

Chapter 10

Glossary

10. GLOSSARY

The U.S. Department of Energy (DOE or the Department) has provided this glossary to assist readers in the interpretation of this Abengoa Biorefinery Project EIS. The Glossary includes definitions of technical and regulatory terms common to DOE *National Environmental Policy Act* (NEPA) documents and explains these terms with their most likely meanings in the context of DOE NEPA documents, and in particular this EIS. DOE derived the definitions in this glossary from the most authoritative sources available (for example, a statute, regulation, DOE directive, dictionary, or technical reference book) and checked each definition against other authorities. Glossary terms are presented in *italics* the first time they appear in each chapter of this document. In this Glossary, the convention is to italicize other glossary terms when they appear in a definition, but only once per definition.

Term	Definition
affected environment	The physical, biological, and human-related environment that is sensitive to changes resulting from the <i>Proposed Action</i> . The extent of the affected environment may not be the same for all potentially affected resource areas.
aerobic (digestion)	Biological treatment processes that occur in the presence of oxygen.
agronomy	The science of crop production and soil management.
air quality	A measure of the concentration of pollutants, measured individually, in the air.
airshed	A geographical region sharing a common flow of air in which <i>ambient air</i> quality is typically uniform. Because of the nature of air, an airshed is not a precise physical division like a <i>watershed</i> , but a political convenience for dealing with air problems that cross municipal and state lines.
ambient air	<ol style="list-style-type: none"> 1. Any unconfined portion of the atmosphere; open air, surrounding air. 2. The surrounding atmosphere, usually the outside air, as it exists around people, plants, and structures. It is the air surrounding emission sources that the public has access to (that is, the air outside of a physical barrier such as a fence).
ambient noise	Sound level at a given location, normally specified as a reference level to study a new intrusive sound source.
anaerobic (digestion)	Biological treatment processes that occur in the absence of oxygen.
anhydrous	Lacking water.
anthropogenic	Referring to alterations in the environment due to the presence or activities of humans.

Term	Definition
aquifer	Rock or sediment in a formation, group of formations, or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells or springs.
attainment (area)	An area that the U.S. Environmental Protection Agency (EPA) has designated as being in compliance with one or more of the <i>National Ambient Air Quality Standards</i> for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. An area may be in attainment for some pollutants but not for others.
attenuate	To lessen or weaken.
A-weighting	A weighting function to the <i>noise</i> spectrum that approximates the response of the human ear.
A-weighted decibel	A measurement of sound that approximates the sensitivity of the human ear, which is used to characterize the intensity or loudness of sound.
best available control technologies	The currently available technology producing the greatest reduction of air pollutant emissions, taking into account energy, environmental, economic, and other costs. Determined on a case-by-case basis typically by state or local permitting agencies.
best management practices	For this EIS, the practices, techniques and methods, and processes and activities commonly accepted and used throughout the construction and ethanol production industries to facilitate compliance with applicable requirements, and that provide an effective and practicable means of avoiding or reducing the potential environmental impacts of the <i>Proposed Action</i> and Action Alternative.
biofuels	Fuels made from <i>biomass</i> resources or their processing and conversion derivatives. Biofuels may include ethanol, biodiesel, and methanol.
biomass	Any organic matter that is available on a renewable or recurring basis, including agricultural crops and trees, wood and wood residues, plants (including aquatic plants), grasses, animal manure, municipal residues, and other residue materials. Biomass is sustainably regenerated.
biopower	The use of <i>biomass feedstock</i> to produce electric power or heat through direct combustion of the feedstock, through <i>gasification</i> and then combustion of the resultant gas, or through other thermal conversion processes. Power is generated with engines, turbines, fuel cells, or other equipment.
bioproducts	Bioproducts are any products (such as fuels, chemicals, and raw materials) made from renewable resources.

