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Biomass: Comparison of Definitions in Legislation

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Summary

The use of biomass as an energy feedstock has regularly been presented as a potentially viable alternative to address U.S. energy security concerns, foreign oil dependence, and rural economic development, and as a tool to possibly help improve the environment (e.g., through greenhouse gas emission reduction). Biomass (organic matter that can be converted into energy) includes food crops, crops grown specifically to produce energy (e.g., switchgrass or prairie perennials), crop residues, wood waste and byproducts, and animal manure. Biomass may be used to produce heat, electricity, or liquid transportation fuel. Efforts to promote the use of biomass for liquid transportation fuels have focused on corn primarily. Efforts to promote the use of biomass for power generation have focused on wood, wood residues, and milling waste primarily. Comparatively less emphasis has been placed on the use of other biomass feedstocks—non-corn food crops, non-food crops, crop residues, animal manure, and more—as renewable energy sources for liquid fuel use or for power generation. This is partly due to the variety, lack of supply, and dispersed location of non-corn-based biomass feedstock. The technology development status and costs to convert non-corn-based biomass into energy are also viewed by some as obstacles to rapid adoption or deployment.

To aid in understanding the role of biomass as an energy resource, this report examines the characterization of biomass in legislation. For over 40 years, the term *biomass* has been used in legislation enacted by Congress for various programs. Biomass-related legislation has provided financial incentives to develop technologies that use biomass. How biomass is defined influences decisions about the type of biomass that is grown, where it is grown, and potential preferred energy uses, among other things. There have been 14 biomass definitions included in legislation—including tax legislation—since 2004.

Future policy discussions about both energy—particularly legislation involving the Renewable Fuel Standard (RFS) and energy tax incentives—and the environment may prompt further discussion about the definition of biomass. For example, one point of contention regarding the biomass definition and the RFS is whether the term should be defined to include a larger quantity of biomass from federal lands. Some argue that removal of biomass from these lands may lead to ecological harm. Others contend that biomass from federal lands can aid the production of renewable energy to meet certain mandates (e.g., the RFS) and that the removal of biomass can enhance forest restoration or protection from wildfires, insects, or diseases.

Bills have been introduced—in the current Congress and previous Congresses—that would modify the biomass definition, indicating some interest in expanding or refining its use. For example, S. 1614 would expand the renewable biomass definition for the RFS to include more biomass material from federal lands. Bills that would modify the biomass definition were also introduced in the 111th, 112th, and 113th Congresses. This report lists biomass definitions enacted by Congress in legislation since 2004, and discusses the similarities and differences among the definitions.

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Introduction

The potential for biomass to meet U.S. renewable energy demands has yet to be fully explored. Non-food and other types of biomass (e.g., manure) have traditionally been considered by some as waste material and as such have been deposited in landfills, used for animal feed, or applied to crop production lands. However, fuel prices, environmental concerns, and sustainability issues have led policymakers to propose and enact legislation that would encourage conversion of biomass into liquid fuels (e.g., ethanol, biodiesel), electricity, or thermal energy.[1] Since at least 2007, there has been increasing interest in cellulosic biomass (e.g., crop residues, prairie grasses, and woody biomass) because it does not compete directly with crop production for food—although it may compete for land—and because it is located in widely dispersed areas.[2] Classification of biomass as an energy resource has prompted the investigation of its use for purposes other than liquid fuel (e.g., on-site heating and lighting purposes, off-site electricity).

Biomass

Biomass is organic matter that can be converted into energy. Common examples of biomass include food crops, crops for energy (e.g., switchgrass or prairie perennials), crop residues (e.g., corn stover), wood waste and byproducts (both mill residues and traditionally noncommercial biomass in the woods), and animal manure. In recent years, the concept of biomass has grown to include such diverse sources as algae, construction debris, municipal solid waste, yard waste, and food waste. Some argue that biomass is a renewable resource that is widely available, may be obtained at minimal cost, and may produce less greenhouse gas than fossil fuels under certain situations. Others contend that biomass has seen limited use as an energy source thus far because it is not readily available as a year-round feedstock, is often located at dispersed sites, can be expensive to transport, lacks long-term performance data, requires costly technology to convert to useful energy, and might not meet quality specifications to reliably fuel electric generators.

