

**Tax Incentives
for
Using Biomass to Produce Diesel-Based Fuels**

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TAX INCENTIVES FOR USING BIOMASS TO PRODUCE DIESEL-BASED FUELS

I. SUMMARY

The American Jobs Creation Act of 2004¹ provided both manufacturers and retail sellers of motor fuels significant tax incentives for producing or selling non-conventional fuels. The act created the Code sections 6426 and 40A. The creation of these sections has led to a complex set of requirements in which certain large and small businesses can claim significant refundable credits against the motor fuels excise tax and non-refundable credits against imposed income tax.

The robust nature of the Code sections and the various technicalities of defining specific products and processes make qualifying for the credits a cumbersome task. This paper describes the various types of biofuels credits and identifies the companies able to claim them. This paper also highlights the statutory pitfalls that must be navigated throughout the process of claiming the credits.

The tax credits outlined in this paper are intended to help current fuel producers and blenders understand the variety of credits available so that they may plan their future product production and improve their competitive position. The current motor fuels market is dominated by gasoline and diesel fuel. However, technological advances and a growing environmentally conscious society are pushing the demand for alternative fuels to new heights. In order to capitalize on the growing demand and increase profitability over competitors, fuel producers must maximize the incentives available in the tax code.

¹ American Jobs Creation Act of 2004, Pub. L. No. 108-357, 118 Stat. 1418.

II. HISTORY & BACKGROUND OF FUELS TAX AND CREDITS

Taxation of motor fuels has a long history in the United States. In order to obtain a comprehensive understanding of the current tax structure and the direction of any future legislation, it is important to understand the legislative history of the motors fuels excise tax.

A. Fuels Excise Tax

The fuels excise tax dates back to the early 1930's, when then President Herbert Hoover helped create the Revenue Act of 1932, ch. 209, 47 Stat. 169. The revenue act implemented a 1-cent per gallon excise tax on gasoline. At that time the tax was estimated to generate \$150 million in revenue in order to help balance the budget after the stock market crash of 1929. The initial implementation of the motor fuels excise tax was planned to be temporary, however, congress consistently extended the tax.²

Congress created sections 4041 and 4081 under the Act of August 16, 1954³, which established the general overhaul of the Code of 1939. These sections restructured the excise tax on both the retail sale of diesel fuel and the removal or sale of diesel fuel from a manufacturer's facility. Currently, these sections remain the authority for excise tax on motor fuels under the Internal Revenue Code of 1986, as amended.

After the initial creation of the motor fuels excise tax, legislators frequently amended the Code to generate additional government funding through extending or increasing the tax rate. President Eisenhower created one of the key uses for the motor

² US Department of Transportation Federal Highway Administration. (2008). *Highway History*. Retrieved from www.fhwa.dot.gov/infrastructure/gastax.cfm.

³ Aug 16, 1954, ch. 736, 68A Stat. 478.

fuels excise tax by drafting the Highway Revenue Act of 1956.⁴ This act created the Highway Trust Fund, which was used solely for the construction and improvement of interstate highways. The act increased the tax on motor fuels to 3 cents; however, this rate was only in affect until 1961 when the tax was again increased to 4 cents under the Federal-Aid Highway Act of 1961, Pub. L. No. 87-61, 75 Stat. 122.⁵

The motor fuels excise tax was also amended for energy conservation initiatives and government deficit reduction acts. The Energy Tax Act of 1978⁶ extended the inflated excise tax rate 6 years, until October 1, 1985. The extension was thought to promote energy conservation and reduce motor fuel consumption.⁷

In 1990 there was a strong political push to reduce the country's deficit. The initiative created the Omnibus Budget Reconciliation Act of 1990. The act again increased the rate of tax on motor fuels, resulting in a tax on gasoline at a record rate of 11.5 cents per gallon.⁸

B. Environmental Pressure – Clean Air Act

Diesel fuel has been a staple in the transportation industry since the mid 1930's, when Mercedes introduced the first diesel powered production automobile. The use of diesel fuel continued to grow throughout the 20th century, replacing coal as the fuel of choice for passenger and commercial trains. Today diesel fuel powers almost all

⁴ Highway Revenue Act of 1956, Pub. L. 84-627, 70 Stat. 374.

⁵ Sullivan, M. A. (2008). Gas Tax Politics, Part I. *Tax Analysts*.

⁶ Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174.

⁷ Legislative History I.R.C. § 4081, Retrieved from www.LexisNexis.com.

⁸ Omnibus Budget Reconciliation Act of 1990, Pub. L. No. 101-508, 104 Stat.1388.

highway trucks, tractor-trailers, military vehicles, and is even a large source of home heating oil.⁹

In the late 1960's and early 70's, there was a growing initiative to be more environmentally conscious. As part of the environmental initiative, Congress drafted what was called the Clean Air Act to limit the emissions from industrial and transportation sources. President Nixon signed the Clean Air Act on December 31, 1970.¹⁰ Following the enactment of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) was created on May 2, 1971 in order to implement the various requirements of the Act.

