Development of business opportunities for increased market access for ethanol downstream of the production facility is a natural progression. History shows that oil companies developed downstream market access with the sole intention of increasing the availability of crude oil derived products.

The legal and regulatory compliance aspects of the motor fuel blending business have grown increasingly complex. While motor fuel regulations were primarily written for gasoline and diesel, a quick review reveals the regulatory framework can include non-fossil-derived fuels like E85 and other ethanol blends made for flexible-fuel vehicles (FFVs.) Because ethanol fuel blends for FFVs have expanded in range beyond 85% ethanol, industry has coined the term “ethanol flex-fuels” or simply “flex-fuels” for these fuels restricted for use in an FFV. Today, flex-fuels contain more than 15% and less than 83% ethanol by volume. This RFA guide focuses on ethanol flex-fuels that are predominately ethanol by volume, containing 51% to 83% ethanol, and meeting the ASTM Standard Specification for Ethanol Fuel Blends for Flexible-Fuel Automotive Spark-Ignition engines, D5798.

Examples of flex-fuels include, but are not limited to, E85, E70, E60, and E51. The ethanol content in flex-fuels can vary due to economic, geographic and climatic influences.

Introduction

Historically, denatured fuel ethanol producers participated only at the wholesale, bulk level of commercial activity. However with increasing marketplace opportunities, ethanol producers have shown interest in participating in fuel blending activities downstream from the ethanol production facility. This commercial activity is generally referred to as becoming the “blender of record.” This guide is meant to provide an overview of some of the legal and regulatory considerations involved with a blending program to produce ethanol flex-fuel. The applicable laws and regulations, whether

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necessary to ensure successful, compliant activities for a new fuel blender. Flex-fuel commercial activities may come with new, novel regulatory requirements. Motor fuel, and in this case flex-fuel, blender regulations outline the responsibilities of each segment in the blending and transfer of motor fuel. Nearly all states have registration and reporting requirements for wholesale and retail motor fuel blenders. Motor fuel tax liabilities may exist for the wholesale, retail blender; motor fuel tax is an important revenue stream for both federal and state governments and is keenly monitored. Many times, there are federal and state bonding requirements for the tax liability generated by the business. There are also fuel quality expectations that must be addressed prior to any blending activity. In some cases, there may be declaration requirements depending on the ethanol concentration in the fuel.

This guideline recommends the following actions, in order, to become a flex-fuel blender of record:

1. Develop a business plan for operational aspects of blending flex-fuels for each step of the process. This can include blending, storage, transportation and marketing at wholesale or retail.
2. Review and complete federal regulatory requirements.
3. Identify the state(s) where the blending operations and delivery of flex fuel are destined.
   a. Review and complete state regulatory requirements for blending, wholesaling and retailing the fuel.
4. Confirm operational and fuel quality assurance details.
5. Commence offering flex-fuels.

**Federal Blender of Record Requirements**

Federal agencies that regulate motor fuels include the Federal Trade Commission, Internal Revenue Service and Environmental Protection Agency. Each agency has a specific mission.

- **Internal Revenue Service (IRS):** It is the obligation of the IRS to collect federal motor fuel excise taxes. The current federal motor fuel excise tax for gasoline is $0.184 per gallon.
- **Federal Trade Commission (FTC):** It is the duty of the FTC to ensure fair and informed offering of motor fuels. FTC requirements cover refiners, importers, producers, distributors and retailers of automotive fuel.
- **Environmental Protection Agency (EPA):** Under the Clean Air Act of 1970, EPA established requirements for all motor fuels to lessen the impacts of motor vehicle emissions. A more detailed description of each agency’s role in motor fuel regulations continues below.

**Internal Revenue Service**

An ethanol producer or marketer can become the “blender of record” by applying for a 637M license from the IRS. The “M” designation is commonly referred to as the “blender’s license.” The 637M license is the required tax license for blenders of ethanol. Many applicants are confused by the designations AL (alternative fuels) and AM (alternative fuels mixtures). These are not the proper designations to be considered a blender. According to IRS instructions, “alternative fuel does not
include ethanol, methanol, biodiesel, or renewable diesel.” It is important to keep in mind that regular bookkeeping responsibilities are required for those who are considered “blenders” of ethanol and gasoline. Forms are available at Blend Your Own Ethanol – Federal IRS Tax Forms.

