

**Office of Chief Counsel
Internal Revenue Service
memorandum**

Number: **201133010**

Release Date: 8/19/2011

CC:PSI:B07 CLangley
PRENO-118420-11

UICL: 6426.00-00

date: July 12, 2011

to: Holly McCann
Chief, Excise Tax Program

from: Stephanie Bland,
Senior Technician Reviewer, Branch 7
Office of Associate Chief Counsel
(Passthroughs & Special Industries)

subject: Alternative fuel and alternative fuel mixture credits

This memorandum responds to your request for advice, dated April 22, 2011. This advice may not be used or cited as precedent.

ISSUES

You requested advice on the following questions regarding the anaerobic digestion process described in the facts below.

1. Is substrate an alternative fuel, as defined in § 6426(d)(2) of the Internal Revenue Code (Code)?
2. Does unblended substrate qualify for the alternative fuel credit under § 6426(d) if used in the anaerobic digestion process to produce methane gas or any other product?
3. Does substrate blended with at least 0.1 percent (by volume) of taxable fuel qualify as an alternative fuel mixture, as defined in § 6426(e)(2)?
4. Can substrate blended with at least 0.1 percent (by volume) of taxable fuel used in the anaerobic digestion process qualify as an alternative fuel mixture as defined in § 6426(e)(2)?

5. Is the raw biogas derived from the anaerobic digestion process eligible for the alternative fuel credit under § 6426(d) if used as a fuel?
6. If a gas derived from biomass must be compressed to qualify for credit, what level of compression is required and what is the conversion factor used to convert compressed gas derived from biomass to its gasoline gallon equivalent?
7. To qualify as an alternative fuel mixture, as defined in § 6426(e)(2), must the taxable fuel become an integral part of the compressed or liquefied gas prior to being used as a fuel, or may the taxable fuel and compressed or liquefied gas be separately injected into an engine to qualify as a mixture?
8. What is the distinction between liquefied gas derived from biomass under § 6426(d)(2)(F) and liquid fuel derived from biomass under § 6426(d)(2)(G)?

FACTS

Anaerobic digestion is a process by which microorganisms break down biodegradable material in the absence of oxygen. Crop and animal waste products, among other things, may be used as feedstock in anaerobic digesters to produce raw biogas. This feedstock is often referred to as substrate. Substrate is typically a liquid that contains a large percentage of water; some substrate also contains large portions of solid material.

Anaerobic digestion systems vary from one another, but the typical system may generally be described as follows. Substrate is collected and placed in a tank, called a digester, where several types of anaerobic bacteria break down the substrate. One of the resulting products is raw biogas composed of 50% - 70% methane. The methane from the raw biogas is collected from the digester and transported to a generator that is designed to run on methane. The generator is then used to generate electricity that can be used or sold to a power company.

The raw biogas produced during the anaerobic digestion process requires further processing in order to be placed in a pipeline or used to create compressed natural gas (CNG) or liquefied natural gas (LNG). Currently, very little of the raw biogas produced from the anaerobic digestion process undergoes the additional processing required to produce CNG or LNG.

Taxable fuel, typically diesel fuel, is sometimes added during the anaerobic digestion process. Some claimants add 0.1 percent of taxable fuel to the substrate and claim an alternative fuel mixture credit for each gallon of substrate put in the digester. They reason that the substrate is a liquid fuel derived from biomass and that mixing the substrate with taxable fuel creates an alternative fuel mixture that is "used as a fuel" for the digester. Other claimants add taxable fuel somewhere between the methane

collection process and consumption of the methane in the generator. These claimants use atomizers to mist 0.1 percent of taxable fuel into either (i) the stream of methane that supplies fuel to the generator, or (ii) directly into the generator engine separately but simultaneously with the methane. These claimants reason that the methane is a compressed gas derived from biomass because the gas is subject to some pressure when it moves from the collection area of the digester to the generator.

LAW AND ANALYSIS

Section 6426(d)(1) allows a \$.50 credit against a claimant's taxable fuel liability for each gallon of alternative fuel sold by the taxpayer for use as a fuel in a motor vehicle or motorboat, sold by the taxpayer for use as a fuel in aviation, or so used by the taxpayer. Any excess is allowed as a payment under § 6427(e) or a refundable income tax credit under § 34.

