



U.S. WIND INDUSTRY QUARTERLY MARKET REPORT

THIRD QUARTER 2019



Table of Contents

Third Quarter 2019 Highlights	3
U.S. Wind Power Capacity Growth	
U.S. Annual and Cumulative Wind Power Capacity Growth	4
Quarterly U.S. Wind Power Capacity Installations	5
New Wind Power Capacity Installations in 2019, by State	6
U.S. Wind Power Cumulative Installed Capacity, by State	7
Wind Power Capacity Under Construction or in Advanced Development	8
Wind Power Capacity Under Construction	9
Wind Power Capacity Under Construction, by State	Member Version Only
Wind Power Capacity in Advanced Development	Member Version Only
Wind Power Capacity in Advanced Development, by State	Member Version Only
Wind Power Capacity Under Construction or in Advanced Development, Top States	Member Version Only
Wind Power Procurement Activity	
Wind Power Capacity Oftake Status	Member Version Only
Quarterly Wind Power Purchase Agreements	Member Version Only
2019 Power Purchase Agreements	Member Version Only
Map of Power Purchase Agreements Announced in 2019	Member Version Only
Mergers & Acquisition Activity	Member Version Only
Wind Turbine Market Trends	
Wind Turbine Manufacturer Market	Member Version Only
Land-based Turbine Technology Trends	Member Version Only
Regional Turbine Technology Trends	Member Version Only
U.S. Offshore Wind Energy Activity	Member Version Only
Appendices	
Map of Projects Online in 2019, Under Construction, or in Advanced Development	24
Utility-Scale Wind Projects Completed in 2019	25
Utility-Scale Wind Projects Under Construction	Member Version Only
Utility-Scale Wind Projects in Advanced Development	Member Version Only
State Offshore Wind Solicitation Project Winners	Member Version Only
2019 Power Purchase Agreements	Member Version Only
2019 Project Acquisition Activity	Member Version Only
2019 Electric Utility Renewable Energy Requests for Proposals (RFPs)	Member Version Only
AWEA Data Services	45

Third Quarter Highlights

2019 Wind Project Installations

- The U.S. wind industry installed 1,927 MW of new wind power capacity in the third quarter of 2019. The industry has commissioned 3,667 MW in the first nine months of the year, a 123% increase over the first three quarters of 2018.
- Project owners commissioned eight new projects in three states in the third quarter. Texas led with 1,232 MW installed, followed by Kansas with 475 MW and New Mexico with 221 MW.
- There are now over 100,000 MW of operating wind power capacity in the United States, with more than 57,700 wind turbines operating across 41 states and two U.S. territories.
- Project owners partially repowered six projects in the third quarter, increasing the projects' total capacity from 618 MW to 696 MW. Over 1,000 MW have been repowered year-to-date.

Wind Capacity Under Construction or in Advanced Development

- The U.S. wind project pipeline grew to a new record in the third quarter with a total of 46,495 MW now underway. There are now 22,651 MW under construction and an additional 23,844 MW in advanced development. The total pipeline represents a 22% year-over-year increase.
- Projects totaling 3,945 MW started construction and 6,145 MW entered advanced development during the third quarter. The combined 10,090 MW marks the highest volume of new announcements on record.
- 19 states now have over 1,000 MW under construction or advanced development. Texas hosts 19% of the total development pipeline, followed by Wyoming (11%), Oklahoma (7%), Iowa, (6%), and Virginia (6%).
- Focusing on offtake, 44% of capacity in the pipeline has a PPA in place, while 28% is utility-owned and 6% has a hedge contract.