Woody biomass has received special attention because of its widespread availability, but to date has been of limited use for energy production except for wood wastes at sawmills. Wood can be burned directly, usually to produce both heat or steam and electricity (called combined heat and power, or CHP), or digested to produce liquid fuels. Biomass from forests, as opposed to mill wastes, has been of particular interest, because it is widely accepted that many forests have excess biomass (compared to historical levels), often referred to as hazardous fuels.[3] Removing these hazardous fuels from forests could reduce the threat of uncharacteristic catastrophic wildfires, or slow the spread of insect or disease infestation, at least in some ecosystems, while providing a feedstock for energy production.

[1] For more information on biofuels and biopower, CRS Report R41282, *Agriculture-Based Biofuels: Overview and Emerging Issues*, by Mark A. McMinimy, and CRS Report R41440, *Biopower: Background and Federal Support*, by Kelsi Bracmort.

[2] The interest in cellulosic biomass is partly due to the expanded Renewable Fuel Standard (RFS) in the Energy Independence and Security Act of 2007 (P.L. 110-140), which required that specific volumes of cellulosic biofuel be included in transportation fuel starting in 2010. For more information on the cellulosic biofuel requirement for the RFS, see CRS Report R41106, *The Renewable Fuel Standard (RFS): Cellulosic Biofuels*, by Kelsi Bracmort.

[3] See CRS Report R40811, *Wildfire Fuels and Fuel Reduction*, by Katie Hoover.

Legislative History

The term *biomass* was first used by Congress in the Powerplant and Industrial Fuel Use Act of 1978 (P.L. 95-620), where it was referred to as a type of alternate fuel. However, the term was first defined in the Energy Security Act of 1980 (P.L. 96-294, Title II), as "any organic matter which is available on a renewable basis, including agricultural crops and agricultural wastes and residues, wood and wood wastes and residues, animal wastes, municipal wastes, and aquatic plants." Additionally, the Energy Security Act of 1980 excluded certain types of biomass (i.e., aquatic plants and municipal waste) for certain sections of the bill (e.g., Sec. 252 Biomass Energy Research and Demonstration Projects).

Three laws contain pertinent biomass definitions: the Food, Conservation, and Energy Act of 2008 (2008 farm bill, P.L. 110-246); the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140); and the Energy Policy Act of 2005 (EPAct05, P.L. 109-58). The term is mentioned several times throughout the three laws, but is not defined for each provision of the laws. In some cases, an individual law has multiple biomass definitions related to various provisions. For example, EISA provides three separate definitions and EPAct05 has six biomass definitions. In contrast, the 2008 farm bill has one definition (Title IX). The tax code contains four additional definitions. In total, 14 biomass definitions have been included in legislation—including tax legislation—since 2004. **Table 1** includes definitions from the three laws and from the tax code, and contains additional comments.

The definitions are built into the many provisions and programs that may support research and development, encourage technology transfer, and reduce technology costs for landowners and businesses. Thus, because the various definitions determine which feedstocks can be used under the various programs, the definitions are critical to the research, development, and application of biomass used to produce energy.

Analysis of Biomass Definitions

Of the many biomass definitions, there are two that are commonly referenced for energy production purposes: the definition in the 2008 farm bill and the definition in Title II of EISA (see **Table 1**). Both laws include an extensive definition of renewable biomass, recognizing that biomass is considered by some to be an infinite feedstock that may be replenished in a short time frame. Both definitions consider crops, crop residues, plants, algae, animal waste, food waste, and yard waste, among other items, as appropriate biomass feedstock. The two definitions differ, however, in where the biomass may be obtained from.

