



2007 CENSUS OF AGRICULTURE

2009 On-Farm Energy Production

The top states in terms of number of operations producing on-farm renewable energy:

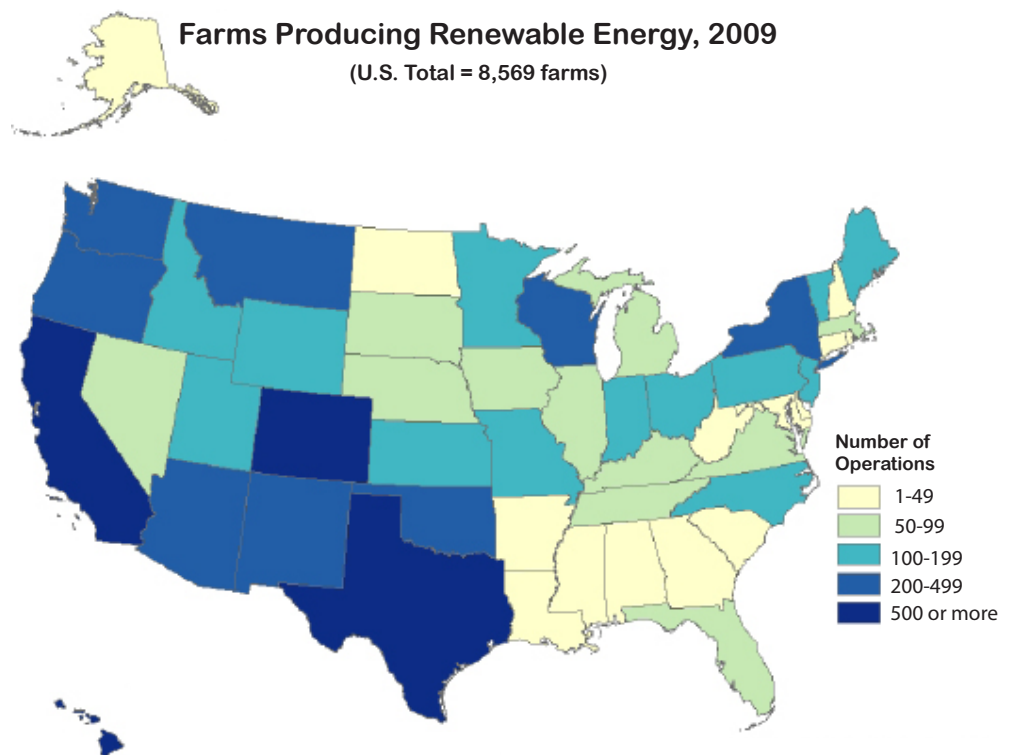
- 1. California**
- 2. Texas**
- 3. Hawaii**
- 4. Colorado**
- 5. Oregon**

The 2009 On-Farm Renewable Energy Production Survey (OREPS) was the first energy survey conducted by the United States Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS). A follow-on survey to the 2007 Census of Agriculture, this survey gathered information about energy production using wind turbines, solar panels, and methane digesters on American farms and ranches. Producers on 8,569 farms in the United States reported producing renewable energy on their operations in 2009. Farmers whose operations produced on-farm energy saved an average of \$2,406 on their utility bills in 2009.

The majority of the farms that reported generating energy on the farm in 2009 were located in the western and northern parts of the United States. With almost 2,000 farms, or over 20 percent of the U.S. total, California had the largest number of operations producing on-farm renewable energy. Texas, Hawaii, and Colorado were the only other states in which more than 500 farms reported generating energy on the farm.

U.S. Department
of Agriculture

National Agricultural
Statistics Service



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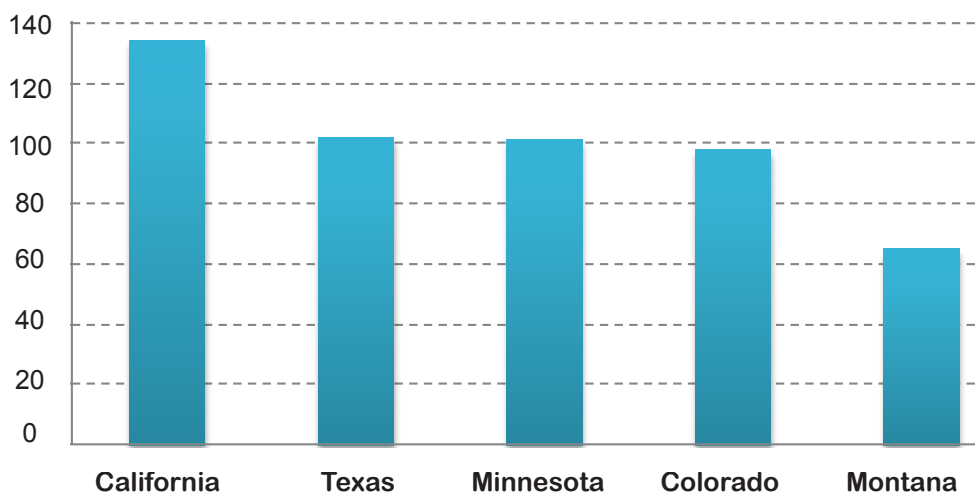
An average small wind turbine cost \$12,972 to install.

Wind Turbines

According to the On-Farm Renewable Energy Production Survey results, in 2009 there were 1,420 operations reporting 1,845 wind turbines that were owned and operated by farmers and ranchers in the United States. The survey excluded commercial turbines located on farms under wind rights lease agreements.

