



# USDA ENERGY WEB MAP LAYER DETAILS



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## BIOREFINERY MAPPING TOOL/SOCIO-DEMOGRAPHICS MAP LAYERS

The socio demographic map displays information on population distribution, agricultural statistics, and demographics. The information is obtained largely from the US Census and US Department of Agriculture Census of Agriculture. The map can be used to assess the demographic and agricultural composition for a county or state. The map provides access to the 2007 census of agriculture reports and custom reports.

### US COUNTIES

**Description:** US 2010 County Boundaries

**Source:** U.S. Census

**Link:** <http://www.census.gov/geo/maps-data/data/tiger-cart-boundary.html>

### US STATES

**Description:** US 2010 State Boundaries

**Source:** U.S. Census

**Link:** <http://www.census.gov/geo/maps-data/data/tiger-cart-boundary.html>

### URBAN AREAS WITH POPULATION > 100,000

**Description:** 2010 US Census Urbanized Areas with a population greater than 100,000

**Source:** U.S. Census

**Link:** <http://www.census.gov/geo/reference/ua/urban-rural-2010.html>

### FARM DEPENDENT COUNTIES (USDA, ERS)

**Description:** Farm-dependent counties (1998-2000). A county is defined as farm dependent if farm earnings accounted for an annual average of 15 percent or more of total county earnings during 1998-2000, or farm occupations accounted for 15 percent or more of all employed county residents reporting an occupation in 2000.

**Source:** U.S. Department of Agriculture Economic Research Service using data from the U.S. Census Bureau and the Bureau of Economic Analysis.

**Link:** <http://www.ers.usda.gov/data-products/atlas-of-rural-and-small-town-america.aspx#.UZQKq7VQF1Y>

## CROP ACREAGE (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 USA total acres of land in crops. Map shows total acreage by State and County

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

## NO. OF FARMS (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 USA total number of farms. Map shows number of farms by State and County

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

## AVG. CROP SALES (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 USA Average crop sales per farm in thousands of dollars. Map represents crop sales by State and County

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

## POPULATION DENSITY (PERSONS PER SQUARE MILE)

**Description:** 2010 USA population density (the number of people per square mile). Map shows data by States, Counties, Census Tracts, and Census Block Groups

**Source:** Esri and 2010 U.S. Census

**Link:** <http://www.arcgis.com/home/item.html?id=302d4e6025ef41fa8d3525b7fc31963a>

## POPULATION CHANGE (2000-2010)

**Description:** Population change from 2000 to 2010. Values greater than 100 indicate an increase in population. Values less than 100 indicate a decrease in population. Map represents population change by State, County, and Census Block Groups.

**Source:** 2010 U.S. Census

**Link:** <http://www.census.gov/geo/maps-data/>

## MEDIAN NET WORTH

**Description:** Illustrates the median household net worth in the United States in 2010. Net worth is total household wealth minus secured and unsecured debt. Net worth includes home equity, equity in pension plans, net equity in vehicles, IRAs and Keogh accounts, business equity, interest-earning assets and mutual fund shares, stocks, and so on. Examples of secured debt include home mortgages and vehicle loans; examples of unsecured debt include credit card debt, certain bank loans, and other outstanding bills.

**Source:** Esri and 2010 U.S. Census

**Link:** <http://www.arcgis.com/home/item.html?id=814b785f25e24c9d8fc1a61ea61c0462>

## UNEMPLOYMENT RATE

**Description:** 2012 average unemployment rate. Map represents data by State and County.

**Source:** U.S. Bureau of Labor Statistics (BLS)

**Link:** <http://www.bls.gov/lau/#tables>

## POVERTY RATE (USDA, ERS)

**Description:** 2011 Percent of total population in poverty.

**Source:** U.S. Department of Agriculture Economic Research Service

**Link:** <http://www.ers.usda.gov/data-products/county-level-data-sets/poverty.aspx#.UzT4YLVQF1Y>

## BIOREFINERY MAPPING TOOL /LANDUSE MAP LAYERS

The land use map displays information on crop types and land cover. The information is obtained largely from the US Department of Agriculture National Agricultural Statistics Service. The map can be used to assess the various

crop types and other land cover types that are grown and harvested in a region. The map provides access to custom reports that display acreage of various crop types, CRP grasslands, and the percentage of different land cover types within an agricultural district.