Whether the biomass is grown on federal lands is an important distinction between the two definitions for renewable biomass. The 2008 farm bill includes biomass from federal lands as a biofuel feedstock. In contrast, the renewable biomass definition for the RFS under EISA does not include planted trees, tree residue, or slash and pre-commercial thinnings from federal lands or crops from forested land as biofuel feedstocks.[4] In short, the renewable biomass definition in EISA does not make available the majority of woody biomass on federal lands. There has been some congressional interest in expanding the EISA definition to include more biomass from

[4] The Renewable Fuel Standard (RFS) is a provision established by the Energy Policy Act of 2005 requiring gasoline to contain a minimum amount of fuel produced from renewable biomass. For more information on the RFS, see CRS Report R43325, *The Renewable Fuel Standard (RFS): An Overview*, by Kelsi Bracmort.

federal lands to better meet the biofuels usage mandated by the Renewable Fuel Standard (RFS).[5] Legislation has been introduced but not enacted.

EISA expanded the RFS and restricted what qualified as renewable biomass. Advocates of the renewable biomass definition in EISA include groups who favor minimal land disturbance (for ecological reasons as well as to sustain sequestered carbon)[6] and are concerned that incentives to use wood waste might increase land disturbance, especially timber harvesting on federal lands. Opponents of this definition include groups who seek to use materials from federal lands and other forested lands (i.e., not tree plantations) as a source of renewable energy while possibly contributing to long-term, sustainable management of those lands.

Advocates of the renewable biomass definition in the 2008 farm bill include groups who seek to use the potentially substantial volumes of waste, woody biomass from federal lands and other (non-plantation) forest lands (e.g., waste from timber harvests, from pre-commercial thinnings, or from wildfire fuel reduction treatments) as a source of renewable energy. Opponents include groups who seek to preserve forested land and federal land, and who are concerned that incentives for using wood waste would encourage activities that could disturb forest lands, possibly damaging important wildlife habitats and water quality, as well as releasing carbon from forest soils.

Potential Issues for Biomass Feedstock Development

It is not clear whether the biomass definitions in the 2008 farm bill and in EISA constitute a barrier to biomass feedstock development for conversion to energy. Concerns for some landowners and business entities that wish to enter the biomass feedstock market include economic stability, risk/reward ratio, revenue generation, land use designation, and lifecycle greenhouse gas emissions. Additionally, the feedstock development potential of woody biomass varies by region. For example, biomass stock tends to be located on private forest land in the southeastern United States and on federal land in the western United States. Different regions may require different resources to develop a robust biomass feedstock market.

There is mixed support for biomass use, including its feedstock development. Recent agricultural and energy legislation has incorporated provisions and established programs to promote the development and use of biomass as a renewable energy source.[7] However, there also have been efforts in Congress to stall or prevent the use of biomass for energy production, which in turn would impact biomass feedstock development. For instance, there have been repeated attempts to both modify and eliminate the RFS.[8] Further, the 113th Congress enacted a provision that requires

[5] For example, S. 1614 would allow biomass from federal lands including slash and pre-commercial thinnings derived from ecological restoration activities, biomass materials that are derived within the wildland-urban interface, and biomass materials that are obtained from priority areas for authorized hazardous fuels reduction projects or wildfire threat.

[6] Sequestered carbon is the storage of carbon in plants, soils, oceans, or geologic formations.

[7] For more information, see CRS In Focus IF10288, *Overview of Bioenergy Programs in the 2018 Farm Bill*, by Kelsi Bracmort, and CRS Report R40913, *Renewable Energy and Energy Efficiency Incentives: A Summary of Federal Programs*, by Lynn J. Cunningham.

[8] For example, H.R. 104 would reduce the amount of renewable fuel that must be contained in gasoline, among other things. H.R. 1314 (115th Congress) and S. 1584 (114th Congress) would have repealed the RFS. H.R. 4849 (113th Congress) would have eliminated eligibility for corn-starch ethanol in the program and required advanced biofuel

that the Department of Defense (DOD) notify Congress at least 30 days prior to the department entering any contract to plan, design, refurbish or construct a biofuel refinery (P.L. 113-291).

