

Chapter 1

Introduction

People have used wind power for thousands of years.¹ Around 5000 B.C., wind energy was used to propel boats along the Nile River.² Windmills were used to grind grain in Persia in the Middle East and to pump water in China as early as 200 B.C.³

In the late 19th century, Americans first used windmills to pump water for ranches and farms, then later to produce electricity for residences and businesses. With the advent of the industrial revolution, windmill use gradually declined.⁴ By the 1930s, the Rural Electrification Administration brought cheap electric power to many rural areas in the United States.⁵ Later, industrialization encouraged the development of bigger windmills to make electricity; these windmills were called wind turbines.⁶

In the decades since, the popularity of wind energy has fluctuated with the cost of fossil fuels. After World War II, when gas prices fell, interest in wind energy fell as well. Then, after oil prices rose sharply in the 1970s, interest in wind energy rose. The research and development during this decade led to new ways of converting wind energy into functional power, many of which have been used in wind farms. Wind farms consist of large groups of wind turbines that provide electrical power to the power grid.

1. <http://energy.gov/eere/wind/history-wind-energy>.

2. *Id.*

3. *Id.*

4. *Id.*

5. *Id.*

6. *Id.*



Interest in wind energy project development in the United States has increased steadily over the past ten to 15 years. In 2001, the United States had only 4,137 megawatts (MW) of installed capacity.⁷ By 2006, the United States had passed the 10,000 MW mark, reaching 11,452 MW.⁸ The country surpassed the 40,000 MW mark in 2010 and the 60,000 MW mark in 2012, with a total installed capacity of 60,007 MW by the end of 2012.⁹ Total installed wind capacity in the United States at the end of 2013 was 61,110 MW.¹⁰

For the first time, in 2012 wind energy became the leading source of new electricity-generating capacity in the United States.¹¹ By the end of 2012, Texas led the country in wind-generating capacity, closely followed by California and Iowa.¹² Thirty-nine states had wind energy projects by the end of 2012.¹³

7. <http://www.awea.org/4Q2013>.

8. *Id.*

9. *Id.*

10. <http://www.awea.org/AnnualMarketReport.aspx?ItemNumber=6305&RDtoken=35392&userID=>

11. <http://www.awea.org/4Q2013>.

12. *Id.*

13. *Id.*

Wind energy development in the United States includes small wind projects, community wind projects, distributed wind projects, and utility-scale wind projects. A small wind project generally is defined as a wind project of up to 100 kilowatts of nameplate capacity. Community wind projects describe an ownership model rather than a project of a particular size. Community members own a community wind project, supported by a local governing body or benefiting a community. Distributed wind projects are those equal to or less than 100 kilowatts in capacity, and they typically provide on-site power to farms, businesses, and other types of facilities, off-grid to offset all or part of local energy use or to support the grid. Utility wind applies to turbines of more than one megawatt, and these projects may cost several million dollars and require years of studies; they usually require a transmission system interconnection that often takes more time to build than the wind project itself.

The terms “wind energy” and “wind power” mean the process by which wind is captured to produce either mechanical power or wind energy.¹⁴ The turbines convert wind’s kinetic energy into mechanical power.¹⁵ This kinetic energy can then be used to perform certain tasks, such as pumping water, grinding grain, or generating electrical power.¹⁶ When wind blows, turbine blades turn, spinning a shaft connected to the generator that creates electricity.¹⁷ Most wind turbines used today are horizontal-axis and have three blades. Horizontal-axis turbines are operated “upwind,” which means the blades face into the wind.¹⁸

Wind development projects present many types of legal issues. For example, wind energy projects involve:

1. compliance with environmental laws and regulations;
2. consideration of labor and employment issues that might arise during construction and operation of the wind project;

14. *How Do Wind Turbines Work?*, THE OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, available at http://www1.eere.energy.gov/wind/wind_how.html (last visited Aug. 5, 2014).

15. *Id.*

16. *Id.*

17. *Id.*

18. *Id.*

3. tax considerations;
4. drafting and review of assorted contracts, such as construction contracts, employment contracts, and power purchase agreements;
5. zoning compliance;
6. appearing before regulatory authorities (such as utility boards and zoning authorities);
7. choosing the correct organizational structure to own and manage the wind project;
8. drafting easements or leases between the landowner and the project developer; and
9. curing title issues on real property involved in the project.

This book focuses on real estate–related legal issues in wind development, including, among others, siting, environmental, zoning and permitting, entity structure, title insurance and endorsements, and leases or easements entered into with the landowners in the project. The book seeks to provide a greater understanding for practitioners who are or who want to be involved in wind development.