Sections 6426(d)(2)(C), (F), and (G) define "alternative fuel" to include compressed natural gas, compressed or liquefied gas derived from biomass (as defined in § 45K(c)(3)), and liquid fuel derived from biomass (as defined in § 45K(c)(3)), respectively.

Section 45K(c)(3) defines the term "biomass" to mean any organic material other than (A) oil and natural gas (or any product thereof), and (B) coal (including lignite) or any product thereof.

Section 6426(d)(3) provides that the term "gasoline gallon equivalent" means, with respect to any nonliquid alternative fuel, the amount of such fuel having a Btu content of 124,800 (higher heating value).

Section 6426(e)(1) allows a \$.50 credit against a claimant's taxable fuel liability for each gallon of alternative fuel used to produce an alternative fuel mixture that the mixture producer sells for use or uses as a fuel in its trade or business. Any excess is allowed as a payment under § 6427(e) or a refundable income tax credit under § 34.

Section 6426(e)(2) defines the term "alternative fuel mixture" to mean a mixture of alternative fuel and taxable fuel (as defined in § 4083(a)(1)(A), (B) or (C)) that is (A) sold by the taxpayer producing such mixture to any person for use as fuel, or (B) is used as a fuel by the taxpayer producing such mixture.

Section 2(b) of Notice 2006-92, 2006-2 C.B. 774, provides that an alternative fuel mixture requires a mixture of alternative fuel and at least 0.1 percent (by volume) of taxable fuel.

Section 2(f)(1) of Notice 2006-92 provides that a mixture is used as a fuel when it is consumed in the production of energy. Thus, for example, a mixture is used as a fuel when it is consumed in an internal combustion engine to power a vehicle or in a furnace

to produce heat. A mixture that is destroyed in a fire or other casualty loss is not used as a fuel.

Qualification of Substrate as an Alternative Fuel

The alternative fuel credit is available with respect to substrate used in the anaerobic digestion process only if (i) the substrate meets the definition of alternative fuel set forth in § 6426(d)(2), and (ii) the substrate is sold for use or used as a fuel in a motor vehicle, motorboat or in aviation. A substrate will meet the definition of alternative fuel set forth in § 6426(d)(2) if it is a liquid fuel derived from organic material (other than oil, natural gas, coal, or any product thereof). Because of the many different types of substrate used in the anaerobic digestion process, the determination of whether substrate qualifies as an alternative fuel must be made on a case-by-case basis. However, even if a particular type of substrate qualifies as an alternative fuel, it will only be eligible for the alternative fuel credit if the substrate is sold for use or so used as a fuel in a motor vehicle, motorboat, or in aviation. The use of substrate in the anaerobic digestion process is not use as a fuel in a motor vehicle, motorboat, or in aviation. Therefore, substrate used in the anaerobic digestion process described above cannot qualify for the alternative fuel credit under § 6426(d).

Use of Substrate in Alternative Fuel Mixtures

The alternative fuel mixture credit is available for mixtures of alternative fuel and taxable fuel that are sold for use as a fuel or used as a fuel by the taxpayer producing the mixture. If a particular substrate qualifies as an alternative fuel under § 6426(d)(2), the addition of 0.1 percent taxable fuel to the substrate may create an alternative fuel mixture within the meaning of § 6426(e)(2) and Notice 2006-92. However, use of that mixture in the anaerobic digestion process does not constitute use as a fuel, because the mixture is not consumed in the production of energy. The digester used in the anaerobic digestion process does not produce energy; it is merely a location where certain chemical reactions occur to generate biogas. Therefore, substrate that qualifies as an alternative fuel, mixed with at least 0.1 percent taxable fuel, and used in the anaerobic digestion process is not eligible for the alternative fuel mixture credit.