Additionally, the success of the provisions and programs that support biomass as a renewable feedstock will be partly determined by landowner participation rates. Participation rates may depend on the definition provided in the legislation, particularly if it authorizes financial and technical support. For example, landowners are eligible to receive financial or technical assistance for biomass feedstock development based on the renewable biomass definition for a specific program.[9]

Proposed Modification of the Biomass Definition

The various definitions for biomass contained in statute determine what qualifies as biomass and which lands are eligible for biomass removal for the RFS, farm bill energy programs, tax incentives, and more. How biomass is defined in legislation influences decisions on the types of crops grown, where they are grown, and their potential preferred energy uses, among other things. Biomass definitions typically contain three components: agriculture (e.g., crops), forestry (e.g., slash, pre-commercial thinnings), and waste (e.g., food, yard). Multiple biomass definitions can be included in a single piece of legislation to meet the requirements of associated programs or provisions. Environmental groups, private entities aspiring to participate in biomass-to-energy initiatives, and federal agencies that administer biomass-to-energy programs are likely to closely monitor biomass definitions proposed during future energy, environmental, and farm bill debates in Congress.

Thus far, biomass debate and action in the 116th Congress has been minimal. Debates about the biomass definition have occurred in previous Congresses (e.g., 111th Congress).[10] Forthcoming congressional consideration of energy issues, particularly legislation involving the RFS or energy tax incentives, and environmental issues may prompt further discussion about the biomass definition in the 116th Congress.

eligible for the RFS to have been produced in the United States, among other things.

[9] For instance, the Biomass Crop Assistance Program (BCAP), established in the 2008 farm bill, is intended to support the establishment and production of eligible crops for conversion to bioenergy. For more information on BCAP, see CRS Report R41296, *Biomass Crop Assistance Program (BCAP): Status and Issues*, by Mark A. McMinimy.

[10] For example, bills were introduced in the 113th Congress that would have modified the biomass definition (H.R. 4426, H.R. 4956, H.R. 3084, S. 1267). Additionally, in the 112th Congress, bills were introduced to modify the biomass definition including S. 559, S. 781, H.R. 1861, and H.R. 1920. Significant attention was focused on the proposed biomass definitions contained in multiple legislative proposals put forth by the 111th Congress, including the American Clean Energy and Security Act of 2009 (ACES; H.R. 2454), the American Clean Energy Leadership Act of 2009 (ACELA; S. 1462), the Clean Energy Jobs and American Power Act (S. 1733), and the American Power Act (discussion draft). Discussion regarding the definition of biomass during the 111th Congress tended to center on the type of forestry products considered as an eligible biomass source and the lands (e.g., federal, forested) where biomass removal can occur. The eligibility of forest products may have been a contentious aspect of the biomass definition primarily because of differing viewpoints on the sustainability of woody biomass supplies. Some voice disapproval about forest lands being eligible for biomass removal generally because it is uncertain whether forestry products can be removed and transported to an energy conversion facility with minimal environmental impact, and whether such removals damage forest health. Others contend that inclusion of biomass removal from federal and forested lands is necessary to meet specific biofuel mandates established in the RFS.

Table 1. Biomass Definitions Contained in Legislation Enacted Since 2004

No.[0]	Public Law/ Tax Code	Definition	Comments
1	P.L. 110-246 Food, Conservation, and Energy Act of 2008 (2008 farm bill) Title IX Section 9001(12)	The term ***renewable biomass*** means— '(A) materials, pre-commercial thinnings, or invasive species from National Forest System land and public lands (as defined in section 103 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702)) that—'(i) are byproducts of preventive treatments that are removed—'(I) to reduce hazardous fuels; '(II) to reduce or contain disease or insect infestation; or '(III) to restore ecosystem health; '(ii) would not otherwise be used for higher-value products; and '(iii) are harvested in accordance with—'(I) applicable law and land management plans; and '(II) the requirements for—'(aa) old-growth maintenance, restoration, and management direction of paragraphs (2), (3), and (4) of subsection (e) of section 102 of the Healthy Forests Restoration Act of 2003 (16 U.S.C. 6512); and '(bb) large-tree retention of subsection (f) of that section; or '(B) any organic matter that is available on a renewable or recurring basis from non-Federal land or land belonging to an Indian or Indian tribe that is held in trust by the United States or subject to a restriction against alienation imposed by the United States, including—'(i) renewable plant material, including—'(I) feed grains; '(II) other agricultural commodities; '(III) other plants and trees; and '(IV) algae; and '(ii) waste material, including—'(I) crop residue; '(II) other vegetative waste material (including wood waste and wood residues); '(III) animal waste and byproducts (including fats, oils, greases, and manure); and '(IV) food waste and yard waste.	Definition applies to the following sections in the bill: Biorefinery Assistance Program (§9003), Repowering Assistance (§9004), Biomass Research and Development Initiative (§9008), Biomass Crop Assistance Program (§9011), Forest Biomass for Energy (§9012), and Community Wood Energy Program (§9013). In contrast to the definition of *renewable biomass* for the Renewable Fuel Standard (RFS) in P.L. 110-140 discussed below, this definition more broadly allows biomass from federal lands as a biofuel feedstock. The definition *includes* materials, pre-commercial thinnings, or invasive species from National Forest System land and public (BLM) lands; organic matter available on a renewable or recurring basis from non-federal or Indian land; renewable plant material (e.g., feed grains, other agricultural commodities, other plants and trees, and algae) and waste material (e.g., crop residue and other vegetative waste material, such as wood waste and wood residues), as well as animal waste and byproducts (including fats, oils, greases, and manure), food waste, and yard waste. This definition does *not* mention biomass from wildfire fuel treatments in the immediate vicinity of buildings, as does the RFS *renewable biomass* definition. (See definition 2.) No limits on private-sector participation evident.