Federal motor fuel excise taxes are imposed at the removal, entry or sale of gasoline. All removals of gasoline at the terminal rack are taxable; the position holder for that gasoline is liable for the tax. Persons who blend alcohol with gasoline to produce an alcohol fuel mixture outside of the bulk transfer/terminal system must pay the gasoline tax on the volume of alcohol in the mixture. See IRS Form 720 to report this tax. It is imperative that tax liability on the motor fuel be clearly designated and communicated in commercial agreements.

Federal Trade Commission

The FTC rules (16 CFR Part 306) describe “the certification and postings of automotive fuel ratings in or affecting the commerce.” These requirements apply to persons, partnerships and corporations. There are penalties for violating the FTC regulations. If you are a refiner, importer or producer, the automotive fuel rating must be determined before you transfer it. Because denatured fuel ethanol has historically only served as a gasoline additive, this has not been the typical commercial practice for the ethanol industry. Gasoline blends must have the octane rating, also known as the Antiknock Index (AKI), determined by appropriate laboratory methods and then certified on the appropriate product transfer documents. Flex-fuels, like E85, must have the name of the fuel with a disclosure of the amount, expressed as the minimum percentage by volume, of the principal component of the fuel. The FTC has interpreted that the minimum ethanol content of ethanol flex-fuels with ethanol content greater than 15% should be disclosed even if it is not the principal component. Disclosure of the other blending components of the fuel, expressed as minimum percentage by volume, is optional.

A quick read of the regulations in 16 CFR 306 is highly recommended. The regulations can be accessed online here.

Mandatory information that must be communicated can happen two ways:

1. Delivery ticket, bill of lading, or invoice that includes:
   - Your name
   - The name of the person to whom the fuel is transferred
   - The date of the transfer
   - The automotive fuel rating, in this case, the minimum ethanol volume %

2. Written statement that communicates the appropriate information on automotive fuel ratings that includes:
   - Date
   - Your name
   - The other person’s name
The automotive fuel rating, in this case, the minimum ethanol volume %

This communication can be used until you transfer automotive fuel with a lower fuel rating.

Records of automotive fuel ratings must be kept for one year and must be made available for inspection by the FTC or the EPA. Further, records must be kept to document the basis for the automotive fuel rating, i.e. lab results, octane certifications by suppliers, etc. FTC also outlines labels and other communication for retail offerings of motor fuels. Please see 16 CFR Part 306.12 for detailed dispenser label requirements.

**Environmental Protection Agency**

E85 is not covered under the EPA’s fuel and fuel additive registration program, Clean Air Act 211(a). E85 as a finished blend is not gasoline and therefore not subject to gasoline regulations in 40 CFR 79 and 80. However, air quality impacts from transportation fuels are generally controlled by the agency. Two specific EPA programs that are applicable to fuel blenders include the Reformulated Gasoline (RFG) program and Renewable Fuels Standard 2 (RFS2) program.

Companies wanting to blend motor fuels within an RFG area must register with EPA as an oxygenate blender. There are voluntary RFG areas, referred to as “opt in” areas, that may have regional registration requirements, and that information must be obtained from the authority having jurisdiction. An RFG oxygenate blender is defined as any person who owns, leases, operates, controls, or supervises an oxygenate blending facility, or who owns or controls the blendstock or gasoline used or the gasoline produced at an oxygenate blending facility. Any blender that fits the definition of an oxygenate blender is subject to the requirements for oxygenate blenders, including the registration requirements at 40 CFR Part 80.76. Similarly, any blender that fits the definition of a refiner is subject to the requirements for refiners, including the registration requirements at § 80.76. A refiner is defined as any person who owns, leases, operates, controls or supervises a refinery (i.e., a plant at which gasoline is produced).

Registration under the RFS2 program requires the declaration of business activities. Ethanol production facilities were largely declared “renewable fuel generators.” The RFS2 registration may need to be amended to reflect “renewable fuel blender” activities in order to manage and separate Renewable Identification Numbers. RFS2 registration modifications can be completed on the EPA Central Data Exchange (CDX). Be prepared to supply the following details:

- Name, business address, contact name, and telephone number of the refiner, importer, or oxygenate blender for each separate refinery and oxygenate blending facility,
- Facility name, physical location, contact name, telephone number, and type of facility for each separate refinery and oxygenate blending facility, and
- Each importer’s operations in a single Petroleum Administrative Defense District and record keeping arrangements.