#### AGRICULTURAL DISTRICTS (USDA, NASS)

**Description:** USDA National Agricultural Statistics Service (NASS) Agricultural Districts designation. Agricultural Statistics Districts are defined groupings of counties in each State, by geography, climate, and cropping practices. Most of the harvested acreage in this map is summarized by this layer because NASS combines some counties in their harvest statistics.

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service

**Link:** [http://www.nass.usda.gov/Data\\_and\\_Statistics/County\\_Data\\_Files/Frequently\\_Asked\\_Questions/index2.asp](http://www.nass.usda.gov/Data_and_Statistics/County_Data_Files/Frequently_Asked_Questions/index2.asp)

#### US COUNTY BOUNDARIES

**Description:** US 2010 County Boundaries

**Source:** U.S. Census

**Link:** <http://www.census.gov/geo/maps-data/data/tiger-cart-boundary.html>

#### US STATE BOUNDARIES

**Description:** US 2010 State Boundaries

**Source:** U.S. Census

**Link:** <http://www.census.gov/geo/maps-data/data/tiger-cart-boundary.html>

#### % TOTAL CROPLAND (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 Percent of the county which is in cropland

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

#### % HARVESTED CROPLAND (USDA CENSUS OF AGRICULTURE)

**Description:** 2007 Percent of total cropland within a county that is irrigated

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

#### CROPLAND % IRRIGATED (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 percent of total cropland within a county that is irrigated.

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

#### CROP ACREAGE (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 total acres of land in crops. Map shows total acreage by State and County.

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

#### AVERAGE FARM SIZE (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 average acreage of all farms in a county.

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

#### PIMA COTTON HARVESTED ACREAGE (USDA, NASS)

**Description:** 2011 Total Pima Cotton Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## UPLAND COTTON HARVESTED ACREAGE (USDA, NASS)

**Description:** 2011 Total Upland Cotton Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## BARLEY HARVESTED ACREAGE (USDA, NASS)

**Description:** 2012 Total Barley Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## CANOLA HARVESTED ACREAGE (USDA, NASS)

**Description:** 2012 Total Canola Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## CORN GRAIN HARVESTED ACREAGE (USDA, NASS)

**Description:** 2012 Total Corn for Grain Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## RICE HARVESTED ACREAGE (USDA, NASS)

**Description:** 2012 Total Rice Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## SORGHUM HARVESTED ACREAGE (USDA, NASS)

**Description:** 2012 Total Sorghum Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## SOYBEANS HARVESTED ACREAGE (USDA, NASS)

**Description:** 2012 Total Soybeans Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## SUGAR BEETS HARVESTED ACREAGE (USDA, NASS)

**Description:** 2012 Total Sugar Beets Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## SUNFLOWERS HARVESTED ACREAGE (USDA, NASS)

**Description:** 2008 Total Sunflower Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## WHEAT HARVESTED ACREAGE (USDA, NASS)

**Description:** 2008 Total Wheat Harvested Acreage within NASS Agriculture Districts

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service Quick Stats Tool

**Link:** <http://quickstats.nass.usda.gov/>

## ALL CROPLAND COVERTYPES (USDA NASS)

**Description:** The USDA, NASS Cropland Data Layer (CDL) is a raster, geo-referenced, crop-specific land cover data layer. The 2012 CDL has a ground resolution of 30 meters. The CDL is produced using satellite imagery from the Landsat 5 TM sensor, Landsat 7 ETM+ sensor, and the Disaster Monitoring Constellation (DMC) DEIMOS-1 and UK2 sensors collected during the current growing season.

Some CDL states used additional satellite imagery and ancillary inputs to supplement and improve the classification. These additional sources can include the United States Geological Survey (USGS) National Elevation Dataset (NED), the imperviousness and canopy data layers from the USGS National Land Cover Database 2006 (NLCD 2006), and the National Aeronautics and Space Administration (NASA) Moderate Resolution Imaging Spectroradiometer (MODIS) 250 meter 16 day Normalized Difference Vegetation Index (NDVI) composites.

Agricultural training and validation data are derived from the Farm Service Agency (FSA) Common Land Unit (CLU) Program. The NLCD 2006 is used as non-agricultural training and validation data.

