

# Wind Energy

BP provides renewable power through its significant interests in onshore wind energy in the United States, while developing and deploying new technologies to deliver that energy more efficiently.

## In numbers

› BP is one of the largest operators of renewable energy businesses among its peers, operating **nine onshore wind farms** across six states while holding an interest in a separate wind facility in Hawaii.

› BP's U.S. wind farms have a gross generating capacity of about **1,679 megawatts**.

› BP's wind farms produce enough electricity to power **over 450,000 homes**, making BP a key wind energy producer in the U.S.

In 2018, the electricity generated by BP's net U.S. wind portfolio did not create around 2 million metric tons of carbon dioxide emissions that would have been created if that electricity had been produced by other available sources, such as coal.<sup>1</sup>

The carbon dioxide emissions that would have been released by other available generation sources is roughly equivalent to the annual energy-related emissions of **240,000 typical homes**; the emissions produced by burning **2.2 billion pounds** of coal; or the emissions produced by consuming **227 million gallons** of gasoline.

### Improving efficiency

BP is developing and implementing new technologies to help its wind business improve the efficiency of its operations.

- For example, the company introduced predictive analytics to better understand the life span of turbine components at its wind farms.

- By analyzing this data, BP will be able to improve its maintenance schedules, reduce costs and avoid breakdowns.

Working with Tesla, BP is testing how effectively wind energy can be stored at its Titan 1 wind farm in South Dakota. The **high-storage battery technology** stores excess energy that can then be used across the site when the wind isn't blowing. The project will help BP learn more about energy storage applications that could be useful across its entire portfolio.

"Investing in these new technologies is part of our strategic efforts to enhance the safety and reliability of our operations," says BP Wind Energy CEO Al Vickers. "We continue to optimize our business to find new ways to deliver power more efficiently."

### A key wind energy producer

The company operates nine wind farms in Colorado, Idaho, Indiana, Kansas, Pennsylvania and South Dakota, and holds an interest in a separate wind facility in

Hawaii. Its largest wind energy site is the Flat Ridge 2 farm in south-central Kansas, which can generate enough electricity to power twice the number of homes in the state capital of Topeka.

Every BP-operated wind farm receives round-the-clock support from on-site personnel and/or BP's Remote Operating Center (ROC) in Houston. Using advanced technology, ROC teams centrally monitor all BP sites while working with colleagues in the field to **enhance performance, reliability and safety**. An embedded alarm system immediately notifies operators of potential problems, such as approaching storms or flash flood warnings.

BP works hard to prevent its wind operations from affecting the wildlife and habitats that surround its facilities. For example, it voluntarily adjusts the movement of wind turbines to reduce their impact on bat populations during peak migration seasons.

<sup>1</sup> This figure represents the estimated additional greenhouse gas emissions that would have been created if the electricity generated at the wind farms in which BP holds an interest had been generated by other available generation sources.