A major focus of the Clean Air Act was the implementation of emission restrictions on transportation vehicles. These emission restrictions were created by section 211 of the Act and are currently included in section 7545 of Title 42 of the U.S. Code. Emission restrictions affect both automobile manufacturers and motor fuels producers by making the producers liable for penalties if emission levels and fuel specifications do not meet code requirements.¹¹ The new compliance requirements spurred research into alternative fuels that were renewable and low in sulfur, which is a major component of greenhouse gas emissions. The research led to many technological advances, including new fuel types such as biodiesel and agri-diesel.¹²

⁹ Diesel Technology Forum. (2011). *The Diesel Difference*. Retrieved from www.dieselforum.org.

¹⁰ US Environmental Protection Agency. (2010). *History of the Clean Air Act*. Retrieved from www.epa.gov/oar/caa.

¹¹ 42 U.S.C.S. § 7545(d).

¹² Howell, S.A., & Weber, J.A. (1995). *U.S. Biodiesel Overview.*: National Biodiesel Board. Retrieved from www.biodiesel.org.

The creation of alternative fuels to supplement the use of typical petrochemical fuels has provided environmental advantages while also reducing the United States' reliance on foreign oils.¹³ However, even with new production capabilities of alternative fuels, biofuels such as ethanol and biodiesel are still not a significant source of transportation fuels. As of 2005, ethanol consumption was approximately 3.9 billion gallons a year compared to 136.9 billion gallons of gasoline; and biodiesel consumption was 91 million gallons a year compared to 43.1 billion gallons of petroleum-based diesel.¹⁴

As part of the growing initiative to be energy independent and environmentally friendly, the federal government has provided subsidies to increase the production of alternative fuels through the use of tax incentives. The initiative has led to multiple legislative acts and a plethora of tax credits.

C. Credits Against Tax

The American Jobs Creation Act of 2004¹⁵ created credits for petroleum refiners, distributors, and marketers that blend or manufacture alternative fuels in the process of selling taxable fuel. The act allowed for producers and blenders of diesel fuel to claim a refundable credit against excise tax for using biodiesel or biomass in the blending processes. The act created code sections 6426 and 40A. These sections along with amendments to section 6427 allowed a manufacturer or blender to take a 50-cent credit

¹³ The White House. (2011). *A Blueprint for a Secure Energy Future*. Retrieved from www.whitehouse.gov.

¹⁴ US Energy Information Administration. (2007). *Biofuels in the US Transportation Sector*. Retrieved from www.eia.doe.gov.

¹⁵ American Jobs Creation Act of 2004, Pub. L. No. 108-357, 118 Stat. 1418.

for every gallon of biodiesel blended with petroleum diesel, and a \$1 credit for each gallon of agri-diesel that is used to produce a taxable fuel.

The initial legislation was intended to stimulate the development of alternative fuel production and help provide opportunities to develop new fuels that have lower greenhouse gas emissions. The credits implemented by the American Jobs Creation Act of 2004 were supposed to be temporary and had termination dates that did not allow the sections to apply to any sale after December 31, 2006.¹⁶

In order to prolong the tax incentives for selling and producing alternative fuels, section 1344 of the Energy Policy Act of 2005¹⁷ extended the termination date to December 31, 2008. As the termination date approached, Congress once again extended the credits through December 31, 2009 through the Emergency Economic Stabilization Act of 2008. The act also increased the credit to \$1 per gallon for both biodiesel and agri-diesel.¹⁸

III. KEY DEFINITIONS

The current tax law for fuels credits contains a multitude of definitions. Each credit involves a scientific definition for the specific fuel type along with various Code developed definitions that impact the taxpayer's ability to qualify for the credits. This section explains important definitions that are needed to fully comprehend the credits presented in this report.

¹⁶ *id.*

¹⁷ Energy Policy Act of 2005, Pub. L. 109-58, 119 Stat. 594.

¹⁸ Emergency Economic Stabilization Act of 2008, Pub. L. 110-343, 122 Stat. 3765, § 202.

A. Diesel Fuel

Diesel fuel is a petroleum-based fuel that is used in a variety of car, truck, train, and industrial equipment engines. It is commonly produced in crude oil refineries by a distillation process. The distillation process involves heating crude oil until it vaporizes. Then the vaporized oil is fed into a distillation tower where it condenses at various temperatures. The condensation temperature is what determines the fuel type; as such, fuel that condenses at a high temperature is heavier fuel than the fuel that condenses at lower temperatures.¹⁹

The American Society for Testing and Materials (ASTM) has established the fuel oil grade system that is numbered from 1 to 6. The lighter fuels that condense at lower temperatures are labeled with a lower fuel oil number. Therefore, the lightest fuels are fuel oil number 1 and the heaviest fuels are fuel oil number 6.