EPA will supply a registration number to each refiner, importer, and oxygenate blender, and a facility registration number for each refinery and oxygenate blending facility that is identified. This
registration number shall be used in all reports to the Administrator. The registration with EPA must be updated within thirty days of any change in the information already on file.

State Blender of Record Requirements

Many states have regulations specific to the requirements for motor fuels. Several state level agencies may have oversight authority, for example the Department of Agriculture may oversee accurate dispensing of motor fuels while the Revenue Department collects state level tax. There can even be multiple, yet independent, requirements for motor fuels from these various state agencies. Importantly, each state regulation may be novel to activity within the state. There exists great autonomy, and authority, at the state level to regulate motor fuels and motor fuel sales.

State level requirements mimic federal requirements in many aspects including blender registration and tax liability. The point of taxation for motor fuels varies from state to state; typical points of taxation are the terminal rack, supplier level or point of emergence from a pipeline. There may be restrictions as to who can become a motor fuel blender. For example, Maryland restricts fuel blending activities to terminal operators with more than 1,000,000 gallons of storage capacity. There may be fees associated with the blender’s license application. Be sure to select the appropriate license classification when multiple classes are available. A quick review of the business model should assist in determining the fuel blending activities desired. Examples of state level requirements:

- Iowa Department of Revenue requires the acquisition of a motor fuel license for all fuel blenders. More information can be found here: [http://www.iowa.gov/tax/educate/78509.html](http://www.iowa.gov/tax/educate/78509.html)
- Nebraska Department of Revenue requires all persons producing, importing, exporting or purchasing fuels for resale in Nebraska to obtain a license prior to operating in Nebraska. The license can be obtained by submitting a Nebraska Motor Fuels License Application Form 20MF. Nebraska has licensing classifications for supplier, distributor, wholesaler, importer, exporter and retailer. [http://www.revenue.ne.gov/fuels/](http://www.revenue.ne.gov/fuels/)
- Colorado Department of Revenue requires any person who acts as a distributor, supplier, importer, exporter, carrier, or blender of fuel and terminal operators to be licensed. A separate license is required for each of these activities. [http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251864603896&ssbinary=true](http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251864603896&ssbinary=true)

E85 and Flex-Fuel Nomenclature

The Energy Policy Act of 1992 defined E85 as the alternative motor fuel for ethanol. Alternative fuels are extended exemption from certain regulatory requirements such as EPA’s fuel additive registration requirements outlined in 40CFR79. FTC recognized alternative fuels are available in the marketplace and provides details for consistent labeling at retail to improve consumer information when making a purchase. The FTC definition for alternative fuels states: “Mixtures containing 85 percent or more by volume of ..., denatured ethanol, ... (but not less than 70 percent, as determined by the Secretary of the United States Department of Energy, by rule, to provide for requirements relating to cold start, safety or vehicle functions) ...” (16CFR306.0) The broader range of allowable ethanol content in flex-
fuels designed for FFVs only, which is defined as containing a minimum of 51% to maximum 83% volume ethanol, was created to mitigate cold start concerns and allow greater flexibility for fuel blenders. This was memorialized in the ASTM D5798 Standard Specification for Ethanol Fuel Blends for Flexible-Fuel Automotive Spark-Ignition Engines. However, while E85 is considered a flex-fuel, under current regulatory definitions not all flex-fuels are considered E85 or an alternative fuel. In the current Tier 3 process, EPA is proposing requirements for the broad category of-flex fuels. This will be an area to watch for regulatory updates.