Term	Definition
biorefinery	<p>Biorefineries are similar to petroleum refineries in concept; however, biorefineries use biological matter (<i>biomass</i>), as opposed to petroleum, to produce transportation fuels (for example ethanol), chemicals, and heat and power. Such transportation fuels, chemicals, and heat and power are referred to as <i>biofuels</i>, <i>bioproducts</i>, and <i>biopower</i>, respectively.</p> <p>An integrated biorefinery uses combinations of biomass <i>feedstocks</i> (for example, corn stover, wheat straw, and other nonfood crop residues) and conversion technologies to produce a variety of products, but typically biofuels.</p> <p>In this EIS, the term “biorefinery” refers to the physical structures, including associated infrastructure, of the biomass-to-ethanol and biomass-to-energy production facility.</p>
biorefinery area/ parcel	<p>The western 385 acres of the <i>Biorefinery Project site</i> where the biorefinery and facilities would be located.</p>
Biorefinery Project site	<p>The location in Stevens County, Kansas, where Abengoa Bioenergy would build the biomass-to-energy and electricity facility. The Project site comprises 810 acres of cropland, the western 385 acres would contain the <i>biorefinery</i> and facilities; 425 acres on the eastern side would be a <i>buffer area</i> between the <i>biorefinery parcel</i> and the city of Hugoton.</p>
bituminous	<p>Like or containing any of various mixtures of hydrocarbons and other substances, occurring naturally or obtained by <i>distillation</i> from coal or petroleum, found in asphalt and tar, and used for surfacing roads and for waterproofing.</p>
buffer area	<p>The eastern 435 acres of the <i>Biorefinery Project site</i> that would remain cropland during construction and operation of the <i>biorefinery</i>.</p>
byproducts	<p>Products made during the production, manufacture, processing, or syntheses of something else.</p>
candidate species	<p>A species of plants or animals classified as a candidate for possible listing as endangered or threatened by a government agency.</p>
capacity margin	<p>The amount of unused available capability of an electric power system at peak load as a percentage of capacity resources.</p>
cathodic protection wells	<p>A term used for certain measures taken to prevent or minimize electrolytic corrosion of metallic equipment and structures. Cathodic protection wells house devices to minimize electrolytic corrosion of metallic pipelines, tanks, and other facilities in contact with the ground. Sometimes called “deep groundbeds.”</p>

Term	Definition
caustic	Causing corrosion.
cellulase	A class of enzymes that catalyze the hydrolysis of <i>cellulose</i> .
cellulose	<ol style="list-style-type: none">1. The structural component of the primary cell wall of green plants.2. An organic compound consisting of a linear chain of several hundred to over ten thousand glucose molecules (polysaccharide). Cellulose is broken down to simple sugars during <i>enzymatic hydrolysis</i>.
cellulosic biomass	See <i>lignocellulosic</i> .
cellulosic ethanol	An alternative fuel made from a wide variety of non-food plant materials (or <i>feedstocks</i>), including agricultural wastes such as corn stover and cereal straws, industrial plant waste like saw dust and paper pulp, and energy crops grown specifically for fuel production like switchgrass.
cellulosic feedstock	See <i>lignocellulosic</i> .
cellulosic hydrolysis	See <i>enzymatic hydrolysis</i> .
chemicals	Substances with a specific chemical composition. Some chemicals would be classified as <i>hazardous materials</i> and others not.
co-firing (bioenergy systems)	The combustion of two types of materials at the same time.
colluvial	Characteristic of a loose deposit of rock debris accumulated through the action of rainwash or gravity at the base of a gently sloping cliff or slope.
confined aquifer	An <i>aquifer</i> that is overlain by a <i>confining bed</i> . The confining bed has a significantly lower hydraulic conductivity than the aquifer.
confining bed	A body of material of low hydraulic conductivity that is stratigraphically adjacent to one or more aquifers. It may lie above or below the aquifer.
conformity	Consistent with separate general and transportation conformity rules in which federal agencies must work with state, Tribal, and local governments in nonattainment and maintenance areas to ensure that federal actions, including highway and transit projects, conform to the initiatives established in the applicable state or Tribal implementation plan.

Term	Definition
Conservation Reserve Program	A major provision of the Food Security Act of 1985 designed to reduce erosion and protect water quality on farmland. Under the program, enrolled landowners agree to convert environmentally sensitive land to approved conserving uses for 10 to 15 years. In exchange, the landowner receives an annual rental payment for establishing permanent vegetative cover.
conservation till	Refers to a variety of tillage systems that balance profitable crop production while minimizing erosion.
construction and demolition waste	In Kansas, construction and demolition waste means solid waste resulting from the construction, remodeling, repair, and demolition of structures, roads, sidewalks, and utilities. Such wastes include, but are not limited to, bricks, concrete, and other masonry materials, roofing materials, soil, rock, wood, wood products, wall or floor coverings, plaster, drywall, plumbing fixtures, electrical wiring, electrical components containing no <i>hazardous materials</i> , non-asbestos insulation, and construction-related packaging.
construction and demolition waste landfill	<i>Solid waste</i> disposal area used exclusively for the disposal on land of construction and demolition wastes.
consumptive irrigation	The amount of water applied for irrigation of a crop that is taken up by the plant <i>biomass</i> and which is transpired by the plant and that evaporates.
consumptive use (groundwater)	That part of water that is evaporated, transpired, used in products, incorporated into crops, consumed by humans or livestock, or otherwise removed from the water environment.
continental climate	A climatic type associated with the interior of large land masses in mid-latitudes. Without the moderating influence of the sea, summer and winter temperatures are extreme. Precipitation is low, as the region is distant from moisture-bearing winds.
contour farming	Field operations such as plowing, planting, cultivating, and harvesting on the contour, or at right angles to the natural slope, to reduce soil erosion, protect soil fertility, and use water more efficiently.
cover crop	A crop grown between periods of regular production of the main crop for the purposes of protecting the soil from erosion and improving soil productivity, health, and quality.
criteria pollutants	Six common pollutants (ozone, carbon monoxide, <i>particulate matter</i> , sulfur dioxide, lead, and nitrogen dioxide) known to be hazardous to human health and the environment and for which the EPA sets <i>National Ambient Air Quality Standards</i> under the Clean Air Act.

