

Watts Up with That: Comparing Wind Farms in Texas and California while Explaining Why Farm Quantity Does Not Overcome Wind Quality

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Since the 1980s, California has been the leader in wind energy for the United States. In 2004, wind energy produced 1.5 percent of the state's electricity. That is $4,258 \times 10^8$ kilowatt hours per year. The California wind farms producing the most energy are located in three regions: Altamont Pass, Tehachapi, and San Geronio. Research for California will be focused on the southern part of the state – the regions of Tehachapi and San Geronio. Presently, California has five major wind farms. This project will examine the major wind farms in both Texas and California. California was in the number one spot for wind energy production in the United States until 2006, when Texas took the lead. Texas is currently the number one wind energy producer in the United States with major wind farms in its central and eastern regions. In 2010, wind energy produced 12 percent of the electricity in Texas. In 2011, Texas created $1,039 \times 10^4$ kilowatt hours per year of energy. Roscoe Wind farm, the largest in Texas, produced 800,000 kilowatt hours per year alone. This is enough to power approximately 265,000 homes. Texas currently has 32 major wind farms. Major wind farms will be defined as farms with wind turbines producing more than 120,000 kilowatt hours per year. California can prove to other states on the shores that multiple wind farms are not necessary to produce a valuable amount of energy.

Information about the Author:

Alexandra Thompson is a senior geoscience major from Saint Louis, Missouri. She chose this topic because renewable energy has been a very popular issue and it is worthy of acknowledgement. Everyone is or will be affected by wind energy and it is a field she would enjoy working in. After studying meteorology for three years, this is a fantastic way to incorporate weather and sustainability.

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