

## Sources, Notes, and Links

**Population** – The population data are taken from the 2000 United States Census performed by the [United States Census Bureau](#) .

**Land Area** – The land area data are taken from the 1997 Census of Agriculture performed by the [National Agricultural Statistics Service](#) of the United States Department of Agriculture. These values represent the total land area of the entire county as calculated during the census.

**Economic Development** – The list of economic development agencies serving the county is not intended to be comprehensive. Those agencies listed represent the bodies considered to be the major players after only preliminary research. Economic development agencies wishing to be listed on the page can direct their inquiries to [wppsef@ems.psu.edu](mailto:wppsef@ems.psu.edu) .

**Keystone Opportunity Zones** – The numbers given for [Keystone Opportunity Zones](#) (KOZ) and acreage are taken from the respective websites for the various KOZ regions, for which we have provided links on the county pages. The numbers represent parcels, or sites, not subzones.

**Rail Providers** – The rail provider information is taken from a [map](#) published by the Bureau of Rail Freight, Ports and Waterways of the [Pennsylvania Department of Transportation](#) (PennDOT). Each provider may operate multiple railroads within the county. Please observe the map via the link provided in order to view the railroad locations.

**Industrial Properties with Rail Service** – The data for industrial properties with rail service are taken from the [Rail Freight Properties Directory](#) published by the Bureau of Rail Freight, Ports and Waterways of PennDOT. An online version of this directory is available on the PennDOT website via the link above.

**Keystone Opportunity Zones with Rail Service** –The data for Keystone Opportunity Zones with rail service is taken from one of two sources, depending on the county in question. For those counties that fall within the Southwestern Pennsylvania KOZ, the Southern Alleghenies KOZ, the North Central Pennsylvania KOZ, or the Central Pennsylvania KOZ, the data is taken from the county's respective KOZ website. These counties include Allegheny, Armstrong, Bedford, Cameron, Centre, Clinton, Elk, Fayette, Fulton, Greene, Huntingdon, Indiana, Jefferson, Lycoming, McKean, Potter, Somerset, Washington, and Westmoreland. For the remaining counties, the data are taken from the administrators of the county's KOZ program because the necessary information was not available online.

**Educational Entities** – The data for educational entities is taken from the [Educational Names and Addresses](#) online directory of the Pennsylvania Department of Education.

The number provided for colleges and universities includes community colleges and public and private colleges and universities.

**Environmental Education Facilities** – The data for environmental education facilities is taken from the [Pennsylvania Center for Environmental Education's](#) online directory.

**Agricultural Resources** – The data for number of farms, farmland, and average farm size are taken from the [2000-2001 Pennsylvania Agricultural Statistics Annual Bulletin](#) published by the [Pennsylvania Agricultural Statistics Service](#), which is a field office of the National Agricultural Statistics Service of the United States Department of Agriculture. The bulletin is available in its entirety online by following the link we have provided. Farmland includes all land that is part of a farm operator's total operation, including Conservation Reserve Program land. However, large acreages of woodland or wasteland held for nonagricultural purposes were not included. It is important to note that these statistics are estimates based on the 1997 Census of Agriculture and subsequent surveys conducted by the Pennsylvania Agricultural Statistics Service. More accurate statistics will be available in early 2004, when the results of the 2002 Census of Agriculture are made public.

**Conservation Reserve Program Land** – The data for [Conservation Reserve Program](#) land are taken from online reports published by the Farm Service Agency of the United States Department of Agriculture. The reports are updated monthly and can be accessed by following the link we have provided to the Conservation Reserve Program page. From here, select "CRP Reports" from the menu on the right. The report typically referenced by WPPSEF is the "Summary for Active Contracts by Program Year" report.

**Forest Land and Timberland** – The data for total forest land and timberland are taken from "Forest Statistics for Pennsylvania," which was published by the [Northeastern Forest Experiment Station](#) of the United States Department of Agriculture Forest Service. This forest data contained in this publication is from 1989. Unfortunately, this is the most recent data available. Forest land is defined as land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. Timberland is defined as forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization.