Please refer to the 'Supplemental\_Information' Section of this metadata file for a complete list of all imagery, ancillary data, and training/validation data used to generate this state's CDL.

The strength and emphasis of the CDL is agricultural land cover. Please note that no farmer reported data are derivable from the Cropland Data Layer.

**Source:** U.S. Department of Agriculture National Agricultural Statistics Service

**Link:** <http://www.nass.usda.gov/research/Cropland/Release/>

## BIOREFINERY MAPPING TOOL/NET RETURNS MAP LAYERS

The net returns map displays information on crop value and sales. The information is obtained largely from the US Department of Agriculture National Agricultural Statistics Service and the US Department of Agriculture Economic Research Service. The map can be used to determine the average farm sales, the net returns for various crop types, and the acreage and value of CRP lands. The map provides access to the 2007 census of agriculture reports and custom reports. The map provides access to custom reports that display acreage of various crop types, CRP grasslands, and the percentage of different land cover types within an agricultural district.

## AVG. CROP SALES (USDA, CENSUS OF AGRICULTURE)

**Description:** 2007 USA Average crop sales per farm in thousands of dollars. Map represents crop sales by State and County.

**Source:** 2007 U.S. Department of Agriculture Census of Agriculture

**Link:** [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/)

## CORN GRAIN NET RETURNS (USDA ERS)

**Description:** The Net Return of Corn Grain sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

## BARLEY NET RETURNS (USDA ERS)

**Description:** The Net Return of Barley sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

## RICE NET RETURNS (USDA ERS)

**Description:** The Net Return of Rice sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

## SORGHUM NET RETURNS (USDA ERS)

**Description:** The Net Return of Sorghum sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

## SOYBEAN NET RETURNS (USDA ERS)

**Description:** The Net Return of Soybean sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

#### WHEAT NET RETURNS (USDA ERS)

**Description:** The Net Return of Wheat sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

#### PIMA COTTON NET RETURNS (USDA ERS)

**Description:** The Net Return of Pima Cotton sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

#### UPLAND COTTON NET RETURNS (USDA ERS)

**Description:** The Net Return of Upland Cotton sales in 2012. Calculated by using NASS yield and price data to calculate revenue and then subtracting out Operating and Overhead costs with ERS cost data.

**Source:** U.S. Department of Agriculture Economic Research Service Commodity Costs and Returns

**Link:** <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx#.UhzCMRtwruR>

#### CRP 2013 EXPIRING GRASS ACRES (USDA FSA)

**Description:** Grassland acres currently in the CRP program that are set to expire in 2013.

**Source:** U.S. Department of Agriculture Farm Service Agency Conservation Reserve Program

**Link:** <https://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>

#### CRP 2018 EXPIRING GRASS ACRES (USDA FSA)

**Description:** Grassland acres currently in the CRP program that are set to expire in 2018.

**Source:** U.S. Department of Agriculture Farm Service Agency Conservation Reserve Program

**Link:** <https://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>

#### CRP 2022 EXPIRING GRASS ACRES (USDA FSA)

**Description:** Grassland acres currently in the CRP program that are set to expire in 2022.

**Source:** U.S. Department of Agriculture Farm Service Agency Conservation Reserve Program

**Link:** <https://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>

#### CRP 2013 GRASS RENTAL RATE (USDA FSA)

**Description:** Average rental payment for grassland acres in the CRP program that are set to expire in 2013.

**Source:** U.S. Department of Agriculture Farm Service Agency Conservation Reserve Program

**Link:** <https://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>

#### CRP 2018 GRASS RENTAL RATE (USDA FSA)

**Description:** Average rental payment for grassland acres in the CRP program that are set to expire in 2018.

**Source:** U.S. Department of Agriculture Farm Service Agency Conservation Reserve Program

**Link:** <https://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>

#### CRP 2022 GRASS RENTAL RATE (USDA FSA)

**Description:** Average rental payment for grassland acres in the CRP program that are set to expire in 2022.

**Source:** U.S. Department of Agriculture Farm Service Agency Conservation Reserve Program

**Link:** <https://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>

## BIOREFINERY MAPPING TOOL/AVAILABLE BIOMASS MAP LAYERS

The available biomass map displays information on total biomass and various subsets of total biomass such as crop residues and forest residues. The information is obtained largely from the US National Renewable Energy Laboratory and the US Forest Service. The map can be used to determine the amount of biomass from different sources for a region. The map provides access to custom report tools that compare the biomass between counties and summarize the total biomass for a group of counties.