Term	Definition
critical habitats	<p>A specific geographic area(s) that is essential for the conservation of a <i>threatened or endangered species</i> and that may require special management and protection.</p> <p>The lists of critical habitats can be found in 50 CFR 17.95 (fish and wildlife), 50 CFR 17.96 (plants), and 50 CFR 226 (marine species).</p>
crop rotation	<p>System of cultivation where different crops are planted in consecutive growing seasons to maintain soil fertility.</p>
cultural resources	<p>Cultural resources include, but are not limited to, the following broad range of items and locations:</p> <ul style="list-style-type: none"> • archaeological materials (artifacts) and sites that date to the prehistoric, historic, and ethnohistoric periods and that are currently located on the ground surface or buried beneath it; • standing structures and/or their component parts that are over 50 years of age and are important because they represent a major historical theme or era, including the Manhattan Project and the Cold War era and structures that have an important technological, architectural, or local significance; • cultural and natural places, select natural resources, and sacred objects that have importance for American Indians; and • American folklife, traditions, and arts. Cultural resources include “historic properties” as defined in the National Historic Preservation Act, “archaeological resource” as defined in the Archaeological Resources Protection Act, and “cultural items” as defined in the Native American Graves Protection and Repatriation Act.
cumulative impact	<p>An impact on the environment that results from the incremental impact(s) of an action added to impacts from other past, present, and <i>reasonably foreseeable</i> future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.</p>
day-night average sound level	<p>Describes an individual’s cumulative exposure from all sources of <i>noise</i> over a full 24 hours, with any noise exposure occurring between 10 p.m. and 7 a.m. increased by 10 <i>decibels</i> (dBA) to account for an individual’s greater nighttime sensitivity to noise.</p>

Term	Definition
days away from work	One of the measures the U.S. Department of Labor, Bureau of Labor Statistics uses when developing statistics related to workplace injuries, illnesses, and fatalities.
days of restricted work activity or job transfer	One of the measures the U.S. Department of Labor, Bureau of Labor Statistics uses when developing statistics related to workplace injuries, illnesses, and fatalities.
denatured ethanol	Ethanol that has been rendered unfit for human consumption by the addition of a denaturant such as gasoline.
depressions	A landform sunken or depressed below the surrounding area. Depressions may be formed by various mechanisms and may be referred to by a variety of technical terms.
direct-firing (bioenergy system)	A technology that uses <i>biomass</i> as solid fuel in biomass boilers to produce steam.
direct impacts (socioeconomics)	Those changes that are directly attributed to the Proposed Action, such as changes in employment, population, or spending.
dispersion modeling	Models typically used in the permitting process to estimate the concentration of pollutants at specified ground-level receptors surrounding an emissions source.
distillation	Any of various heat-dependent processes used to purify or separate a fraction of a relatively complex substance, especially the vaporization of a liquid mixture with subsequent collection of components by differential cooling to condensation.
diurnal	Active in the daytime.
dryland cropland	Land used to produce crops in semiarid regions without the use of irrigation.
earthquake hazard	Geology-related hazard typically considered to relate to earthquake shaking action and ground motion.
economic geology	The study of fuels, metals, and other materials from the earth that are of interest to industry or the economy in general. It is concerned with the distribution of resources, the costs and benefits of their recovery, and the value and availability of existing materials.
ecoregions	Areas of similar topography, weather patterns, soils, and vegetation.