No.[0]	Public Law/ Tax Code	Definition	Comments
2	P.L. 110-140 Energy Independence and Security Act of 2007 (EISA) Title II Section 201(1)(I)	The term ***renewable biomass*** means each of the following: "(i) Planted crops and crop residue harvested from agricultural land cleared or cultivated at any time prior to the enactment of this sentence that is either actively managed or fallow, and nonforested. "(ii) Planted trees and tree residue from actively managed tree plantations on non-federal land cleared at any time prior to enactment of this sentence, including land belonging to an Indian tribe or an Indian individual, that is held in trust by the United States or subject to a restriction against alienation imposed by the United States. "(iii) Animal waste material and animal byproducts. "(iv) Slash and pre-commercial thinnings that are from non-federal forestlands, including forestlands belonging to an Indian tribe or an Indian individual, that are held in trust by the United States or subject to a restriction against alienation imposed by the United States, but not forests or forestlands that are ecological communities with a global or State ranking of critically imperiled, imperiled, or rare pursuant to a State Natural Heritage Program, old growth forest, or late successional forest. "(v) Biomass obtained from the immediate vicinity of buildings and other areas regularly occupied by people, or of public infrastructure, at risk from wildfire. "(vi) Algae. "(vii) Separated yard waste or food waste, including recycled cooking and trap grease.	This provision defines renewable biomass for the Renewable Fuel Standard (RFS). The definition does not include, as biofuel feedstocks, planted trees, tree residue, or slash and pre-commercial thinnings removed from federal lands or crops from forested land (e.g., timber harvests).The definition *includes* biomass from: • slash and pre-commercial thinnings from non-federal forestlands, including Indian forestlands, but not from forestlands that are ecological communities within a global or state ranking of critically imperiled, imperiled, or rare pursuant to a State Natural Heritage Program, and not from old-growth or late successional forests; • planted trees and tree residue from actively managed tree plantations on non-federal land; • biomass obtained from the immediate vicinity of buildings, public infrastructure, and areas regularly occupied by people that are at risk from wildfire; and • other activities, including planted crops and crop residue from nonforested agricultural land that is either actively managed or fallow; animal waste material and byproducts; separated yard waste or food waste (including recycled cooking and trap grease); and algae. Some biomass material may come from non-federal forest lands.