Today's diesel fuel is nearly identical in chemical composition to fuel oil number 2, and also is commonly referred to as home heating oil. The diesel distillate typically condenses between 392° F to 662° F.²⁰

The chemical composition of diesel fuel (fuel oil number 2) is a complex mixture of approximately 75% saturated hydrocarbon chains called aliphatic alkanes (also called paraffins) and 25% aromatic hydrocarbon chains. The aliphatic alkanes are chains of carbon atoms and hydrogen atoms that are singly bonded together. The chains are considered saturated because they contain the maximum amount of hydrogen for the particular length of the molecular chain. The aromatic hydrocarbons differ from the

¹⁹ Avallone, E.U., & Baumeister, T. (1996). *Marks' Standard Handbook for Mechanical Engineers* (10th ed.): McGraw-Hill.

²⁰ *id.*

saturated hydrocarbons because they have alternating double and single bonds between the carbon atoms and thus have less hydrogen than an aliphatic alkane chain of the same length. To be classified as diesel fuel, the hydrocarbon chains must be predominantly a mixture of 10 to 19 carbon atoms long.²¹

The Code defines diesel fuel as either 1) any liquid, other than gasoline, which is suitable for use as a fuel in a diesel powered highway vehicle or a diesel powered train, 2) transmix, or 3) diesel fuel blend stock. Transmix is defined as any byproduct of refined products created by the mixing that occurs during the transportation of fuel through pipelines.²²

The Regulations also clarify that diesel fuel excludes kerosene and liquids such as biodiesel that contain less than four percent normal paraffins (aliphatic alkanes).²³

B. Biofuel

Biofuel is a term used to describe a variety of fuels that come from some form of renewable plant or animal matter. One form of biofuel is the type derived from the fermentation of sugars or starches to produce an alcohol based fuel such as ethanol. Most of today's ethanol in the United States is produced from kernel corn (i.e. corn ethanol). However, more advanced ethanol production, labeled cellulosic ethanol, is produced from the walls of plant cells such as leaves and stalks. Other than ethanol, the other main type of biofuel is biodiesel.²⁴

²¹ Agency for Toxic Substances and Disease Registry, (1995). *Toxicological Profile for Fuel Oils.*: U.S. Department of Health and Human Services. Retrieved from www.atsdr.cdc.gov.

²² I.R.C. §§ 4083(a)(3)(A), (B).

²³ Reg. §§ 48.4081-1(b), -1(c)(2).

²⁴ Congressional Budget Office, (2010). *Using Biofuel Tax Credits to Achieve Energy and Environmental Policy Goals.*

C. Biodiesel

Biodiesel is made from vegetable oil, animal fats or recycled greases. Contrary to what the name leads you to believe, biodiesel contains no petroleum. Biodiesel is produced through a process called transesterification.²⁵ This process separates glycerin from the animal fats or vegetable oil. The remaining animal fats or vegetable oil are chains of methyl esters and are distinctly different from the petrodiesel chains of hydrocarbons. In order to distinguish biodiesel and petrodiesel mixtures ASTM designates pure biodiesel as B100. Mixtures of biodiesel and petrodiesel are given the designation BXX, with the XX identifying the percentage of pure biodiesel within the mixture. The most common biodiesel mixture is B20, which is a mixture of 80% petrodiesel and 20% biodiesel.²⁶

Most of today's biodiesel is produced from soybean oil. Soybean oil accounts for approximately 90% of biodiesel production, while the remaining 10% comes from waste vegetable oil, animal fats, and algae.

The Code defines biodiesel as monoalkyl esters of long fatty acids derived from plant or animal matter that meets two requirements.²⁷

- i) It must meet the registration requirements for fuels and fuel additives established by the environmental protection agency under section 211 of the Clean Air Act, which is now section 7545 of Title 42 of the U.S. Code.

²⁵ National Biodiesel Board, (2011). *Biodiesel Basics*. Retrieved from www.biodiesel.org.

²⁶ Avallone, E.U., & Baumeister, T. (1996). *Marks' Standard Handbook for Mechanical Engineers* (10th ed.): McGraw-Hill.

²⁷ I.R.C. § 40A(d)(1).

- ii) It must meet the requirements of ASTM Standard D6751.

ASTM Standard D6751 is for biodiesel blendstock (B100) and it sets the limits and requirements for the fuel properties such as flashpoint, viscosity, and sulfur content.

D. Qualified Biodiesel Mixture

A biodiesel mixture is a mixture of biodiesel and petrodiesel that contains at least 0.1 percent by volume of petrodiesel.²⁸ In order for the biodiesel mixture to be considered qualified, it must be sold by the producer to any person for use as fuel or used as fuel by the producer. The sale or use must also be within the taxpayer's trade or business.²⁹

E. Agri-Biodiesel

Agri-biodiesel is a special designation given by the Code to biodiesel that is derived solely from virgin oils.³⁰ Under the Code section 40(A)(d)(2) definition, the following are approved virgin oils; corn, soybeans, sunflower seeds, cottonseeds, canola, crambe, rapeseeds, safflowers, flaxseed, rice bran, mustard seeds, and camelina. The Code also states that fuel derived from animal fats would be considered agri-biodiesel.