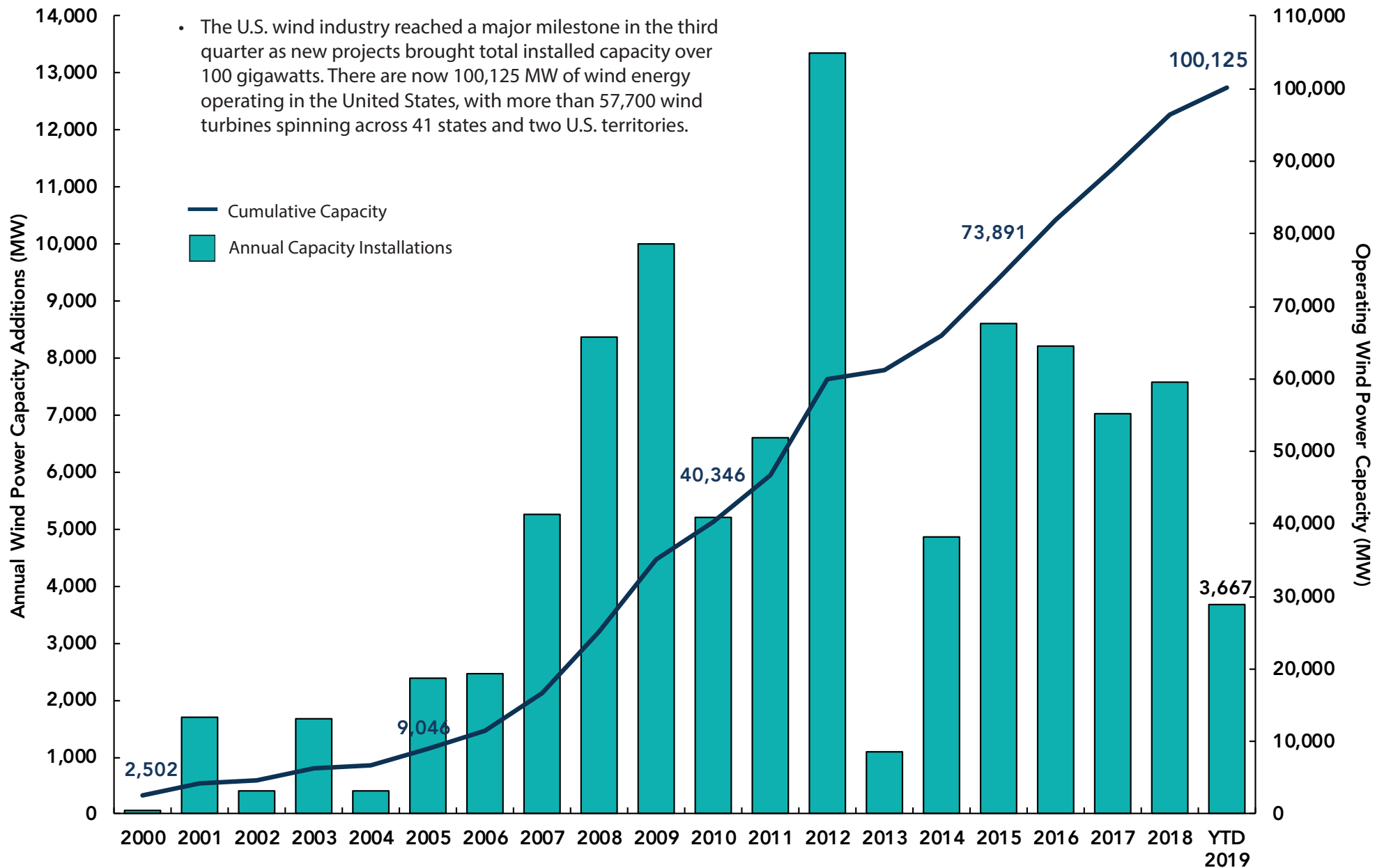
Wind Power Procurement Activity

- Project developers announced 1,379 MW of new PPAs in the third quarter, contributing to a total of 6,179 MW for the year.
- Corporate customers signed 64% (888 MW) of capacity contracted in the third quarter. Gap Inc. and Sprint Corp purchased wind energy for the first time.
- Utilities signed contracts for 311 MW of wind capacity and announced plans to add 4,198 MW under direct ownership in the third quarter, including Dominion Energy, American Electric Power, and DTE Energy.