Term	Definition
endangered species	Plants or animals that are in danger of extinction through all or a significant portion of their ranges and that have been listed as endangered by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the procedures outlined in the <i>Endangered Species Act</i> and its implementing regulations (50 CFR 424; K.A.R. 32-958).
environmental impact statement	The detailed written statement that is required by section 102(2)(C) of NEPA for a proposed major federal action, significantly affecting the quality of the human environment. A DOE EIS is prepared in accordance with applicable requirements of the Council on Environmental Quality NEPA regulations in 40 CFR Parts 1500–1508, and the Department of Energy NEPA regulations in 10 CFR Part 1021. The statement includes, among other information, discussions of the environmental impacts of the proposed action and all reasonable alternatives, adverse environmental effects that cannot be avoided should the proposal be implemented, the relationship between short-term uses of the human environment and enhancement of long-term productivity, and any irreversible and irretrievable commitments of resources.
environmental justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Executive Order 12898 directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs, policies, and activities on minority and low-income populations.
enzymatic hydrolysis	A catalytic decomposition of a <i>chemical</i> compound by reaction with water, such as the conversion of cellulosic materials into fermentable sugars by the addition of specific enzymes.
eolian	Borne, deposited, produced, or eroded by the wind.
equivalent sound level	Describes a receiver's cumulative <i>noise</i> exposure from all events over a specified period of time.
fauna	The animals characteristic of a region, period, or special environment.
feedstock procurement area	Area from which most of the <i>feedstock</i> is anticipated to be harvested.

Term	Definition
feedstocks	Non-food materials used by the <i>biorefinery</i> as the raw material input. A non-food product used as the basis for manufacture of another product.
ferment/fermentation	Ethanol fermentation is the biological process of bacteria and yeast breaking down simple sugars for their cellular energy and producing ethanol and carbon dioxide.
fines	Fine-grained soil particles that are small enough to pass a standard #200 sieve.
floodplain	Flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding.
flora	All plant life occurring in an area or time period, especially the naturally occurring or indigenous plant life.
fluvial	Of or pertaining to rivers or produced by the action of rivers.
fossil fuels	Remains of dead plants and animals of a previous geologic era that can be burned to release energy. Examples are coal, oil, and natural gas.
fugitive dust	<i>Particulate matter</i> composed of soil; can include emissions from haul roads, wind erosion or exposed soil surfaces, and other activities in which soil is removed or redistributed.
gasification	For this EIS, a process that converts <i>biomass</i> into carbon monoxide and hydrogen by reacting the raw material at high temperatures with a controlled amount of oxygen. The resulting gas mixture is called synthesis gas or <i>syngas</i> .
genetically modified organisms	Organisms whose genetic material has been altered using genetic engineering techniques. For this EIS, genetically modified organisms are used in the <i>enzymatic hydrolysis</i> process.
geologic hazards	Include natural or manmade conditions or phenomena that present a risk or potential danger to life and property and include such phenomena as landslides, earthquakes, and subsidence related to <i>karst geology</i> and mining.
geology	The scientific study of the origin, history, structure, and composition of the earth, mainly through study of its rocks, minerals, and landforms.
geomorphology	The study of the features and landforms and the processes operating upon the earth's surface to produce these features.

Term	Definition
geotechnical	Of or related to geotechnical engineering, which includes investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; designing earthworks and structure foundations; and monitoring site conditions, earthwork and foundation construction.
grassland	Areas where the vegetation is dominated by grasses and other non-woody plants.
greenhouse gas	Greenhouse gases are those gaseous constituents of the atmosphere, both natural and <i>anthropogenic</i> (resulting from or produced by human beings), which absorb and emit thermal infrared radiation (heat) emitted by the earth's surface, the atmosphere itself, and by clouds. Water vapor, carbon dioxide, nitrous oxide, methane, and ozone are the primary greenhouse gases in the earth's atmosphere. Greenhouse gases trap heat between the earth's surface and the lower part of the atmosphere (troposphere) – the greenhouse effect.
GREET Model	Abbreviation for “Greenhouse gases, Regulated Emissions, and Energy use in Transportation” Model. Examines “well-to-wheel” fuel lifecycles by taking into consideration factors such as producing raw materials for fuels, refining the raw materials into fuels, and using the fuel in vehicles.
groundwater	The water contained in interconnected pores located below the water table in an <i>unconfined aquifer</i> or located in a <i>confined aquifer</i> .
harvested cropland	As defined in the Census of Agriculture, this category includes land from which crops were harvested and hay was cut. Land from which two or more crops were harvested was counted only once.
hazardous materials	Hazardous materials (also known as dangerous goods) are considered any solid, liquid, or gas that can harm people, other living organisms, property, or the environment.
hazardous waste	A category of waste regulated under the Resource Conservation and Recovery Act (RCRA). To be considered hazardous, a waste must be a solid waste under RCRA and must exhibit at least one of four characteristics described in 40 CFR 261.20 through 40 CFR 261.24 (that is, ignitability, corrosivity, reactivity, or toxicity) or be specifically listed by the EPA in 40 CFR 261.31 through 40 CFR 261.33. Potential hazardous waste streams for the <i>biorefinery</i> include gasoline, spent solvents, laboratory packs, paint wastes, used oil, waste ethanol, acids, <i>caustics</i> , cleaners, waste lamps, and batteries.

