Turner, Mason & Company
CONSULTING ENGINEERS

Focus on Fuels

February 2014 Volume 4, Issue 2

In This Issue

TM&C Services

Where Have All The FFVs Gone

EPA has indicated that there may be significant changes to the RFS mandates for 2014 from those proposed late last year. The latest rumblings are that the biomass based diesel mandate might be increased significantly. It also appears that the final ruling will be delayed until sometime in the summer.

Two other programs that deal with similar subjects are the Corporate Average Fuel Economy (CAFE) program administered by the National Highway Traffic Safety Administration (NHTSA) and the Greenhouse Gas program administered by the EPA. Interestingly enough, the agencies made an attempt to harmonize the programs through a modification in a joint rulemaking back in 2012. Unfortunately, they did not include the RFS program in the master plan. This article discusses the changes in the two programs and how it might impact the RFS program.

We provide guidance in registration and independent engineering services required under the regulations to domestic and foreign biofuel producers. We can also help you sort through the newest wrinkles in these revised regulations as well as in any of the various fuels regulations. Please contact us if we can assist you in any of the U.S. fuels regulatory areas.

Tom Hogan, P.E.
Senior Vice President

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,

Where Have All the FFVs Gone?

by Tom Hogan

Are the flexible fuel vehicles destined to go the way of

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

the Dodo birds and become extinct? Probably not quite that extreme, but two government programs plan to decrease incentives related to the production of ethanol flexible fuel vehicles (FFVs).

The government's approach to forcing more ethanol into the U.S. gasoline pool, features two important programs. The first, and most publicly recognized, is the EPA's renewable fuel standards (RFS2) program which is scheduled to force upwards of 20-30 billion gallons of ethanol into the gasoline pool by 2022. This is far greater than the ability of a pool limited to 10% ethanol to absorb. The second, lesser known program, is the National Highway Traffic Safety Administration (NHTSA) push to increase the number of flexible fuel vehicles, which can run on gasoline ethanol mixtures 0-85% ethanol (E0 or E85). The strategy is simple; to use a large amount of ethanol in the gasoline pool, you need to have a place to use it.

Anyone with a passing knowledge of the RFS2 program knows that the EPA has proposed a significant reduction in the 2014 renewable fuel obligations (total RVO reduction from 18.15 to maybe 15.21 billion gallons). The primary reason for the reduction is the EPA recognized the E10 blending wall. This proposal is already under fire from the renewable fuel lobby, and it is questionable that it will be finalized as proposed. A development in the NHTSA incentives for producing FFVs is more mature (regulation already finalized) and less familiar to the general public.

The NHTSA Corporate Average Fuel Economy program (CAFE) has been around since 1978. It sets the required average fuel economy for the vehicles manufactured by a specific automobile manufacturer. This average was unchanged for 20 years from 1990 to 2010. The CAFE standards are now increasing. A feature of this program is an incentive for auto manufacturers to receive extra credit for producing and selling a FFV. The credit is calculated as shown below.

$MPG_{FFV} = (MPG_{E85} \text{ X } F)/0.15 + (1\text{-}F) \text{ X } MPG_{E0}$ Where MPG is miles per gallon

The F factor has been 0.5, or 50% of the time the vehicle is run on E85 and 50% of the time the vehicle is run on E0. For example, if a vehicle gets 20 MPG on E85 and 30 MPG on E0, the MPG_{FFV} would be (20 X 0.5)/0.15 + 0.5 X 30 or about 81 MPG. The impact on the fleet average MPG from this FFV credit calculation is limited to a reduction of 1.2 mpg. The limit on the credit applicable to the fleet is ramped down to 0.2 MPG by 2019.

The second program administered by the EPA is to control Greenhouse Gases (GHG). In that program, the

emissions from a FFV are also given special consideration in the equation shown below.

$EM_{FFV} = (EM_{E85} \text{ X } F) \text{ X } 0.15 + (1\text{-}F) \text{ X } EM_{E0}$ Where EM are CO_2 equivalent emissions

The "F" factor in this equation has also been 0.5 or 50% and will remain at 0.5 through 2015. Beginning in 2016, the F factor will be limited to 0.2 through 2019 and will then revert to whatever percentage of E85 is actually consumed in the vehicle. The 0.15 factor will be eliminated in 2016.

The EPA is attempting to harmonize these two programs. The transition is a little complicated but the ultimate goal is, by 2020, to base the "F" factor in both of the previous equations on actual/anticipated E85 use. The obvious problem is "how does an auto manufacturer show how much E85 is being used in its vehicles?"

The actual usage factor for E85 sales in 2013 was well below 0.1. It is not certain that this factor will grow significantly if the RFS program obligations are based on actual usage rather than forcing the production and sale of E85.

If requested, the EPA will estimate the usage of E85 for each vehicle type. EPA's estimate for 2016 and beyond yields an "F" factor of 0.2. This value is expected to continue through 2019.

Even with a 0.5 factor and the 0.15 factor for the GHG calculation, none of the foreign manufacturers have produced a significant number of FFVs. The three American manufacturers produced over 95% of all the FFVs in the 2011 model year. If the incentive to produce the FFVs is reduced by over 50% (dropping from a factor of 0.5 to 0.2), the foreign producers will not suddenly begin producing FFVs and the U.S. manufacturer's incentive to produce them could lead to lower production. The source of the credits will no longer be government subsidized, but will be driven by the demand for E85. Coupled with the possibility that the renewable fuel mandates might also be driven by the consumer demand, it is a real possibility that 2015 will see the peak of the number of ethanol FFVs in the U.S. vehicle pool. Finding an FFV vehicle in the 2035 auto population might be as rare as finding a Dodo bird swimming in your backyard pool.

TM&C is heavily involved in assisting all segments of the industry, including refiners, blenders, importers and biofuel producers in navigating and complying with the existing rules and understanding the implications of potential changes in all fuel regulations. In addition, TM&C's semiannual **CRUDE AND REFINED PRODUCTS OUTLOOK** includes a review of the various regulations impacting petroleum supply and demand, including the

RFS program. Our latest update of this comprehensive industry study was just issued in February of this year.

Turner, Mason & Company
CONSULTING ENGINEERS

2100 Ross Ave, Suite 2920
Dallas, TX 75201
Phone: 214-754-0898
Fax: 214-754-5915
www.turnermason.com