The difference between agri-diesel and biodiesel is the added requirement that agri-diesel fuel is derived from virgin oils. The Regulations clarify that the intended meaning of virgin oils is that they are not recycled products.³¹ For example, a waste cooking oil, such as that retrieved from a restaurant, would not be considered virgin oil. However, the cooking oil would be considered a biomass feedstock, which if used to create biodiesel, would qualify for the biodiesel tax credit.

²⁸ Prop. Reg. 48.6426-1(b), 73 Fed. Reg. 43890 (2008).

²⁹ I.R.C. § 40A(b)(1)(C).

³⁰ I.R.C. § 40A(d)(2).

³¹ Prop. Reg. § 48.6426-1(b), 73 Fed. Reg. 43890 (2008).

F. Renewable Diesel

Renewable diesel means liquid fuel derived from biomass that meets:

- i) The registration requirements for fuels and fuel additives under 42 U.S.C. 7545.
- ii) The requirements of either ASTM Standard D975 or D396.

Renewable diesel must also be produced solely from biomass and not a co-process of biomass and a feedstock that is not biomass.³² The ASTM Standard D975 is for grade 1 to grade 4 fuel oils and ASTM Standard D396 is for standard fuel oil used for burning.³³

The Code provides an exception that renewable diesel fuel does not qualify for the small agri-biodiesel fuel producer credit.³⁴ This exception limits small producers of renewable diesel from doubling up credits. However, small agri-biodiesel producers who qualify for the biodiesel or biodiesel mixture credit can qualify for both credits.

G. Alternative Fuel

Qualified alternative fuels are defined in section 6426(d)(2). The section provides a list of 7 alternative fuels. The only fuel on the list that may be processed with diesel fuel is under section 6426(d)(2)(G), “liquid fuel derived from biomass”.

The term alternative fuel excludes biodiesel because biodiesel is covered under other areas of the Code. The liquid fuel derived from biomass designation provides an avenue in the Code to claim a credit for fuels that have not yet been invented.

³² I.R.C. § 40A(f).

³³ Fuel oils number 5 and 6 are heavy fuels that are not diesel fuel and thus governed by different standards.

³⁴ I.R.C. § 40A(b)(4).

H. Biomass

In general the term biomass means a renewable energy source that is from living or recently living organisms.³⁵ Biomass can come from sources such as planted crops, planted trees, animal waste and byproducts, algae, and separated yard waste or food waste.³⁶

The Code defines biomass as any organic material other than

- i) Oil and natural gas, or
- ii) Coal.³⁷

I. Thermal Depolymerization

Thermal depolymerization is defined as a process that uses heat and pressure to decompose long-chain organic polymers to small chain polymers. The process reduces the polymers chain to no more than 18 carbon atoms in length, and is considered a depolymerization process even if catalysts are used in the process.³⁸

IV. CURRENT TAX LAW

The motor fuels excise tax is currently structured under sections 4041 and 4081 of the Code. These sections implement a tax at a rate of 24.3 cents per gallon on diesel fuel used to power highway traveling vehicles.³⁹ As such, the code provides exclusions from taxing the sale and production of diesel fuel that would be used in non-taxable applications.⁴⁰

³⁵ Biomass Energy Centre, (2011). *Sources of Biomass*. Retrieved from www.biomassenergycentre.org.uk/.

³⁶ 42 U.S.C. 7454(o)(1)(I).

³⁷ I.R.C. § 45K(c)(3).

³⁸ I.R.S. Notice 2007-37, 2007-1 C.B. 1002

³⁹ I.R.C. §§ 4081(a)(2)(A)(iii), 4041(a)(1)(C)(i).

⁴⁰ I.R.C. § 4082(b).

The term non-taxable use is defined in section 4082(b) and an approved list of non-taxable uses is outlined in Publication 510. Typical non-taxable uses are fuel used in off-highway businesses, such as using fuel to power forklifts, bulldozers, and earthmovers. Other non-taxable examples involve using diesel fuel for lighting, cooking, and home heating oil.⁴¹

The tax incentives established in 2004 allowed for a credit against the excise tax imposed and paid under sections 4041 and 4081. The credits are for the use of biofuels in the production or blending of taxable diesel fuel. A brief outline of the different tax credits is discussed below.

A. Biodiesel Mixture Credit

Section 6426(c) allows a credit for the number of gallons of biodiesel used in the production of a qualified biodiesel mixture. A qualified biodiesel mixture is a mixture of biodiesel and diesel fuel that is sold for use as fuel and is taxable under sections 4041 or 4081. The value of the credit is \$1 for every gallon of biodiesel used in the production of a qualified biodiesel mixture.