### TOTAL BIOMASS AVAILABLE

**Description:** Total Biomass Resources by county. This map estimates the biomass resources currently available in the United States by county. They include the following feedstock categories: crop residues (5 year average: 2003-2007) forest and primary mill residues (2007), secondary mill and urban wood waste (2002), methane emissions from landfills (2008), domestic wastewater treatment (2007), and animal manure (2002).

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

### CROP RESIDUES AVAILABLE

**Description:** 2008 Estimated crop residues. The following crops are included in this analysis: corn, wheat, soybeans, cotton, sorghum, barley, oats, rice, rye, canola, beans, peas, peanuts, potatoes, safflower, sunflower, sugarcane, and flaxseed. The quantities of crop residues that can be available in each county were estimated using total grain production, crop to residue ratio, moisture content, and taking into consideration the amount of residue left on the field for soil protection, grazing, and other agricultural activities.

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

### FOREST RESIDUES AVAILABLE

**Description:** Forest residue data by county was derived from the USDA Forest Service's Timber Product Output database for 2008. In this category we included logging residues and other removals. Logging residues are the unused portions of trees cut, or killed by logging, and left in the woods. Other removals are considered trees cut or otherwise killed by cultural operations (e.g. pre-commercial thinning, weeding, etc.) or land clearings and forest uses that are not directly associated with round wood product harvests. It does not include volume removed from the inventory by reclassification of timberland to productive reserved forestland.

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

## PRIMARY MILL RESIDUES AVAILABLE

**Description:** Primary mill residue data by county was derived from the USDA Forest Service’s Timber Product Output database for 2008. Primary mill residues are composed of wood materials (coarse and fine) and bark generated at manufacturing plants (primary wood-using mills) when round wood products are processed into primary wood products, like slabs, edgings, trimmings, sawdust, veneer clippings and cores, and pulp screenings. It includes mill residues recycled as byproducts as well as those left un-utilized and disposed of as waste.

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

## SECONDARY MILL RESIDUES AVAILABLE

**Description:** Secondary mill residues include wood scraps and sawdust from woodworking shops— furniture factories, wood container and pallet mills, and wholesale lumberyards.

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

## URBAN WOOD RESIDUES AVAILABLE

**Description:** Three major categories of urban wood residues were considered in this study: MSW wood—wood chips, pallets, and yard waste; Utility tree trimming and/or private tree companies; and Construction/demolition wood. Data on the collected urban wood waste are not available; thus numerous assumptions were applied for estimation.

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

## LIVE TREE WEIGHT

**Description:** Aboveground dry weight of live trees (at least 1 inch d.b.h./d.r.c), in short tons, on forest land. Estimates range by state from 2002 - 2011.

**Source:** U.S. Department of Agriculture Forest Service Forest Inventory and Analysis National Program

**Link:** <http://www.fia.fs.fed.us/tools-data/default.asp>

## STANDING-DEAD TREE VOLUME

**Description:** Net cubic-foot volume in standing-dead trees on forest land. Tree must be dead, and have a lean angle less than 45 degrees from vertical. For timber species (trees where the diameter is measured at breast height [DBH]), this is the net volume of wood in the central stem of a sample tree  $\geq 5.0$  inches in diameter, from a 1-foot stump to a minimum 4-inch top diameter, or to where the central stem breaks into limbs all of which are  $< 4.0$  inches in diameter. For woodland species (trees where the diameter is measured at root collar [DRC]), it is the net volume of wood and bark from the DRC measurement point(s) to a 1-1/2 inch top diameter; includes branches that are at least 1-1/2 inches in diameter along the length of the branch. Net cubic-foot volume.

**Source:** U.S. Department of Agriculture Forest Service Forest Inventory and Analysis National Program

**Link:** <http://www.fia.fs.fed.us/tools-data/default.asp>

## BIOREFINERY MAPPING TOOL/DEMAND AND INFRASTRUCTURE MAP LAYERS

The demand and infrastructure map displays information on the transportation infrastructure and potential demand sources for renewable fuels such as blending terminals, airports, and military installations. The information is obtained largely from the US National Transportation Atlas. The map can be used to determine the existing infrastructure that exists in an area that may be available to move renewable fuels and materials. The map provides access to a custom report tool that summarizes the infrastructure and resources within 50 miles of a point on the map selected by the user.