Term	Definition
hemicellulase	A mixture of enzymes that hydrolyzes or breaks down <i>hemicellulose</i> .
hemicellulose	<ol style="list-style-type: none"> <li data-bbox="493 300 1279 327">1. Polysaccharides present in plant cell walls along with <i>cellulose</i>. <li data-bbox="493 369 1398 543">2. Any of several branched polysaccharides present in almost all plant cell walls along with <i>cellulose</i>. Hemicellulose has a random, amorphous structure with little strength. It is easily hydrolyzed by dilute acid or base as well as myriad hemicellulase enzymes. Hemicellulose is broken down to simple sugars during acid pretreatment.
highly erodible (land)	A measure of the susceptibility of bare soil to be detached and moved by wind or water.
high-quality natural areas	A site that has unique scenic, historic, geologic, biological, or ecological value and of sufficient size and character to allow its maintenance in a natural condition by the operation of physical and biological processes, usually without direct human intervention. High-quality natural areas preserve the biodiversity of the region by contributing to the long-term viability of plant and animal populations, natural communities, landscapes, or ecosystems.
hydraulic conductivity	A measure of the rate at or ease with which water can move through a permeable medium.
hydric soil	A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop <i>anaerobic</i> conditions in the upper part.
hydrology	The study of the properties, distribution, and effects of water on a planet's surface, in the soil, and in the atmosphere.
hydrologic units	<ol style="list-style-type: none"> <li data-bbox="493 1297 1390 1358">1. A geographic area representing part or all of a surface drainage basin or distinct hydrologic feature. <li data-bbox="493 1400 1398 1461">2. A classification of soils concerning water infiltration characteristics used in hydrologic analyses. <p data-bbox="493 1503 1365 1646">The U.S. Geological Survey has divided the nation into hydrologic units consisting of 21 major regions, which are then subdivided into subregions, accounting units, and finally into the smallest element of the hierarchy, the cataloging unit.</p>
incidence rates	<p data-bbox="493 1688 1094 1715">The rate at which new events occur in a population.</p> <p data-bbox="493 1757 1349 1820">For this EIS, cases per 100 full-time workers for nonfatality statistics and cases per 100,000 full-time workers for fatality statistics.</p>

Term	Definition
indicator species	Plants and animals that, by their presence, abundance, lack of abundance, or chemical composition, demonstrate some distinctive aspect of the character or quality of an environment.
indirect impacts (socioeconomics)	Those changes that occur as a reaction to the project-induced changes in employment and regional expenditures.
industrial health and safety	Work place safety that focuses on occupational and worker hazards.
interdunal depressions	The area between dunes; see <i>depressions</i> .
intermittent (streams)	A stream that only flows for part of the year and is marked on topographic maps with a line of blue dashes and dots.
internal floating roof	<p>The floating roof is used in the tank structure and is floating on the liquid stored within the tank. The floating roof rises and falls with the liquid level within the tank achieving a no vapor zone. The objective of the internal floating roof is to have minimal or eliminate completely the potential gaseous zone above the stored liquid. This is a safety feature required within many industrial storage tank systems.</p> <p>Another benefit of a storage tank internal floating roof is, by removing the gaseous region above the stored liquid, the tank is subjected to less corrosion or oxidizing elements.</p>
jurisdictional wetland	<p>A jurisdictional wetland is one that is within the jurisdictional limits of authority of the U.S. Army Corps of Engineers under the Clean Water Act because the <i>wetland</i> also qualifies as a water of the United States. Waters of the United States include all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters; and all other waters for which the use, degradation, or destruction could affect interstate or foreign commerce (33 CFR 328.3). Work in waters of the United States, including the discharge of dredged or fill materials, is regulated by the Army Corps of Engineers through issuance of permits..</p>
karst geology	The type of geologic terrain underlain by carbonate rocks where significant solution of the rock has occurred due to flowing <i>groundwater</i> .
landslides hazards	A form of earth movement downslope under gravity loads that can be triggered by external forces or environmental conditions.
leks	A gathering of males, of certain animal species, for the purposes of competitive mating display.