No.[0]	Public Law/ Tax Code	Definition	Comments
3	P.L. 110-140 Energy Independence and Security Act of 2007 (EISA) Title XII Section 1201	The term ***biomass***—'(aa) means any organic material that is available on a renewable or recurring basis, including—'(AA) agricultural crops; '(BB) trees grown for energy production; '(CC) wood waste and wood residues; '(DD) plants (including aquatic plants and grasses); '(EE) residues; '(FF) fibers; '(GG) animal wastes and other waste materials; and '(HH) fats, oils, and greases (including recycled fats, oils, and greases); and '(bb) does not include—'(AA) paper that is commonly recycled; or '(BB) unsegregated solid waste.	Definition associated with this section in the bill: Express Loans for Renewable Energy and Energy Efficiency (§1201). The definition *excludes* paper that is commonly recycled and unsegregated solid waste. The definition *includes* any organic material available on a renewable or recurring basis, including agricultural crops, trees grown for energy production, wood waste and wood residues, plants (including aquatic plants and grasses), residues, fibers, animal wastes and other waste materials, and fats, oils, and greases (including recycled fats, oils, and greases). The definition is less restrictive than the *renewable biomass* definition listed under EISA, Title II, Section 201(1)(I) for the RFS. The definition is similar to the biomass definition under the EPAct05 Renewable Energy Security Provision (§206). Does not specify "actively managed" crops and trees as a criterion as mentioned in definition 2.
4	P.L. 110-140 Energy Independence and Security Act of 2007 (EISA) Title XII Section 1203(e)(z)(4)(A)	The term ***biomass***—'(i) means any organic material that is available on a renewable or recurring basis, including—'(I) agricultural crops; '(II) trees grown for energy production; '(III) wood waste and wood residues; '(IV) plants (including aquatic plants and grasses); '(V) residues; '(VI) fibers; '(VII) animal wastes and other waste materials; and '(VIII) fats, oils, and greases (including recycled fats, oils, and greases); and '(ii) does not include—'(I) paper that is commonly recycled; or '(II) unsegregated solid waste.	Definition associated with this section in the bill: Small Business Energy Efficiency Program (§1203). Applicable biomass is identical to materials described in definition 3.
5	Tax Code 2007 Title 26 Subtitle A Chapter 1 Subchapter A Part IV Subpart D Section 45(c)(2)	The term ***closed-loop biomass*** means any organic material from a plant which is planted exclusively for purposes of being used at a qualified facility to produce electricity.	Definition associated with this section in the code: Electricity Produced from Certain Renewable Resources (§45). Definition associated with this tax credit: Renewable Electricity, Refined Coal, and Indian Coal Production Credit (IRS Form 8835). Denotes the following as applicable biomass: • any organic material from a plant that is grown exclusively to produce electricity.

No.[0]	Public Law/ Tax Code	Definition	Comments
6	Tax Code 2007 Title 26 Subtitle A Chapter 1 Subchapter A Part IV Subpart D Section 45(c)(3)	The term ***open-loop biomass*** means—(i) any agricultural livestock waste nutrients, or (ii) any solid, nonhazardous, cellulosic waste material or any lignin material which is derived from—(I) any of the following forest-related resources: mill and harvesting residues, precommercial thinnings, slash, and brush, (II) solid wood waste materials, including waste pallets, crates, dunnage, manufacturing and construction wood wastes (other than pressure-treated, chemically-treated, or painted wood wastes), and landscape or right-of-way tree trimmings, but not including municipal solid waste, gas derived from the biodegradation of solid waste, or paper which is commonly recycled, or (III) agriculture sources, including orchard tree crops, vineyard, grain, legumes, sugar, and other crop by-products or residues. Such term shall not include closed-loop biomass or biomass burned in conjunction with fossil fuel (cofiring) beyond such fossil fuel required for startup and flame stabilization.	Definition associated with this section in the code: Electricity Produced from Certain Renewable Resources (§45). Definition associated with this tax credit: Renewable Electricity, Refined Coal, and Indian Coal Production Credit (IRS Form 8835). Denotes the following as applicable biomass: • any agricultural livestock waste nutrients. • any solid, nonhazardous, cellulosic waste material or lignin material. Does not include municipal solid waste, gas derived from the biodegradation of solid waste, or paper which is commonly recycled. Does not include closed-loop biomass or biomass burned in conjunction with fossil fuel (cofiring) beyond such fossil fuel required for startup and flame stabilization.
7	Tax Code 2007 Title 26 Subtitle A Chapter 1 Subchapter A Part IV Subpart D Section 45k(c)(3)	The term ***biomass*** means any organic material other than—(A) oil and natural gas (or any product thereof), and (B) coal (including lignite) or any product thereof.	Definition associated with this section in the code: Tax Credit for Producing Fuel from a Nonconventional Source (§45k). Denotes the following as applicable biomass: • any organic material other than oil and natural gas, and coal or any product thereof. Definition does not distinguish between open-loop biomass and closed-loop biomass. Definition appears to be more expansive than definitions provided in P.L. 110-140 and P.L. 110-246.