**Flex-Fuel Quality Considerations**

Fuel quality is a vital consideration in motor fuels in order to ensure acceptable operation for all types of vehicles on the road in varying climates and geographies. A robust fuel quality program will ensure that the content and make-up of flex-fuels provides proper combustion and performance in FFVs. Keep in mind denatured fuel ethanol’s vapor pressure is ~2.5psi, meaning more hydrocarbon content is required to ensure proper ignition in cold weather. ASTM International has developed and published the most widely used fuel specifications for all motor fuels in the United States. A general rule of thumb on important ASTM standards for flex-fuels:

- ASTM D5798 describes ethanol blends containing 51% to 83% volume ethanol in flex-fuels and for use in flex-fuel vehicles only.
- Mid-level ethanol blended fuels, generally 16% -50% volume ethanol fuel blends restricted to FFVs, are addressed in ASTM D7794 Standard Practice for Blending Mid-Level Ethanol Fuel Blends for Flexible Fuel Vehicles with Automotive Spark-Ignition Engines.
- ASTM D4814 describes gasoline and ethanol blends for use in conventional vehicles.

The product quality of the flex-fuel is very important. The D5798 Specification contains important information regarding blending, storage, and handling of flex-fuels. In 2011, this product specification underwent a major update starting with an expansion of the ethanol concentration allowed to a minimum of 51% ethanol by volume. Prior to any blending of flex-fuel, be sure to obtain a copy of this standard and review thoroughly. Just a few important points regarding the D5798 flex-fuel specification:

- Note that Reid Vapor Pressure (RVP) of the final fuel blend is a critical parameter and varies by geography and season of the retail location of the fuel offering. A 4th volatility class was created for colder regions like Minnesota to ensure sufficient vapor pressure of the fuel is achieved in extreme cold snaps.
There was no change to the definition nor any restriction created in the capability to blend E85, historically a fuel blend with 70 to 85% denatured fuel ethanol content by volume. ASTM D5798 specification previously dictated the ethanol content by volatility season coupled with strict vapor pressure (VP) requirements. The limitation to ethanol content created two major issues:

- Gasolines available at the majority of the liquid product terminals were not of sufficient VP to always meet the seasonal requirements to mitigate cold start concerns and mandating the ethanol content would not allow for adjustment of the fuel blend in order to meet the specification.
- The lack of higher VP gasolines caused these fuel blends to be out of specification routinely, as has been documented by several national fuel surveys.

The modifications to D5798 allow fuel blenders to adjust the ethanol and hydrocarbon concentrations to meet multiple considerations simultaneously, including fuel quality concerns, blendstock availability and fuel blending component costs.

The RFA E85 blender’s guide provides extensive discussion on appropriate analytical tests, automated blending equipment checks, and more. RFA publishes many fuel quality guidelines that detail fuel quality assurance activities, such as relevant fuel specifications, fuel quality oversight programs and generating Certificates of Analysis. These documents are available here: http://www.ethanolrfa.org/pages/industry-resources.

Retail Incentives and Laws

Federal
Fueling stations are eligible to claim a 30% federal income tax credit for the cost of establishing alternative fuel infrastructure when flex-fuel is part of their offering. The credit is set to expire on December 31, 2013. Retailers that put equipment into place to offer flex-fuel in 2012 and 2013 are likely eligible for the credit.

State
States that currently have incentives, including grants, tax credits and loans, for stations to convert or install retail fuel dispensing equipment for flex-fuel include California, Colorado, Florida, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New York, North Dakota, South Dakota, and Wisconsin. A handful of states specifically provide biofuel guidance documents to be used as a resource for compliance with state laws. For more information, visit Blend Your Own Ethanol – State Guidelines and Programs.

To learn more about specific federal and state incentives and laws not listed, visit www.BYOethanol.com/incentives.

Legal Considerations

All transportation fuels sold at retail have legal considerations. Legal counsel should be part of the development activities when seeking to become a fuel blender. Many of the regulations for flex-fuel blends are similar to gasoline, but there are a few that are unique to flex-fuels. These include:
- **Misfueling Prevention**: Under the Clean Air Act, it is illegal for the retailer to allow flex-fuel to be dispensed into a non-FFV.

- **Federal Trade Commission Labeling Requirements**: Also state or local authorities may have additional labeling or product identification requirements.

- **Equipment Requirements**: Some states and local jurisdictions may have specific regulations or guidelines on what equipment is approved for flex-fuel use.

- **Fuel Quality**: Many states have fuel quality programs and adopt fuel quality regulations that apply to flex-fuel.

For more information, visit [www.BYOethanol.com](http://www.BYOethanol.com) or [www.EthanolRFA.org](http://www.EthanolRFA.org).