Term	Definition
level of service (traffic streams)	A qualitative measure describing operational conditions within a traffic stream based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience.
lignin	A complex <i>chemical</i> compound that is an integral part of the cell wall of plants. Lignin fills the spaces in the cell wall between <i>cellulose</i> , <i>hemicellulose</i> , and <i>pectin</i> components. Lignin is not broken down to simple sugars. Lignin would be recovered from the process as a <i>byproduct</i> or treated as a waste.
lignocellulosic feedstocks	<p>Any portion of a plant or a <i>byproduct</i> used in the conversion of organic materials to energy, including crops, trees, forest wastes, and agricultural wastes not specifically grown for food. These would include, for example, barley grain, grapeseed, rice bran and hulls, soybean matter, corn stover, and organic materials that have been segregated from municipal solid waste.</p> <p>Lignocellulosic (cellulosic) feedstocks would not include, for example, plant-based oils intended for human consumption, such as soy, canola, sunflower and peanut oils, or foods intended for human and animal consumption, such as corn.</p>
listed species	A species of plants or animals listed by a government agency under the Threatened and Endangered Species Act as endangered or threatened.
lithology	The scientific study and description of rocks and soils, especially at the macroscopic level, in terms of their color, texture, and composition.
loam	Soil material that is a mixture of clay, silt, and sand.
low income	Below the poverty level, as defined by the U.S. Bureau of the Census.
managed lands	Federal, state, or private lands that are managed for timber production, wildlife habitat, recreation, education, or other purposes.
marginal cropland	Relative to <i>prime farmland</i> , lands that are generally more erodible, droughty, less productive, and cannot be cultivated easily.
marketed energy resources	<i>Fossil fuels</i> and petroleum products (such as gasoline and lubricants) whose availability could be affected by a Proposed Action. For purposes of this EIS, marketed energy resources include electricity and natural gas.
metropolitan statistical area	A large population nucleus, together with adjacent communities having a high degree of social and economic integration with that core. Metropolitan areas comprise one or more entire county(ies), except in New England, where cities and towns are the basic geographic units.

Term	Definition
micro area	Geographic entity defined by the U.S. Office of Management and Budget for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics; contains an urban core of at least 10,000 (but less than 50,000) people.
minority	A sociological group that does not constitute a politically dominant voting majority of the total population of a given society. A sociological minority is not necessarily a numerical minority—it may include any group that is subnormal with respect to a dominant group in terms of social status, education, employment, wealth and political power.
mitigate/mitigation	<p>Mitigation includes:</p> <ol style="list-style-type: none"> <li data-bbox="492 695 1414 762">1. Avoiding an impact altogether by not taking a certain action or parts of an action; <li data-bbox="492 804 1414 871">2. Minimizing impacts by limiting the degree or magnitude of an action and its implementation; <li data-bbox="492 913 1414 980">3. Rectifying an impact by repairing, rehabilitating, or restoring the affected environment; <li data-bbox="492 1022 1414 1089">4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of an action; or <li data-bbox="492 1131 1414 1178">5. Compensating for an impact by replacing or providing substitute resources or environments.
monocultures	The agricultural practice of producing or growing one single crop over a wide area.
municipal solid waste landfill	A <i>solid waste</i> disposal area where residential waste is placed for disposal. A municipal solid waste landfill also may receive other nonhazardous wastes, including commercial solid waste, sludge, and industrial solid waste.
National Ambient Air Quality Standards	Standards established under the authority of the Clean Air Act on a national level that define the maximum allowable limits for airborne concentrations of designated <i>criteria pollutants</i> to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards). National <i>ambient air</i> quality standards have been established for nitrogen dioxide, sulfur dioxide, carbon monoxide, <i>particulate matter</i> with aerodynamic diameters less than 10 microns, <i>particulate matter</i> with aerodynamic diameters less than 2.5 microns, ozone, and lead.

Term	Definition
noise	Unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment.
nonconsumptive (surface water use)	<ol style="list-style-type: none"> <li data-bbox="493 338 1406 474">1. Does not diminish the source or impair future water use; water is diverted and returned immediately to the source at the point of diversion following its use in the same quantity as diverted and meets water quality standards for the source. <li data-bbox="493 516 1406 579">2. The water is returned to the stream for renewed use by other water users downstream.
non-point source pollution	Source of pollution in which wastes are not released at one specific, identifiable point but from a number of diffuse points.
no-till	Tillage system where the soil is left undisturbed from harvest to seeding and from seeding to harvest. The only soil disturbance is a narrow slot created during planting.
odor threshold	The theoretical minimum concentration of an odorous compound necessary for detection in the mean percentage of the population.
offsite storage location	For this EIS, refers to where <i>biomass feedstock</i> would be stored when not being processed at the <i>biorefinery</i> . Current design calls for seven locations within 30 miles (48 kilometers) of the <i>Biorefinery Project site</i> . Although these locations have not yet been identified, they would be areas that do not interfere with crop production or irrigation activities, utilize lands that are marginal for crop production, and provide truck access.
opportunity cost	The cost of using a resource for a specific activity relative to using that resource for an alternative activity. The opportunity cost can be economical or functional.
out of production (land)	Land that cannot be developed for crop production because it is enrolled in the <i>Conservation Reserve Program</i> , <i>Wetland Reserve Program</i> , or other land retirement program.
particulate matter	Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions; one of six <i>criteria pollutants</i> for which there is a <i>National Ambient Air Quality Standard</i> .
pectin	Part of the non-woody parts of terrestrial plants. In the space between plant cells, pectin helps to bind cells together. The amount, structure, and chemical composition of the pectin differs between plants, within a plant over time, and in different parts of a plant. Hard parts of a plant contain more pectin than soft parts. Pectin is broken down to simple sugars during acid pretreatment.