## PETROLEUM BLENDING TERMINALS

**Description:** 2009 Petroleum Blending Terminals showing the type of fuel that is blended at each terminal: Biodiesel, Ethanol, or Multiple Fuel Types.

**Source:**

**Link:**

## USA AIRPORTS

**Description:** 2012 Airports in the United States, Puerto Rico, U.S. Virgin Islands, and U.S. Possessions with airport passenger enplanements of greater than or equal to 100 passengers per year.

**Source:** U.S. National Atlas

**Link:** <http://www.nationalatlas.gov/mld/airprtx.html>

## MILITARY INSTALLATION LOCATIONS

**Description:** The United States Military Installations database contains the boundaries and location information for important military installations in the United States and Puerto Rico. The database includes records for 438 military installations.

**Source:** U.S. National Transportation Atlas Database

**Link:**

[http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\\_transportation\\_atlas\\_database/2012/index.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/2012/index.html)

## FREEWAYS

**Description:** Interstates and Highways that represent rural and urban interstate highways. U.S. National Transportation Atlas Interstate Highways is part of the National Highway Planning Network, published by the Federal Highway Administration as part of the National Transportation Atlas Databases for the United States.

**Source:** U.S. National Transportation Atlas

**Link:**

[http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\\_transportation\\_atlas\\_database/index.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/index.html)

## FREEWAYS AND ROADS

**Description:** U.S. Major Highways that represents the major highways of the United States. These include interstates, U.S. highways, state highways, and major roads. This dataset is from the Census 2000 TIGER/Line files. It contains all Class 1 and 2 roads segments plus any other road segments necessary to provide network connectivity for the Class\_Rte field.

**Source:** U.S. Census TIGER/Line Products

**Link:** <http://www.census.gov/geo/maps-data/data/tiger.html>

## RAILROADS

**Description:** U.S. National Transportation Atlas Railroads represents a comprehensive database of the nation's railway system at 1:100,000 scale. The data set covers the 48 contiguous States plus the District of Columbia within United States.

**Source:** U.S. National Transportation Atlas Railroads

**Link:**

[http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\\_transportation\\_atlas\\_database/index.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/index.html)

## NAVIGABLE WATERWAYS

**Description:** This dataset contains physical information on navigable inland waterways and the Gulf Intracoastal Waterway. The data consists of 10,115 sequential mile positions of navigable sites and distances in miles. The data was collected from different sources. 60% of the data was extracted from IENC and 20% USGS 1:24000 topographic quadrangle map sheets which have 1 meter accuracy. 5% of the data was extracted from NOAA nautical charts which have roughly the same accuracy depending on the scale. The remainder of the data was interpolated onto the USGS quadrangle map sheets using the USACE district chart books. The interpolated miles have accuracy of approximately 100 meters.

**Source:** U.S. Army Corps of Engineering

**Link:** <http://www.arcgis.com/home/item.html?id=41fc10efd5084a2e9af20381d32d770a>

## ALTERNATIVE FUEL STATIONS

**Description:** Alternative vehicle fueling stations, including: bio-diesel, compressed natural gas, E85, electric, hydrogen, liquefied natural gas, and liquefied propane gas.

**Source:** U.S. Department of Energy, Energy Efficiency & Renewable Energy

**Link:** [http://www.afdc.energy.gov/data\\_download/](http://www.afdc.energy.gov/data_download/)

## RENEWABLE FUEL REFINERIES

**Description:** Renewable Fuel Refinery Locations. Locations were geocoded from a list of biorefinery addresses. Biorefineries with incomplete addresses were located in the center of the city referenced by the address.

**Source:**

**Link:**

## TOTAL BIOMASS AVAILABLE

**Description:** Total Biomass Resources by county. This map estimates the biomass resources currently available in the United States by county. They include the following feedstock categories: crop residues (5 year average: 2003-

2007) forest and primary mill residues (2007), secondary mill and urban wood waste (2002), methane emissions from landfills (2008), domestic wastewater treatment (2007), and animal manure (2002).