Turbine Technology Trends

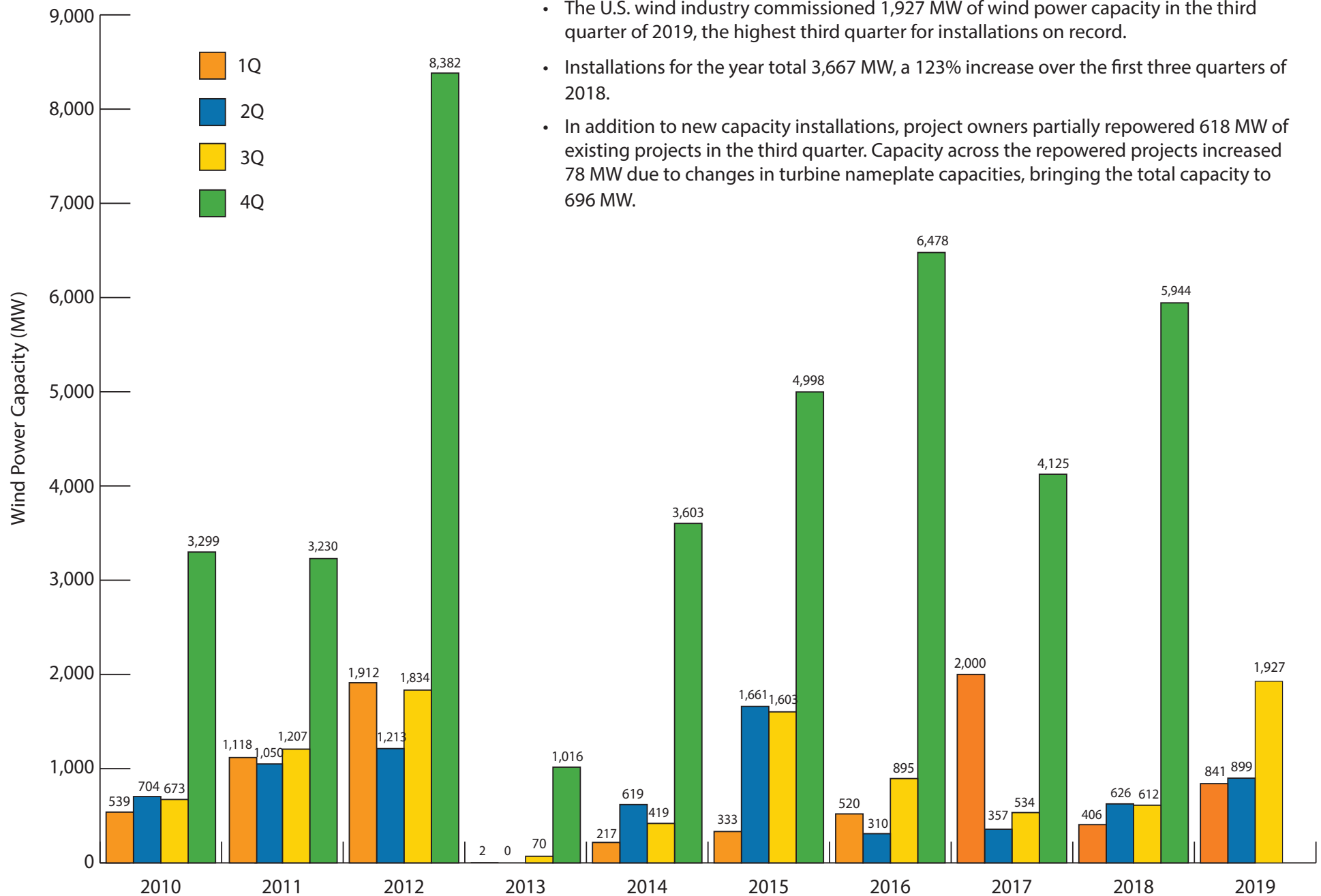
- GE Renewable Energy turbines represent 41% of new capacity installations year-to-date, while Vestas accounts for 32% and Siemens Gamesa Renewable Energy represents 27%.
- Average turbine capacities continue to increase, with 22% of turbines installed year-to-date rated between 3.4 MW to 3.6 MW.
- Looking forward, the majority of projects underway that have reported turbine models are using turbines with a nameplate capacity between 2 MW and 2.9 MW, while 32% have selected turbines rated 3 MW or higher.