No.[0]	Public Law/ Tax Code	Definition	Comments
8	Tax Code 2007 Title 26 Subtitle A Chapter 1 Subchapter A Part IV Subpart E Section 48b(c)(4)	The term ***biomass*** means any—(i) agricultural or plant waste, (ii) byproduct of wood or paper mill operations, including lignin in spent pulping liquors, and (iii) other products of forestry maintenance. (B) Exclusion: The term "biomass" does not include paper which is commonly recycled.	Definition associated with this section in the code: Qualifying Gasification Project Credit (§48b). Denotes the following as applicable biomass: • any agricultural or plant waste. • wood or paper mill operations byproduct. • other products of forestry maintenance. Does not include paper which is commonly recycled. Does not include closed-loop biomass.
9	P.L. 109-58 Energy Policy Act of 2005 (EPAct05) Title II Section 203(b)(1)	The term ***biomass*** means any lignin waste material that is segregated from other waste materials and is determined to be nonhazardous by the Administrator of the Environmental Protection Agency and any solid, nonhazardous, cellulosic material that is derived from—(A) any of the following forest-related resources: mill residues, precommercial thinnings, slash, and brush, or nonmerchantable material; (B) solid wood waste materials, including waste pallets, crates, dunnage, manufacturing and construction wood wastes (other than pressure-treated, chemically treated, or painted wood wastes), and landscape or right-of-way tree trimmings, but not including municipal solid waste (garbage), gas derived from the biodegradation of solid waste, or paper that is commonly recycled; (C) agriculture wastes, including orchard tree crops, vineyard, grain, legumes, sugar, and other crop by-products or residues, and livestock waste nutrients; or (D) a plant that is grown exclusively as a fuel for the production of electricity.	Definition associated with this section in the bill: Federal Government Purchase Requirement for Renewable Energy (§203). Denotes the following as applicable biomass: • any lignin waste material that is segregated from other waste materials. • any solid, nonhazardous, cellulosic material derived from forest-related resources, solid wood waste materials, agriculture wastes, or a plant that is grown exclusively as a fuel for the production of electricity. Does not include municipal solid waste, gas derived from the biodegradation of solid waste, or paper that is commonly recycled. Introduces a concept that will be defined in 2007 as "closed-loop biomass" in the Internal Revenue Code. Does not specify "actively managed" crops and trees as a criterion as mentioned in definition 2. Does not discuss biomass obtained from the immediate vicinity of buildings (see definition 2). Limits on private-sector participation not specified.

No.[0]	Public Law/ Tax Code	Definition	Comments
10	P.L. 109-58 Energy Policy Act of 2005 (EPAct05) Title II Section 206(a)(6)(B)	The term ***biomass*** means any organic matter that is available on a renewable or recurring basis, including agricultural crops and trees, wood and wood wastes and residues, plants (including aquatic plants), grasses, residues, fibers, and animal wastes, municipal wastes, and other waste materials.	Definition associated with this section in the bill: Renewable Energy Security Provision (§206). Denotes the following as applicable biomass: • any organic matter available on a renewable or recurring basis including agricultural crops and trees, wood and wood wastes and residues, plants (including aquatic plants), grasses, residues, fibers, and animal wastes, municipal wastes, and other waste materials. Limits on private-sector participation not specified.
11	P.L. 109-58 Energy Policy Act of 2005 (EPAct05) Title II Section 210(a)(1)	The term ***biomass*** means nonmerchantable materials or precommercial thinnings that are byproducts of preventive treatments, such as trees, wood, brush, thinnings, chips, and slash, that are removed—(A) to reduce hazardous fuels; (B) to reduce or contain disease or insect infestation; or (C) to restore forest health.	Definition associated with this section in the bill: Grants to Improve Commercial Value of Forest Biomass for Electric Energy, Useful Heat, Transportation Fuels and Other Commercial Purposes Program (§210). Denotes the following as applicable biomass: • unmarketable materials or precommercial thinnings that are byproducts of preventive treatments, such as trees, wood, brush, thinnings, chips, and slash. Definition limited to forestry biomass sources. Limits on private-sector participation not specified.