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

## USA FEDERAL LANDS

**Description:** This map presents the federal and tribal land areas of the United States. The lands are symbolized by the managing agency. A layer showing federal land boundaries and place names automatically appears when you zoom in to larger scales.

**Source:** Esri

**Link:** <http://www.arcgis.com/home/item.html?id=690e0fe1ceb74ee5b10de1a2cf61ea87>

## BIOREFINERY MAPPING TOOL/BIOREFINERIES LAYERS

The biorefineries map displays locations of renewable fuel refineries. The map can be used to locate the type and capacity of renewable fuel refineries that are under construction, proposed, operating, and not operating. The map provides access to a custom report tool that summarizes the number and total capacity of refineries within 50 miles of a point on the map selected by the user.

## ALL BIOREFINERIES

**Description:** Renewable Fuel Refinery Locations. Locations were geocoded from a list of biorefinery addresses. Biorefineries with incomplete addresses were located in the center of the city referenced by the address.

**Source:**

**Link:**

## ETHANOL BIOREFINERIES

**Description:** Ethanol Biorefinery Capacity

**Source:**

**Link:**

## BIODIESEL REFINERIES

**Description:** Biodiesel Biorefinery Capacity

**Source:**

**Link:**

## BIOFUEL REFINERIES

**Description:** BioFuel Biorefinery Capacity

**Source:**

**Link:**

## EPA POTENTIAL BIOREFINERY SITE

**Description:** EPA developed national level site screening criteria in partnership with the U.S. Department of Energy (DOE) National Renewable Energy Laboratory (NREL) for wind, solar, biomass, geothermal and landfill to gas energy facilities. While the screening criteria demonstrates the potential of reusing contaminated land for renewable energy facilities, the criteria and the maps are not designed to identify the best sites for developing renewable energy and are not all-inclusive. There are some sites shown on the maps that may not be suitable for siting renewable energy based on further site-specific analysis; in addition, some viable sites may not be included on these maps due to the screening criteria used. More detailed site-specific analysis is therefore necessary to identify or prioritize the best sites for developing renewable energy facilities based on technical and economic potential.

**Source:** U.S. Environmental Protection Agency - RE- Powering America's Land

**Link:** <http://www.epa.gov/renewableenergyland/index.htm>

## TOTAL BIOMASS AVAILABLE

**Description:** Total Biomass Resources by county. This map estimates the biomass resources currently available in the United States by county. They include the following feedstock categories: crop residues (5 year average: 2003-2007) forest and primary mill residues (2007), secondary mill and urban wood waste (2002), methane emissions from landfills (2008), domestic wastewater treatment (2007), and animal manure (2002).

**Source:** U.S. Department of Energy National Renewable Energy Laboratory

**Link:** <http://www.nrel.gov/gis/biomass.html>

## ALL CROPLAND COVERTYPES (USDA NASS)

**Description:** The USDA, NASS Cropland Data Layer (CDL) is a raster, geo-referenced, crop-specific land cover data layer. The 2012 CDL has a ground resolution of 30 meters. The CDL is produced using satellite imagery from the Landsat 5 TM sensor, Landsat 7 ETM+ sensor, and the Disaster Monitoring Constellation (DMC) DEIMOS-1 and UK2 sensors collected during the current growing season.

Some CDL states used additional satellite imagery and ancillary inputs to supplement and improve the classification. These additional sources can include the United States Geological Survey (USGS) National Elevation Dataset (NED), the imperviousness and canopy data layers from the USGS National Land Cover Database 2006 (NLCD 2006), and the National Aeronautics and Space Administration (NASA) Moderate Resolution Imaging Spectroradiometer (MODIS) 250 meter 16 day Normalized Difference Vegetation Index (NDVI) composites.

Agricultural training and validation data are derived from the Farm Service Agency (FSA) Common Land Unit (CLU) Program. The NLCD 2006 is used as non-agricultural training and validation data.

Please refer to the 'Supplemental\_Information' Section of this metadata file for a complete list of all imagery, ancillary data, and training/validation data used to generate this state's CDL.

The strength and emphasis of the CDL is agricultural land cover. Please note that no farmer reported data are derivable from the Cropland Data Layer.