U.S. Annual and Cumulative Wind Power Capacity Growth



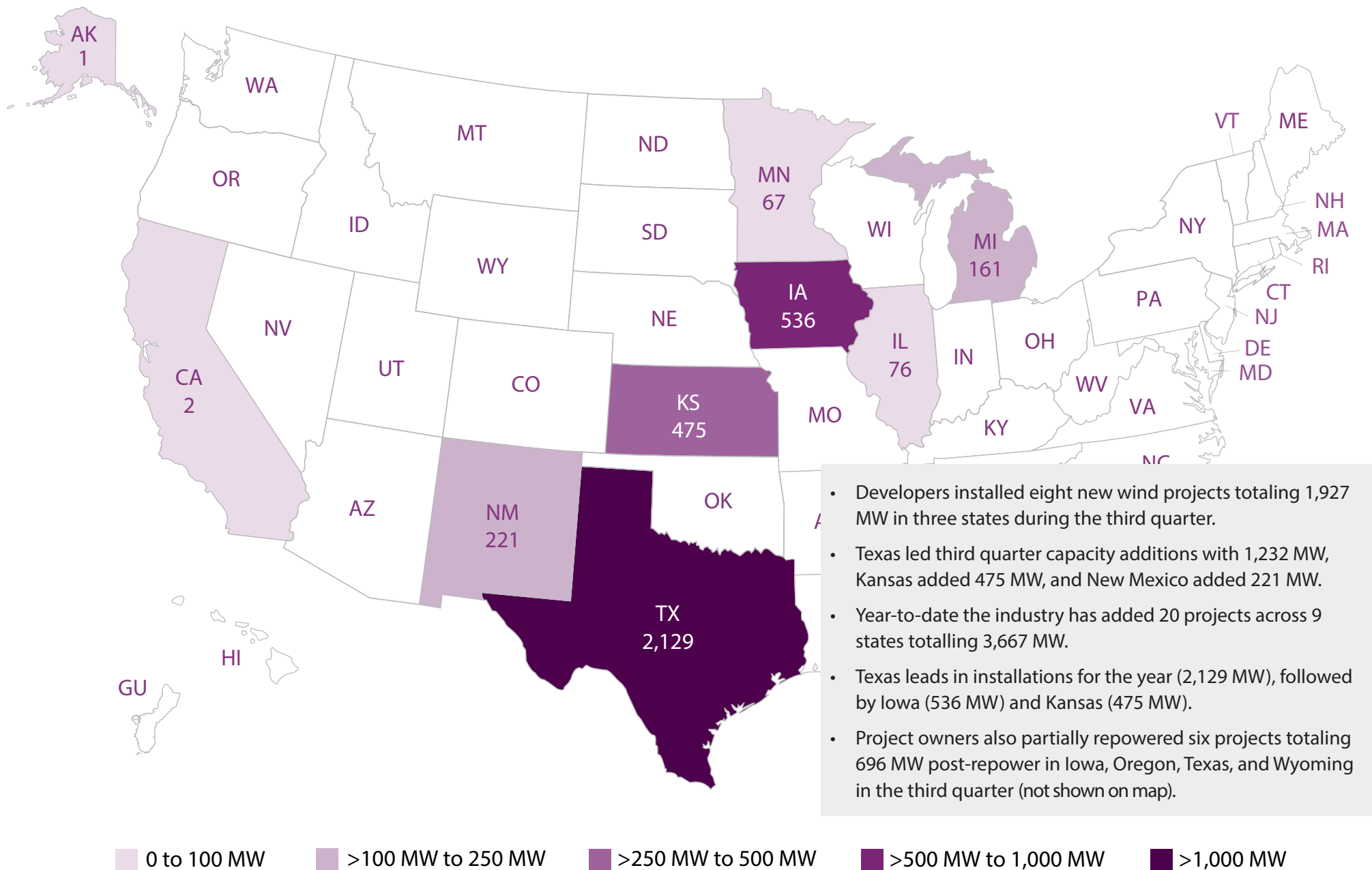
Note: Utility-scale wind capacity includes installations of wind turbines larger than 100-kW for the purpose of the AWEA U.S. Wind Industry Quarterly Market Reports. Annual capacity additions and cumulative capacity may not always add up due to decommissioned and repowered wind capacity. Wind capacity data for each year is continuously updated as information changes.

