaces.

But it is to say that within the next few years the ULSD market may provide the most stable basis for a benchmark of any distillate grade in Asia. And so the key question becomes one of timing, as well as specification. Should Platts move earlier to move its assessments to the ULSD base benchmark? Or would a more measured approach be called for? And what is the best approach to such a shift? Should the model from 2011-2013 be repeated, or are there better alternatives?

These are the key questions that Platts will now move to discuss with all stakeholders. Platts invites views, feedback and data from any interested parties. Platts will announce any proposals in subscriber notes, inviting further feedback on those proposals before a final decision is reached.