B. Alternative Fuels Credit

Section 6426(d) allows a credit for the number of gallon equivalents of gasoline used in the production of an alternative fuel that is sold for use in a motor vehicle. The credit is 50 cents for every gallon of alternative fuel used in the production of a motor fuel. Section 6426(d)(2) defines seven types of fuels that are considered alternative fuels. The list includes fuels such as liquefied hydrogen and liquefied petroleum gas, however

⁴¹ I.R.C. § 4041(b).

the key fuel type listed for diesel production processes is liquid fuel derived from biomass.⁴²

Liquid fuel derived from biomass is a broad definition that may encompass a variety of fuels. The Proposed Regulations section 48.6426-1(b)⁴³ clarifies that liquid fuel derived from biomass does not include methanol ethanol, biodiesel, or renewable diesel. This means you cannot double dip and claim a biodiesel production credit and an alternative fuels production credit. However, a benefit of the broad language in the Code is that new alternative fuels can be developed in research and development divisions and potentially qualify for a credit under section 6426(d).

C. Alternative Fuel Mixture Credit

Section 6426(e) allows a 50-cent credit for the number of gallon equivalents of gasoline used in the production of an alternative fuel mixture sold for use in a motor vehicle. For example, if 100 gallons of a taxable fuel is sold, and 50% of the end product was derived from alternative fuel, a \$50 (100 * 0.50) credit would be allowed.

The term alternative fuel mixture means a mixture of alternative fuel and taxable fuel as defined in section 4083(a)(1). The Proposed Regulations section 48.6426-1(b) clarifies that an alternative fuel mixture must contain at least 0.1 percent taxable fuel (i.e. gasoline, diesel, or kerosene). The use of the 0.1 percent threshold creates a defined line between what is an alternative fuel and what is a mixture thereof.

D. Payment of Excise Tax Credits

The biodiesel mixture, alternative fuels, and alternative mixture credits under section 6426 are allowed to be refunded under section 6427. This section allows the

⁴² I.R.C. § 6426(d)(2)(G).

⁴³ Prop. Reg. § 48.6426-1(b), 73 Fed. Reg. 43890 (2008).

taxpayer to be refunded for the excess of the amount of credit that exceeds the excise tax liability under section 4041 and 4081.

Section 6427(k) also allows for a taxpayer to take an income tax credit in lieu of receiving a payment for the refundable excise tax credit. The income tax credit is claimed under section 34(a) and is also refundable. However, section 34(a) is coordinated with section 6427(k), so that no income tax credit is allowed if a credit under section 6427 was timely filed.

E. Non-Refundable Income Tax Credits

Section 38 allows for certain non-refundable business credits. The section outlines a list of 35 different sub-credits that together would equal a taxpayer's total section 38 business credit. The credits that are applicable to biodiesel producers and retailers gain their authority under section 38(b)(17). Section 38(b)(17) provides a credit for the production or use of biodiesel determined under section 40A.

The biodiesel fuels credit under section 40A is the sum of four credits: (1) the biodiesel credit, (2) the biodiesel mixture credit, (3) the renewable diesel credit and (4) the small agri-biodiesel producer credit.

1. Biodiesel Credit

Section 40A(b)(2) allows a \$1 credit against income tax for each gallon of biodiesel that is used by the taxpayer as a fuel in a business. This credit was increased from 50 cents by the Emergency Economic Stabilization Act of 2008.⁴⁴

⁴⁴ Emergency Economic Stabilization Act of 2008, Pub. L. 110-343, 122 Stat. 3765.

2. Biodiesel Mixture Credit

Section 40A(b)(1) allows for a \$1 credit against income tax for each gallon of biodiesel that is used by the taxpayer to produce a qualified biodiesel mixture. Just as was stated for the alternative fuels mixture, a mixture of biodiesel contains biodiesel and at least 0.1 percent by volume of petrodiesel.⁴⁵

3. Renewable Diesel Credit

Section 40A(f) allows a credit for renewable diesel or a renewable diesel mixture. The renewable diesel credit is treated in the same manner as the biodiesel credit. Renewable diesel is liquid fuel that is derived from biomass, which is defined in section 45K(c)(3) as any organic matter that is not natural gas, oil, or coal, including lignite.

The Code requirements of renewable diesel were relaxed by the enactment of the Emergency Economic Stabilization Act of 2008. Section 202 of this act removed the wording, “using a thermal depolymerization process”, and therefore allowed manufacturers to claim a credit for renewable diesel, regardless of the process used to make the product. This simplification of the definition of renewable diesel, addressed the problems in the Code language that were originally identified by the National Biodiesel Board. Joe Jobe, the chief executive officer of the National Biodiesel Board, discussed in a testimony before the U.S. House Small Business Committee, that the broad language of the Code definition of thermal depolymerization lends itself to abuse by manufacturers

⁴⁵ Prop. Reg. § 48.6426-1(b), 73 Fed. Reg. 43890 (2008).

and contradicts the scientific definition of the process. This testimony raised awareness of the issue and Congress was able to take action in the following year.⁴⁶

4. Small Agri-Biodiesel Producer

Section 40A(b)(4) allows a credit for producers of agri-biodiesel. The producer of agri-biodiesel is allowed a credit of 10 cents for each gallon of agri-biodiesel produced.