Of the total operations that reported producing energy using this method, 1,831 use small wind turbines, which produce less than 100 kW. Average generating capacity per small wind turbine was 6 kW with an average installation cost of \$12,972 for all states. The other 14 operations reported using large wind turbines, capable of generating more than 100 kW. These large wind turbines averaged 1,035 kW in generating capacity and an average cost of \$1.3 million to install.

Wind Turbines: Number of Farms, 2009
Top Five States

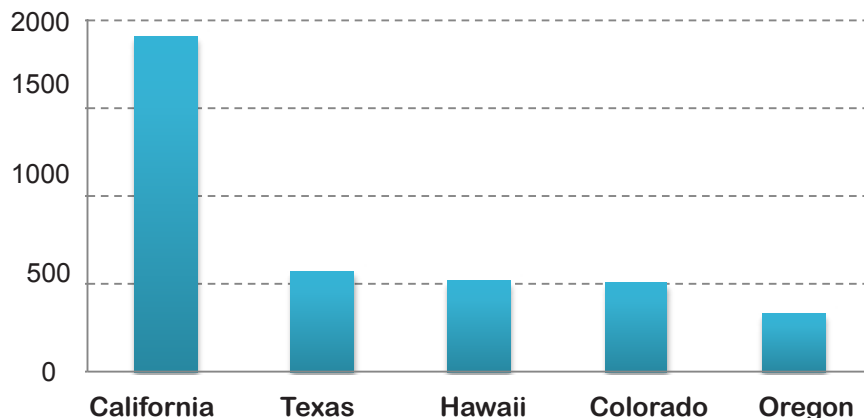


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Solar Panels

In 2009, there were 7,968 farms using solar panels to generate energy in the United States. Of those, 92 percent had photovoltaic (PV) and 23 percent had thermal solar panels. The average generating capacity of photovoltaic panels was 4,449 watts with an average installation cost of \$31,947 per farm for all panel types. On-farm energy production using solar panels was reported in all 50 states. The number of farms using solar panels in each state ranged from four farms in Delaware to 1,906 farms in California. Farmers who reported using solar panels were primarily in the western United States.

**Solar Panels: Number of Farms, 2009
Top Five States**



Methane Digesters

All farms that reported using digesters on the 2007 Census of Agriculture, plus all farms included on the Environmental Protection Agency's (EPA) AgSTAR list, were included in the survey to ensure better coverage of this small, but growing industry. Across the country, 121 farms reported owning and operating 140 methane digesters in 2009. On average, each digester produced just over 30.5 million cubic feet of methane during 2009. The average installation cost of a methane digester was \$1.7 million. The states with the largest number of digesters were Wisconsin (25), New York (16), Pennsylvania (16), and California (14).



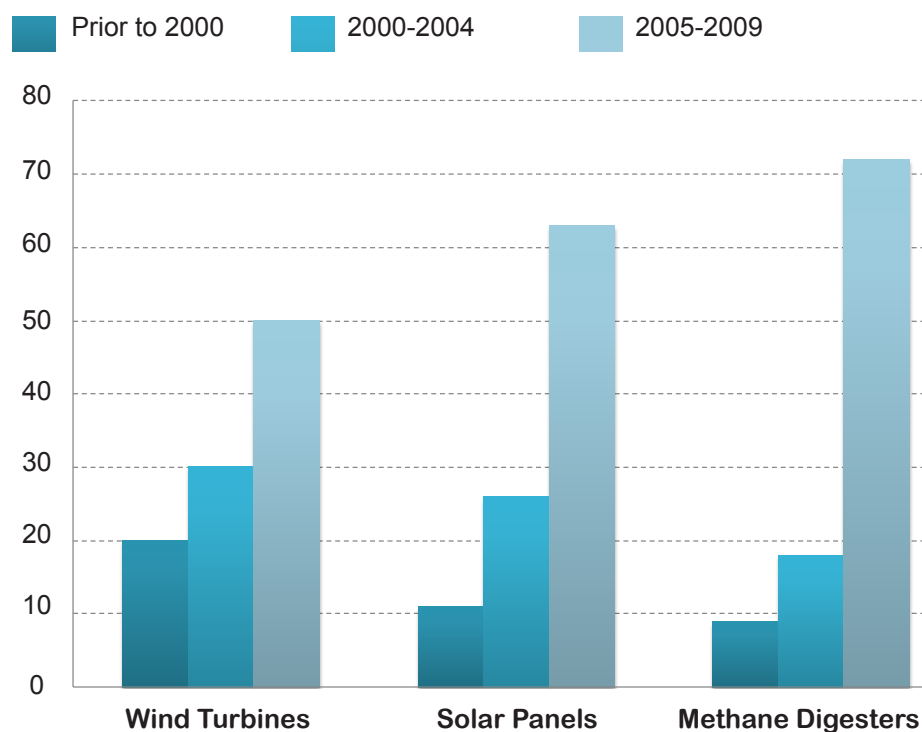
Solar panels on U.S. farms and ranches had an average generating capacity of 4,449 watts.

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Year of Installation*

The survey results show increasing participation in on-farm energy production over the years. During the last five years, from 2005 to 2009, 72 percent of the digesters, 50 percent of the wind turbines and 63 percent of the solar panels currently in use were installed. In the previous five-year period, from 2000 to 2004, 18 percent of digesters, 30 percent of turbines, and 26 percent of the solar panels were installed. The rest were installed before 2000.

Percent of Wind Turbines, Solar Panels and Methane Digesters by Year of Installation*



* Only includes operations reporting year installed.



For more information:

www.nass.usda.gov

www.agcensus.usda.gov

Agricultural Statistics Hotline
(800) 727-9540

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