**Source:** USDA National Agricultural Statistics Service

**Link:** <http://www.nass.usda.gov/research/Cropland/Release/>

## BIOREFINERY MAPPING TOOL/POTENTIAL BIOMASS 2015 LAYERS

The potential biomass 2015 map displays information on potential biomass for certain crop types in the year 2015. The information is obtained from the US Department of Energy 2005 Billion Ton Study. The map can be used to determine the amount of potential harvested acreage and potential production from different biomass sources. The map provides access to custom reports that list the potential biomass for a county for 2015, 2020, 2025, and 2030.

## BARLEY POTENTIAL HARVESTED ACREAGE

**Description:** 2015 Barley Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## BARLEY POTENTIAL PRODUCTION

**Description:** 2015 Barley Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## CORN POTENTIAL ACREAGE

**Description:** 2015 Corn Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## CORN POTENTIAL PRODUCTION

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**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## COTTON POTENTIAL ACREAGE

**Description:** 2015 Cotton Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## COTTON POTENTIAL PRODUCTION

**Description:** 2015 Cotton Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## HAY POTENTIAL ACREAGE

**Description:** 2015 Hay Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## HAY POTENTIAL PRODUCTION

**Description:** 2015 Hay Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## RICE POTENTIAL ACREAGE

**Description:** 2015 Rice Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## RICE POTENTIAL PRODUCTION

**Description:** 2015 Rice Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SORGHUM POTENTIAL ACREAGE

**Description:** 2015 Sorghum Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SORGHUM POTENTIAL PRODUCTION

**Description:** 2015 Sorghum Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SOYBEANS POTENTIAL ACREAGE

**Description:** 2015 Soybeans Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SOYBEANS POTENTIAL PRODUCTION

**Description:** 2015 Soybeans Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WHEAT POTENTIAL ACREAGE

**Description:** 2015 Wheat Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WHEAT POTENTIAL PRODUCTION

**Description:** 2015 Wheat Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WOODY POTENTIAL ACREAGE

**Description:** 2015 Woody Potential Harvested Acreage at \$80/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WOODY POTENTIAL PRODUCTION

**Description:** 2015 Woody Potential Production (bushels) at \$80/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## BIOREFINERY MAPPING TOOL/POTENTIAL BIOMASS 2030 LAYERS

The potential biomass 2030 map displays information on potential biomass for certain crop types in the year 2030. The information is obtained from the US Department of Energy 2005 Billion Ton Study. The map can be used to determine the amount of potential harvested acreage and potential production from different biomass sources. The map provides access to custom reports that list the potential biomass for a county for 2015, 2020, 2025, and 2030.

## BARLEY POTENTIAL HARVESTED ACREAGE

**Description:** 2030 Barley Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## BARLEY POTENTIAL PRODUCTION

**Description:** 2030 Barley Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## CORN POTENTIAL ACREAGE

**Description:** 2030 Corn Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## CORN POTENTIAL PRODUCTION

**Description:** 2030 Corn Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## COTTON POTENTIAL ACREAGE

**Description:** 2030 Cotton Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## COTTON POTENTIAL PRODUCTION

**Description:** 2030 Cotton Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## HAY POTENTIAL ACREAGE

**Description:** 2030 Hay Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## HAY POTENTIAL PRODUCTION

**Description:** 2030 Hay Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## RICE POTENTIAL ACREAGE

**Description:** 2030 Rice Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## RICE POTENTIAL PRODUCTION

**Description:** 2030 Rice Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SORGHUM POTENTIAL ACREAGE

**Description:** 2030 Sorghum Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SORGHUM POTENTIAL PRODUCTION

**Description:** 2030 Sorghum Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SOYBEANS POTENTIAL ACREAGE

**Description:** 2030 Soybeans Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## SOYBEANS POTENTIAL PRODUCTION

**Description:** 2030 Soybeans Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WHEAT POTENTIAL ACREAGE

**Description:** 2030 Wheat Potential Harvested Acreage at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WHEAT POTENTIAL PRODUCTION

**Description:** 2030 Wheat Potential Production (bushels) at \$60/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WOODY POTENTIAL ACREAGE

**Description:** 2030 Woody Potential Harvested Acreage at \$80/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)

## WOODY POTENTIAL PRODUCTION

**Description:** 2030 Woody Potential Production (bushels) at \$80/dry ton

**Source:** U.S. Department of Energy 2005 Billion Ton Study

**Link:** [https://bioenergykdf.net/models/billion\\_ton\\_study](https://bioenergykdf.net/models/billion_ton_study)