No.[0]	Public Law/ Tax Code	Definition	Comments
12	P.L. 109-58 Energy Policy Act of 2005 (EPAct05) Title IX Subtitle C Section 932(a)(1)	The term ***biomass*** means—(A) any organic material grown for the purpose of being converted to energy; (B) any organic byproduct of agriculture (including wastes from food production and processing) that can be converted into energy; or (C) any waste material that can be converted to energy, is segregated from other waste materials, and is derived from—(i) any of the following forest-related resources: mill residues, precommercial thinnings, slash, brush, or otherwise nonmerchantable material; or (ii) wood waste materials, including waste pallets, crates, dunnage, manufacturing and construction wood wastes (other than pressure-treated, chemically-treated, or painted wood wastes), and landscape or right-of-way tree trimmings, but not including municipal solid waste, gas derived from the biodegradation of municipal solid waste, or paper that is commonly recycled.	Definition associated with this section in the bill: Bioenergy Program (§932). Denotes the following as applicable biomass: • any organic material grown for the purpose of being converted to energy. • any organic byproduct of agriculture. • any waste material that can be converted to energy, is segregated from other waste materials, and is derived from forest-related resources or wood waste materials, and landscape or right-of-way tree trimmings. Does not include municipal solid waste, gas derived from the biodegradation of municipal solid waste, or paper that is commonly recycled. Does not specify "actively managed" crops and trees as a criterion as mentioned in definition 2. Limits on private-sector participation not specified.
13	P.L. 109-58 Energy Policy Act of 2005 (EPAct05) Title XIII Subtitle A Section 1307 Section 48B(c)(4)	The term ***biomass*** means any—'(i) agricultural or plant waste, '(ii) byproduct of wood or paper mill operations, including lignin in spent pulping liquors, and '(iii) other products of forestry maintenance. '(B) EXCLUSION- The term 'biomass' does not include paper which is commonly recycled.	Definition associated with this section in the bill: Credit for Investment in Clean Coal Facilities (§1307). Denotes the following as applicable biomass: • any agricultural or plant waste. • any byproduct of wood or paper mill operations. • any other products of forestry maintenance. Does not include paper which is commonly recycled. Does not specify "actively managed" crops and trees as a criterion as mentioned in definition 2. Limits on private-sector participation not specified.

No.[a]	Public Law/ Tax Code	Definition	Comments
14	P.L. 109-58 Energy Policy Act of 2005 (EPAct05) Title XV Subtitle A Section 1512(r)(4)(B)	The term ***renewable biomass*** is, as defined in Presidential Executive Order 13134, published in the *Federal Register* on August 16, 1999, any organic matter that is available on a renewable or recurring basis (excluding old-growth timber), including dedicated energy crops and trees, agricultural food and feed crop residues, aquatic plants, animal wastes, wood and wood residues, paper and paper residues, and other vegetative waste materials. Old-growth timber means timber of a forest from the late successional stage of forest development.	Definition associated with this section in the bill: Conversion Assistance for Cellulosic Biomass, Waste-Derived Ethanol, Approved Renewable Fuels Grants Program (§1512). Denotes the following as applicable biomass: • any organic matter that is available on a renewable or recurring basis (excluding old-growth timber) including dedicated energy crops and trees, agricultural food and feed crop residues, aquatic plants, animal wastes, wood and wood residues, paper and paper residues, and other vegetative waste materials. Does not specify "actively managed" crops and trees as a criterion as mentioned in definition 2. Limits on private-sector participation not specified.

Source: P.L. 110-246 (Food, Conservation, and Energy Act of 2008), P.L. 110-140 (Energy Independence and Security Act of 2007), P.L. 109-58 (Energy Policy Act of 2005), P.L. 110-172 (Tax Technical Corrections Act of 2007, P.L. 102-486 (Energy Policy Act of 1992), P.L. 101-58 (Omnibus Budget Reconciliation Act of 1990).

Notes:

a. Numerical listing of definitions does not reflect any order of importance.

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