**Mill Residues and Logging Residues** – The data for mill residues and logging residues are taken from the [Timber Product Output Database Retrieval System](#), which is an online database created by the Forest Inventory and Analysis Units of the USDA Forest Service. This database contains timber product data from 1996. Mill residues are defined as wood materials (coarse and fine) and bark generated at manufacturing plants (primary wood-using mills) when roundwood products are processed into primary wood products. Mill residues include slabs, edgings, trimmings, sawdust, veneer clippings, and cores, and pulp screenings. The value listed includes those residues recycled as byproducts as well as those left unutilized and disposed of as waste. Logging residues are defined as the unused portions of trees cut or killed by logging and left in the woods.

**Wind Resource** – The wind power class for each county is taken from a [map](#) published by the National Renewable Energy Laboratory in 1986 and now posted on the [Renewable Resource Data Center’s](#) website. The wind power class scale is as follows:

<b>Wind Power Class</b>	<b>Power (w/m<sup>2</sup>)</b>	<b>Speed (mph)</b>	<b>Commercial Viability</b>
1	0 – 200	0 – 12.5	Very Poor
2	200 – 300	12.5 – 14.3	Poor
3	300 – 400	14.3 – 15.7	Marginal
4	400 – 500	15.7 – 16.8	Good
5	500 – 600	16.8 – 17.9	Very Good
6	600 – 800	17.9 – 19.7	Excellent

**Landfill Resources** – The data for landfill resources are taken from the Landfill Methane Outreach Program Landfill Gas Projects database maintained by the [Landfill Methane Outreach Program](#) (LMOP) of the United States Environmental Protection Agency. The database is updated monthly and changes often due to voluntary reporting standards. The number of landfills value includes all landfills with current or planned landfill gas energy projects and also those with the potential to support such projects. Unless otherwise noted, the waste in place value includes all such landfills. The current landfill methane recovery projects listing includes only those landfills with landfill gas energy projects in either the operational or construction phase.

**Manure Digestion** – The calculations of the raw livestock manure and the manure methane potential values are somewhat complex and involve information from a variety of sources. First of all, data regarding livestock inventories by county are taken from the [Pennsylvania Agricultural Statistics Service’s Online Database](#). Like the data for agricultural land resources, these data are simply estimates made by experts, which will be used only until the results of the 2002 Census of Agriculture are published. Additionally, livestock inventories for the counties of Cameron and Elk are omitted to avoid the disclosure of information for individual operations. Information regarding chicken inventories is also sparse for similar reasons.

It is then assumed that beef cattle have an average weight of 900 pounds, dairy cattle 1200 pounds, swine 150 pounds, and chickens 5 pounds. These assumptions were made after interviews with Pennsylvanian farmers and research of a variety of publications from prominent universities, including [Purdue University](#) and the [University of Missouri-Columbia](#). Next, a publication by [Ohio State University](#) was used to determine the daily manure production of each animal. From this, it is calculated that 60 pounds of manure are produced per 1000 pounds of beef cattle per day, dairy cattle 82 pounds, swine 65 pounds, layer chickens 53 pounds, and broiler chickens 72 pounds. With this information, a formula can be created to calculate the total amount of raw manure produced daily in each county by summing the production of each type of animal. The general form of the formula for one type of animal is as follows: number of animals \* average weight \* pounds of manure produced daily / 1000 pounds .

In the calculation of methane potential, the same basic equation is used, except pounds of manure produced daily is replaced by daily methane potential per 1000 pounds of animal. It is first assumed that 65 percent of the biogas produced by the methane digester is methane. This assumption was made in consultation with the Purdue University publication, which was also used to determine the methane potential for each animal. Unfortunately, the publication does not include values for either type of chicken, so a [Colorado State University](#) publication was utilized for this purpose. It is again assumed that 65 percent of the biogas values in Table 2 of this publication is methane, so the biogas values for layer and broiler chickens were multiplied by 0.65. It has been determined that 19.4 cubic feet of methane are produced per 1000 pounds of beef cattle per day, dairy cattle 28.4 cubic feet, swine 18.6 cubic feet, layer chickens 46.8 cubic feet, and broiler chickens 59.8 cubic feet. These values are then inserted into the same equation as that for raw manure, with the methane potential values replacing the pounds of manure produced daily values. The methane potentials of each animal type are then summed to determine the total for each county.