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In This Issue

TM&C Services

Give Credit where (Sulfur) Credits are Due

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TM&C Services in Fuel Regulations

TM&C provides a full range of services in its fuels regulatory practice. Some of these services are listed below.

- Preparing, reviewing and submitting fuels reports, including CDX submissions.
- Facility audits for compliance with fuels programs.
- Interaction with EPA to pose fuels-related

Phasing in Regulatory Programs

Many programs that are legislated are phased in rather than put in place in a single year. There are several reasons for phasing in programs. It allows regulated parties more time to make investments to comply, although not necessarily adequate time. On a more cynical note, it allows the current politicians to take credit for some perceived benefit without immediately suffering the economic cost.

The renewable fuel program is a perfect example. The early compliance was simple and not disruptive; however, as the addition of ethanol approached the blend wall, the program became so untenable that it was essentially allowed to operate on auto pilot for two years with obligations set after the compliance period rather than before the compliance period as required. In the early years of the program, votes could be garnered from the ethanol producing states, but when the program threatened to limit transportation fuel supply as the ethanol blend wall was reached, the chickens came home to roost, and the program was modified.

Give Credit where (Sulfur) Credits are Due

by Tom Hogan

Reducing Sulfur in Gasoline (Tier 2 and Tier 3)

The latest example of this is the sulfur in gasoline regulations. They were and will be phased in through Tier 2 and Tier 3. The logic began with the assumption that lower sulfur in gasoline was environmentally beneficial. Tier 2 limited the sulfur in gasoline to an annual average of 30 ppm in 2004 and beyond with a per gallon cap of 80 ppm. Under the assumption that anything lower is better and probably because the European specifications were set at 10 ppm, Tier 3 limited the sulfur in gasoline to

questions.

- Industry specialist assistance for required gasoline attestations.
- Industry specialist assistance for in-line blending audits.
- Assistance in setting up a fuels compliance group/program.
- Personnel reviews of compliance-related groups.
- Compliance status reviews and recommendations.
- Negotiations/ consultation during EPA enforcement actions.
- 3rd-Party Engineering reviews.
- Due diligence reviews of facilities and companies in RFS RINs Program.

an annual average of 10.00 ppm with the same 80 ppm cap beginning in 2017. For perspective, the average sulfur in gasoline in 1990 (the RFG/anti-dumping baseline year) was around 340 ppm.

The program recognized that it might be more efficient to allow sulfur credits to be traded between refiners for those whose averages were above and below the 30 ppm target. This resulted in some refiners installing equipment to more than meet the standards, thus generating credits and some refiners installing enough equipment (or in some cases no equipment) to come close to the standard, but purchasing credits from others to meet the standard. There has been a robust market in gasoline sulfur credits. The credits have ranged in price from as low as $10 per million credits early in the program to over $300 per million credits on the eve of the implementation of the Tier 3 limits.

Cost of Sulfur Credits

For perspective on the cost to a refinery, a couple of examples are shown below.

The average refinery size in the United States is around 150,000 B/D of crude. Assuming gasoline yield of 50%, total gasoline production would be 75,000 B/D. Assuming a refiner's gasoline at 40 ppm sulfur, the cost for sulfur credits in different scenarios is shown below.

Sulfur credits @ $25/million credits and Tier 2 target of 30 ppm

- 75,000 X 42 X 365 X 25 X (40-30)/1,000,000 ~ $287,500
- About 0.025 cents per gallon of gasoline

Sulfur credits @ $350/million credits and Tier 2 target of 30 ppm

- 75,000 X 42 X 365 X 350 X (40-30)/1,000,000 ~ $4,025,000
- About 0.35 cents per gallon of gasoline

Sulfur credits @ $350/million credits and Tier 3 target of 10 ppm

- 75,000 X 42 X 365 X 350 X (40-10)/1,000,000 ~ $12,100,000
- About 1 cent per gallon of gasoline

The actual impact on the national gasoline production of the Tier 3 rules is difficult to assess unless you know the actual industry average annual sulfur content of gasoline. It is almost assuredly somewhere between 10 and 30 ppm. Also, it is difficult to assess if refiners with gasoline desulfurization equipment are currently running the equipment at maximum rate since sulfur reduction often results in octane loss, a valuable gasoline property. Therefore, it is difficult to say for certain how much new gasoline desulfurization equipment will be necessary for the

industry to install. Some additional investment has already been made to reduce sulfur in gasoline.

Sulfur Credits Facts

Sulfur credits generally have a five-year life. That is, credits generated in 2010 could be used through 2015. The sulfur credits generated in 2015 and 2016 are an exception and expire after 2019. There is a phase-in period for the Tier 3 limits in 2017 through 2019 where sulfur credits generated versus the 30 ppm standard in 2012 through 2016 can be used to meet the Tier 3 target. Therefore, adequate sulfur credits should be available to meet the Tier 3 rules through 2019; however, when the credits must be generated versus a 10.00 ppm standard, the availability of credits will become much more limited because not only will it be harder to generate the credit, there will be a greater demand for the credits. The cost of sulfur credits in 2020 is expected to be higher than the current credit price.

The program includes a special phase-in for small refiners, which allows them to comply with the 30 ppm standard through 2019 before being limited to 10.00 ppm beginning in 2020. Small refiners are also able to generate sulfur credits vs a 30 ppm standard in 2017-2019, but these credits can only be used by small refiners in their compliance calculations. This theoretically should be a small market.

Differences Between Sulfur Credits and Renewable Fuel Program RINs

Sulfur credits can only be owned by refiners. Therefore, the payments for sulfur credits result in a cost for some refiners and a revenue stream for other refiners. Presumably, each refiner determines whether it is more economic to produce credits or to purchase them. The net cash is kept within the industry. This is very different than the RINs in the RFS program. The cost of RINs is essentially a subsidy to the renewable fuel producers and the cost for RINs is a net loss to the petroleum industry; however, it does not mean that there is no cost for complying with the lower sulfur standard, it just means that the sulfur credit costs should not result in average higher costs for gasoline.

Refiner Strategy

There are several strategies actually, that can come out of the current sulfur credit market. If credits are cheaper than the cost of installing and running desulfurization equipment; buy as many credits as needed to tide you over through 2019.

If sulfur credits are cheaper than running existing desulfurization equipment, again; buy as many credits as are needed to tide you over through 2019.

By 2020, the cost of credits and the inability to economically justify installing new equipment might result in more marginal refinery

shutdowns.

2020 could be a dark year for capital-challenged refiners if the International Maritime Organization (IMO) institutes their low sulfur bunker fuel regulations, and the Tier 3 sulfur in gasoline regulations are too much to overcome. The IMO impacts are for another blog, however.

How do the Legislators Fare

This increase in the cost of producing ultra low sulfur gasoline in 2020, caused by the need to invest in additional desulfurizing equipment, was set in motion by legislatures in 2000 and 2014. Like many other legislated regulations, those who sponsored the bills will bear none of the responsibility for answering the questions on why transportation fuels are so expensive. The likely result? The transportation fuel suppliers will be criticized for increasing fuel costs.

Turner, Mason & Company stays abreast of these developments and can help you navigate the intricacies of the regulations and advise on how best to comply.

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