Eligibility of Raw Biogas for Alternative Fuel Credit

Section 6426(d)(2)(F) defines alternative fuel to include compressed or liquefied gas derived from biomass. The Energy Improvement and Extension Act of 2008, Pub. L. 110-343 added this provision. The legislative history of that provision indicates that Congress intended to allow a credit for gases derived from biomass that were

compressed or liquefied to the same quality as CNG or LNG.¹ See the Senate Finance Committee Staff Summary for Energy Extenders, AMT, and Disaster Tax Provisions in the Emergency Economic Stabilization Act (October 1, 2008) that stated, “The provision further provides that biomass gas versions of liquefied petroleum gas and liquefied or compressed natural gas or aviation fuels qualify for the credit.” Based on the legislative history, we conclude that compressed or liquefied gas derived from biomass should be of similar quality and compressed or liquefied to similar specifications as CNG or LNG in order to qualify for the alternative credit. Therefore, producers who process and compress or liquefy gas derived from biomass to specifications similar to CNG or LNG may be eligible for the alternative fuel credit if the compressed or liquefied gas derived from biomass is sold for use or so used as a fuel in a motor vehicle, motorboat, or in aviation.

Atomization of Taxable Fuel into the Methane Stream to Create a Mixture

As noted above, the alternative fuel mixture credit is available for mixtures of alternative fuel and taxable fuel that are sold for use as a fuel or used as a fuel by the taxpayer producing the mixture. Therefore, in order to qualify for the alternative fuel mixture credit, there must be a mixture of alternative fuel and taxable fuel that results in a single alternative fuel. Generally, a mixture is not created when combining a gas and a liquid. More specifically, in the scenarios presented, the claimant is not creating an alternative fuel mixture by atomizing liquid taxable fuel into the methane gas stream because there is no resulting single alternative fuel mixture product. Rather, such process merely facilitates simultaneous consumption of two separate fuels in the combustion chamber of the anaerobic digestion system. This is true whether the liquid taxable fuel is sprayed directly into the combustion chamber or into the stream of methane shortly before it goes into the combustion chamber. Because no alternative fuel mixture is created, a methane stream that has liquid taxable fuel atomized into it is not eligible for the alternative fuel mixture credit.

CONCLUSIONS

1. Substrate may satisfy the definition of alternative fuel under § 6426(d)(2)(G). This determination must be made on a case-by-case basis.
2. Unblended substrate that is used in the anaerobic digestion process is not eligible for the alternative fuel credit under § 6426(d) because the substrate is not sold for use or so used as a fuel in a motor vehicle, motorboat, or in aviation.

¹ Raw natural gas comes from many different sources and is comprised primarily of methane. Before raw natural gas may be compressed into CNG or liquefied into LNG, it must be processed to remove the substances other than methane so that nearly pure methane remains. Only raw natural gas that has been processed and ultimately compressed or liquefied into CNG or LNG may qualify as an alternative fuel within the meaning of § 6426(d)(2).

3. Substrate blended with at least 0.1% percent (by volume) of taxable fuel may qualify as an alternative fuel mixture, as defined in § 6426(e)(2), if the substrate satisfies the definition of alternative fuel set forth in § 6426(d)(2).
4. Substrate blended with at least 0.1 percent (by volume) of taxable fuel used in the anaerobic digestion process is not eligible for the alternative fuel mixture credit under § 6426(e), because the mixture is not consumed in the production of energy.
5. The raw biogas derived from the anaerobic digestion process may be eligible for the alternative fuel credit under § 6426(d) if it is compressed or liquefied to similar levels as those required for CNG or LNG, and sold for use or so used as a fuel in a motor vehicle, motorboat, or in aviation.
6. To be eligible for the alternative fuel credit under § 6426(d), gas derived from biomass must be compressed or liquefied to similar levels as those required for CNG or LNG. The gasoline gallon equivalent is the same as it is for all nonliquid alternative fuels under § 6426(d)(3).
7. To qualify as an alternative fuel mixture as defined in § 6426(e)(2), the taxable fuel must become an integral part of the compressed/liquefied gas prior to being used as a fuel.
8. Liquefied gas derived from biomass (described in § 6426(d)(2)(F)) is a gas at ambient temperature and pressure, whereas liquid fuel derived from biomass (described in § 6426(d)(2)(G)) is a liquid at ambient temperature and pressure.

Please call Chase Langley at (202) 622-3130 if you have any further questions.