In order to qualify for the credit, the producer must not have a productive capacity for agri-biodiesel that exceeds 60,000,000 gallons during any part of the tax year and the total production for the entire year must not exceed 15,000,000 gallons.

The agri-biodiesel must be used or sold by the taxpayer for:

- i) Production of qualified biodiesel mixture.
- ii) Use as fuel in a trade or business.
- iii) Sold at retail for use in the buyer's fuel tank.⁴⁷

V. KEY REQUIREMENTS TO CLAIMING MAXIMUM TAX INCENTIVES

Like any tax incentive, there are certain requirements to follow that are not explicitly evident from reviewing the Code. These requirements along with the statutory pitfalls are outlined in this section.

A. General Requirements

In order to claim a credit for biodiesel, renewable diesel, or alternative fuels, the taxpayer must be registered for the excise fuels tax and must report their excise tax liability. The federal excise taxes are required to be reported quarterly on Form 720, and

⁴⁶ Jobe, J. (May 2007). Testimony of Joe Jobe before the U.S. House Small Business Committee. *The Impact of Renewable Energy on Rural America Hearing*. Retrieved from <https://www.biodiesel.org>.

⁴⁷ I.R.C. § 40A(b)(4).

the taxpayer must document on the form the number of gallons of taxable fuel removed from their facility's terminal rack.

Once the excise tax liability is documented on Form 720, a credit for the tax may be taken on Schedule C of Form 720, Schedule 3 of Form 8849, Form 4136, or Form 8864. Each of the various forms serves a different purpose. Schedule C of Form 720 allows the taxpayer to claim a credit on a quarterly basis in order to reduce or eliminate its quarterly excise tax liability. Schedule 3 of Form 8849 is used by the taxpayer to periodically claim a credit against its excise tax liability. It can be used at anytime during the year, however the taxpayer can not file a claim for refund if it already filed a claim on a different form.

Form 4136 is the annual version of Form 8849. It allows the taxpayer to make an annual claim for refund of the fuels excise tax. Form 8864 is the final form that the taxpayer is allowed to use to claim the credits. This form is used to claim a credit for biodiesel and renewable diesel mixture against an income tax liability of an individual or corporate taxpayer. The credit is for a non-refundable credit only.

B. Statutory Pitfalls

1. Biodiesel Certificate

An important aspect in qualifying for the credit under sections 6426(c), 6427(e), and 40A is having a valid biodiesel fuel certificate. The certificate validates that the biodiesel product used or sold by the taxpayer is within the Code's description of biodiesel. The certificate must outline the percentage of the product that is agri-diesel verse biodiesel, the number of gallons produced, and most importantly, that it complies

with the appropriate ASTM and EPA standards⁴⁸. In addition to this basic information, there are other certificate requirements which must be followed to avoid denial of the credits. The model certificate can be drafted by following the examples of biodiesel fuel certificates presented in Notice 2005-62.⁴⁹

2. The Code Definition of Biomass

Renewable diesel qualifies for a tax credit under section 40A(f) if it falls under the definition of liquid fuel derived from biomass. The Code defines biomass in one sentence, as any organic material other than oil, natural gas, and coal, or any product thereof. This vague definition brings us to the question: “What is biomass?”

Organic material, in general terms, means matter from a once living organism, such as an animal or a tree.⁵⁰ Waste animal fats, algae, corn, and soybeans are examples of typical organic materials constituting biomass, which can be used to produce biodiesel. These forms of biomass are straight-forward and easy to recognize; however some compounds that may be used in a co-processing facility are not. One example would be latex.

Latex is a product that can be naturally occurring or synthetic. Natural occurring latex is found from the milky fluid found in certain flowering plants.⁵¹ This type of latex is made up of a combination of organic materials such as proteins and fatty acids, however natural latex is also made up of inorganic material such as various salts. Under the current Code definition, it is unclear whether using latex that contains inorganic

⁴⁸ Notice 2005-62, 2005-2 C.B. 443.

⁴⁹ *id.*

⁵⁰ U.S. Environmental Protection Agency. (2010). *Organic Material*. Retrieved from <http://www.epa.gov>.

⁵¹ Agrawal, A.A., & Konno, K. (2009). *Latex: A Model for Understanding Mechanisms, Ecology, and Evolution of Plant Defense Against Herbivory*.

compounds, can be classified as biomass for the purposes of the section 40A(f) credit. To further complicate the matter, natural latex must be processed in order to sell it in a typical consumer form.