Term	Definition
per capita income	The mean money income received during a calendar year computed for every man, woman, and child in a geographic area. It is derived by dividing the total income of all people 15 years old and over in a geographic area by the total population in that area.
perennial (streams)	A stream or river (channel) that has continuous flow in parts of its bed all year round during years of normal rainfall.
physiographic (region)	Broad-scale subdivisions based on terrain texture, rock type, and geologic structure and history.
playa	A dry or ephemeral lakebed, generally extending to the shore, or a remnant of, a closed basin. Its surface is typically dry, hard, and rough during the dry season, but wet and very soft in the rainy season.
point source	Source of pollution that involves discharge of wastes from an identifiable point, such as a smokestack or sewage treatment facility.
preferred alternative	For this EIS, the preferred alternative represents the most technically and economically viable alternative. The <i>Proposed Action</i> is DOE's preferred alternative.
prime farmland	Land that has the best combination of physical and <i>chemical</i> characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of Agriculture. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage.
prime farmland if irrigated	Land that meets the definition of <i>prime farmland</i> only if it is irrigated.
proposed action	<p>The activity proposed to accomplish a federal agency's purpose and need. An environmental impact statement analyzes the environmental impacts of the proposed action.</p> <p>The Proposed Action for this EIS is for DOE to provide federal funding of approximately \$82 million to Abengoa Bioenergy to support the design, construction, and startup of the Abengoa Biorefinery Project.</p>

Term	Definition
protective action criteria values	Concentration limits that produce specific effects for a large number of <i>chemicals</i> ; used to evaluate health effects of exposure to chemicals.
	For emergency events/conditions involving the actual or potential release of hazardous materials, each emergency class is defined in terms of the health impact or risk to the general public or site/facility workers. If the impact or risk approaches or exceeds some predetermined level, then steps to protect the public and works should be taken. These predetermined levels, expressed in terms of doses, exposures, or concentrations, are termed “protection action criteria.”
public health and safety	Focuses on hazards that could affect the communities near the <i>Proposed Action</i> .
pyrolysis	The chemical decomposition of a condensed substance by heating.
reasonably foreseeable	Future actions for which there is a reasonable expectation that the action could occur, such as a <i>proposed action</i> under analysis by a state or federal agency, a project for which construction has started, or an action that has obtained the necessary regulatory approvals or has funding committed to the action.
receptor points	Points at which concentrations of <i>criteria pollutants</i> or odorous compounds are computed in the air <i>dispersion model</i> .
Record of Decision	A concise public document that records a federal agency’s decision(s) concerning a proposed action for which the agency has prepared an environmental impact statement. The Record of Decision (ROD) is prepared in accordance with the requirements of the Council on Environmental Quality NEPA regulations (40 CFR 1505.2). A ROD identifies the alternatives considered in reaching the decision, the environmentally preferable alternative(s), factors balanced by the agency in making the decision, whether all practicable means to avoid or minimize environmental harm have been adopted, and if not, why they were not.
reduced-till	Tillage system that is less intensive and aggressive than conventional tillage.
region of influence	A specialized term that indicates a specific area of study for each of the resource areas that this EIS analysis addresses.
release parameters	Parameters describing physical properties pertaining to the release of emissions from specific sources such as the emission stack height or emission stack gas flow rate.
renewable energy system	Energy generated from resources that can be replenished, such as <i>biomass</i> .