The Code, Regulations, and case law provide no insight into whether refined and inorganic products can be classified as biomass. In the absence of primary source authority, the taxpayer can gain insight into how to proceed from the legislative history. The American Jobs Creation Act of 2004⁵² first created a credit for the production of biodiesel. The implementation of the credit was to promote the production of non-petroleum fuels in order to enhance the country's energy policy by reducing the reliance on foreign oil and simultaneously improving air quality.⁵³ Keeping this goal in mind when attempting to define a material as biomass, can help the taxpayer navigate the application of the credit.

Latex, while it does contain inorganic substances, is by all means a non-conventional and renewable product. Thus, it can be argued that blending latex into a diesel mixture in order to offset the use of petroleum, is implementing the goal of the enacted energy policies. The only reason natural latex falls outside of the Code's definition of biomass is for a technicality within its chemical composition; however, it remains in the spirit of the legislation.

The application of the legislative intent does not automatically make the latex example qualify for a biodiesel credit. However, it does shed light on the thought process

⁵² American Jobs Creation Act of 2004, Pub. L. No. 108-357, 118 Stat. 1418.

⁵³ The White House. (2011). *A Blueprint for a Secure Energy Future*. Retrieved from www.whitehouse.gov.

that should be applied when developing the grounds for a private letter ruling from the Service.

3. Biodiesel Mixture Must be Taxed

Tax is imposed on the sale of taxable fuel under section 4081(a)(1). The Code defines a taxable fuel as gasoline, diesel fuel, and kerosene.⁵⁴ Therefore under this definition, biodiesel is not a taxable fuel. Upon initial inspection of the Code, it may seem that a biodiesel manufacturer can claim a refundable credit against its excise tax liability for the sale of biodiesel mixture, while also escaping excise tax on the sale of the mixture. This initial thought, while seemingly logical, would be leading the taxpayer down a path of fines and penalties.

Revenue Ruling 2002-76⁵⁵ clarified the topic of the taxable nature of biodiesel. The ruling stated that pure biodiesel, while suitable for use in a diesel powered highway vehicle, is not subject to excise tax imposed under section 4081(a)(1). This conclusion corresponded to the Regulations section 48.4081-1(b), in that any fuel with less than four percent normal paraffins (i.e. petroleum diesel) is an excluded liquid. However, the ruling goes on to state that while biodiesel is not taxable, if biodiesel is used to produce a blended taxable fuel, tax is imposed under section 4081(b)(1).

This ruling states that manufacturers that plan to claim a credit for biodiesel mixtures under sections 6426 or 40A, must first pay the diesel fuel excise tax imposed under section 4081.

⁵⁴ I.R.C. § 4083(a)(1).

⁵⁵ Rev. Ruling 2002-76, 2002-2 C.B. 840.

C. Previous Litigation

The biofuels credits have been in existence for over 6 years. During this time, no significant court decisions have been made regarding the credits outlined in this paper. The absence of any case law may be due to the proactive use of private letter rulings by qualifying taxpayers or the Service's lag in regulating the taxpayer's claims.

VI. THE FUTURE OF CREDITS FOR BIODIESEL

The introduction of biodiesel production credits in 2004, like most other legislation, was not planned to be permanent. The initial act called for the credits to terminate on December 31, 2006. After this initial creation of the biodiesel credits, congress has consistently extended the termination date of the credit. The Energy Policy Act of 2005⁵⁶ extended the termination date until December 31, 2008. Subsequent to this, the Emergency Economic Stabilization Act of 2008⁵⁷ and the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010⁵⁸ extended the credits to December 31, 2009 and December 31, 2011, respectively.

The continued extension of the credit bodes well for biodiesel manufacturers. Biofuels provide a sustainable way to help reduce the United States' reliance on foreign oil. However, biofuels still remain a minor contributor to the overall supply of fuel in the United States.⁵⁹ With the production of biofuels remaining low and currently no large-scale alternative to petroleum based fuels, the biofuels industry must be subsidized with tax incentives in order for the growth to continue.

⁵⁶ Energy Policy Act of 2005, Pub. L. 109-58, 119 Stat. 594.

⁵⁷ Emergency Economic Stabilization Act of 2008, Pub. L. 110-343, 122 Stat. 3765.

⁵⁸ Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, Pub. L. 111-312, 124 Stat. 3296.

⁵⁹ Congressional Budget Office, (2010). *Using Biofuel Tax Credits to Achieve Energy and Environmental Policy Goals*.

Another key indicator in Congress's desire to grow the biofuels industry is the production level mandates listed in section 202 of the Energy Independence and Security Act of 2007.⁶⁰ The mandates require the production of renewable fuels to increase from 12.95 billion gallons annually in 2010 to 15.2 billion gallons annually in 2012, of which 1 billion must come from biomass-based diesel. Further more, the act requires a dramatic increase in production of renewable fuels for the subsequent years to 2012, peaking to 36 billion gallons annually in 2022. The 36 billion gallons is an aggressive goal that illustrates legislators' emphasis on growing the biofuels industry into a permanent position in the U.S. economy.

Currently, there are two pending legislative acts that could impact the biodiesel credits. The first is the Clean Energy Jobs Act of 2011⁶¹, which was introduced in the House on March 1, 2011. This bill would extend the biodiesel and renewable diesel credits under sections 40A and 6426 through the calendar year ending December 31, 2016. The second pending legislative act is the Securing America's Future with Energy and Sustainable Technologies Act.⁶² This act would modify section 4083 to make biodiesel a taxable fuel, thus superseding Revenue Ruling 2002-76.

VII. CONCLUSIONS

In the United States, legislative tax incentives are intended to promote certain business or social actions that will increase demand for either existing or new industries. Artificially increasing the demand for new industries provides the United States such benefits as stronger job markets and improved economic stability. This is no different

⁶⁰ Energy Independence and Security Act of 2007, Pub. L 110-140, 121 Stat. 1492.

⁶¹ Clean Energy Jobs Act of 2011, 112 H.R. 851, 1st Session, § 101.

⁶² Securing America's Future with Energy and Sustainable Technologies Act, 112 S. 559, 1st Session, § 304.

from what is being done with the biodiesel tax credits. The U.S. government's commitment to almost single handedly creating a U.S. biofuels market has lead to a very lucrative industry for fuel manufacturers. Fuel manufacturers, from small to large, and from petroleum-based feedstocks to biomass-based feedstocks, can take advantage of some form of biofuels credits.

The multitude of biofuels credits available was not an accident by Congress. The different types of credits were enacted to allow the private industry to develop the alternative fuels that they could most readily produce. Therefore, they are not limited to one product. Instead they have the ability and incentive to innovate new products.

With any tax incentive there is always the possibility of it becoming obsolete. However, the legislative history and pending legislation have shown that it is a priority for Congress to develop an alternative market from traditional petroleum diesel fuel. Additionally, developing a biofuels market that is comparable to the prominence of diesel fuel requires companies to invest in research and development and large capital assets that cannot be accomplished overnight. Currently, biodiesel only makes up less than 1 percent of the total diesel fuel market.⁶³ This demonstrates that biofuels still required a lot of growth in order to meet the government's energy policy goals, and therefore the tax incentives are not going to expire anytime soon.

The biofuels credits, such as the alternative fuels credit and the biodiesel credit, can be claimed for those manufacturers who produce these fuels within the specifications outlined in the Code. These credits, while good for companies seeking to create a new division that houses new product lines, are not major benefits to standard petroleum

⁶³ US Energy Information Administration. (2007). *Biofuels in the US Transportation Sector*. Retrieved from www.eia.doe.gov.

diesel producers. The credits cannot be claimed for blended fuel products, and therefore would require significant capital outlays to create a separate product line process.

The area where current petroleum-based diesel producers can take most advantage of the Code provisions is co-processing biomass with petroleum diesel. Co-processing biomass and petroleum diesel allows for a taxpayer to take advantage of either the biodiesel mixture or renewable diesel mixture fuel credits while also limiting the amount of modifications to fuel production processes.

Blended diesel mixtures of 80 percent diesel and 20 percent biodiesel (B20) are commonly used today in standard diesel fuel engines, with limited impact on storage life or fuel economy. This means that a company could substitute a portion of the crude oil feedstock with a biomass feedstock and still maintain relationships with their current diesel fuel purchasers.

The key to making the most profit on new diesel fuel mixtures is finding a biomass feedstock that is equal to or lower in cost than using crude oil. Biomass feedstocks can be soybean oils, chicken fat (grease), fish oils, tallow (beef fat), or algae.⁶⁴ Some of these products can be retrieved as byproducts from other processes. The most common example is used vegetable oils from restaurants. If the right feedstock is identified, a company could find themselves in the auspicious position of receiving a tipping fee for collecting the feedstock while also claiming a tax credit for using the feedstock as a substitute for crude oil.

The right feedstock selection could also provide certain small diesel producers the ability to double up on credits. A manufacturer that supplements petroleum diesel with

⁶⁴ Congressional Budget Office, (2010). *Using Biofuel Tax Credits to Achieve Energy and Environmental Policy Goals*.

virgin oils, such as soybean oil, may be able to claim both the biodiesel mixture credit and the small agri-biodiesel producer credit. The two credits combined would be worth \$1.10 per gallon of biodiesel mixture produced in place of petroleum diesel.

In the end, petroleum diesel producers that can effectively produce diesel mixtures, such as B20, can maximize their tax advantages and stand at a competitive advantage over their competition. Companies can grow their profit margins and diversify their product lines in order to stay at the forefront of a changing fuels market. As the biofuels market continues to grow, it will be important for companies to not isolate themselves from the change. Companies have a unique opportunity to embrace the general population's emphasis on green products, and reap extra profits from the multitude of biofuels tax credits.