Term	Definition
reservoir	An artificial lake used to store water for various uses.
residue (grain and crop)	Materials left in an agricultural field or orchard after the crop has been harvested. These residues include stalks and stubble (stems), leaves, and seed pods.
sequester	The long-term separation, isolation, or removal of a substance from the atmosphere, including through a biological or geologic method such as reforestation or an underground <i>reservoir</i> .
shrink-swell	Related to the expansive nature of soil, or how much the volume of a soil changes when the moisture content changes.
socioeconomics	The study of the relationship between economic activity and social life.
soil collapse	The lowering or collapse of the land surface either locally or over regional areas.
soil organic matter	The plant and animal residue in soil at various stages of decomposition. The content of organic matter in soil can be maintained by returning crop <i>residue</i> to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.
soil-related hazards	Hazards related to the potential for highly erosive soils, expansive soils, and otherwise unstable soil masses.
soil sustainability	Refers to the amount of <i>residue</i> that can be removed without adversely impacting soil productivity.
solid biomass boiler ash	The <i>residue</i> remaining after the burning of materials such as raw <i>biomass</i> , <i>stillage cake</i> , thin stillage syrup, and <i>genetically modified organisms</i> in the solid biomass boiler.
solid waste	In Kansas, solid waste means garbage, refuse, waste tires and other discarded materials, including, but not limited to solid and semisolid sludges, liquid, and contained gaseous waste materials resulting from industrial, commercial, agricultural, and domestic activities.
source emission rate	The rate of release of a pollutant or compound specific to an individual emission source.
species in need of conservation	Any nongame species deemed to require conservation measures in attempt to keep the species from becoming a threatened or endangered species. Species in need of conservation do not have the level of statutory protection as those species listed as threatened or endangered in Kansas.

Term	Definition
stillage cake	Also known as distiller's residual biomass solids. Insoluble solids recovered from the bottom of the <i>distillation</i> column in the distillation process.
stillage syrup	Soluble solids recovered from the <i>distillation</i> process and concentrated in an evaporator.
stratigraphy	The study of rock layers and layering.
stationary (noise)	Normally related to specific land uses, for example, housing tracts or industrial facilities.
strip cropping	The growing of crops in a systematic arrangement of strips or bands which serve as vegetative barriers to wind and water erosion. The strips or bands may run perpendicular to the slope of the land or to the direction of prevailing winds.
subsidence	The motion of the earth's surface as it shifts downward relative to sea level.
syngas	The abbreviation for synthesis gas, syngas is a mixture of carbon monoxide, hydrogen, methane, carbon dioxide, and higher hydrocarbon gases. Syngas results from heating <i>biomass</i> in the presence of about one-third the oxygen necessary for complete combustion. Syngas has been used successfully in natural gas-based, reciprocating internal combustion engines and gas turbines with only small modifications.
threatened species	Any plants or animals that are likely to become <i>endangered species</i> within the foreseeable future throughout all or a significant portion of their ranges and which have been listed as threatened by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the procedures set out in the <i>Endangered Species Act</i> and its implementing regulations (50 CFR 424; K.A.R. 32-958).
total cropland	As defined in the Census of Agriculture, this category includes <i>harvested cropland</i> , cropland used only for pasture or grazing, cropland idle or used for <i>cover crops</i> or soil improvement but not harvested and not pastured or grazed, cropland on which all crops failed or were abandoned, and cropland in cultivated summer fallow.
total recordable cases	The total number of work-related deaths, illnesses, or injuries that resulted in the loss of consciousness, <i>days away from work</i> , <i>days of restricted work activity or job transfer</i> , or required medical treatment beyond first aid.
transient (noise)	Sources that move through the environment, either along established paths or randomly, for example, trains.

Term	Definition
transportation infrastructure	The basic physical and organizational structures needed for the operation of a transportation system.
unconfined aquifer	An <i>aquifer</i> that is open to receive water from the surface, and whose water table surface is free to fluctuate up and down, depending on the recharge or discharge rate.
unstable fill	A measure of a soil's tendency to move when it is wet or loaded, or both. Unstable fill can also be suitable for use as subgrade material or fill based on several physical and engineering properties including <i>shrink-swell</i> , shear, plasticity, particle size with respect to composition, and other variables.
vent scrubber	An emission control device used to remove particulates and/or gases from exhaust streams.
viewshed	An area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point.
volatile organic matter	Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, that participates in atmospheric photochemical reactions.
watershed	Land area from which water drains toward a common watercourse in a natural basin.
wetlands	Those areas that are inundated by surface or groundwater with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas (for example, sloughs, potholes, wet meadows, river overflow areas, mudflats, natural ponds).
Wetland Reserve Program	A voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA Natural Resources Conservation Service (NRCS) provides technical and financial support to help landowners with their <i>wetland</i> restoration efforts.
Zone A Flood Zone	On Federal Emergency Management Agency flood maps, Zone A designates those areas that would be under water from a 100-year flood.