Quarterly U.S. Wind Power Capacity Installations



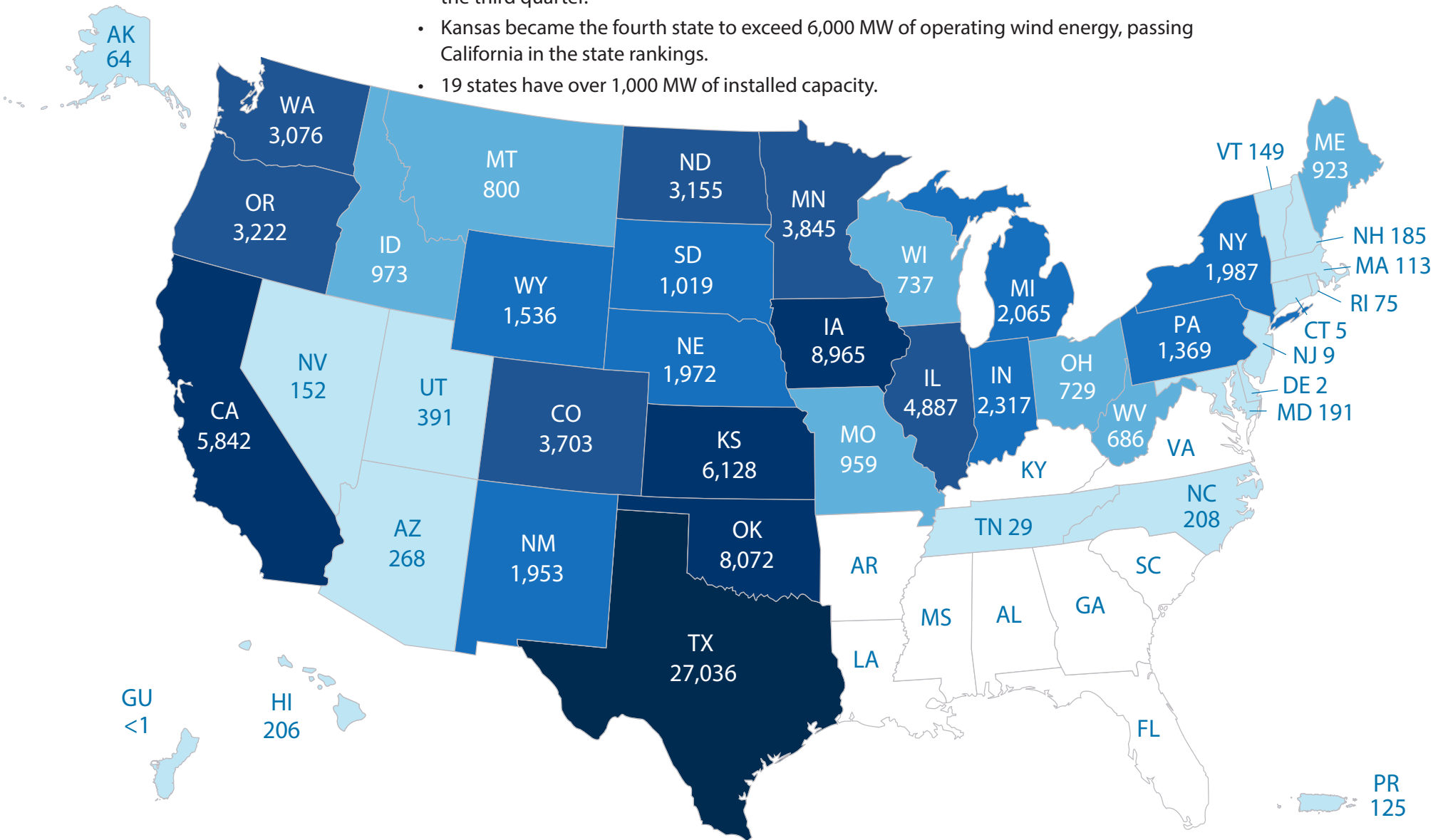
- The U.S. wind industry commissioned 1,927 MW of wind power capacity in the third quarter of 2019, the highest third quarter for installations on record.
- Installations for the year total 3,667 MW, a 123% increase over the first three quarters of 2018.
- In addition to new capacity installations, project owners partially repowered 618 MW of existing projects in the third quarter. Capacity across the repowered projects increased 78 MW due to changes in turbine nameplate capacities, bringing the total capacity to 696 MW.

New Wind Power Capacity Installations in 2019, by State



U.S. Wind Power Cumulative Installed Capacity, by State

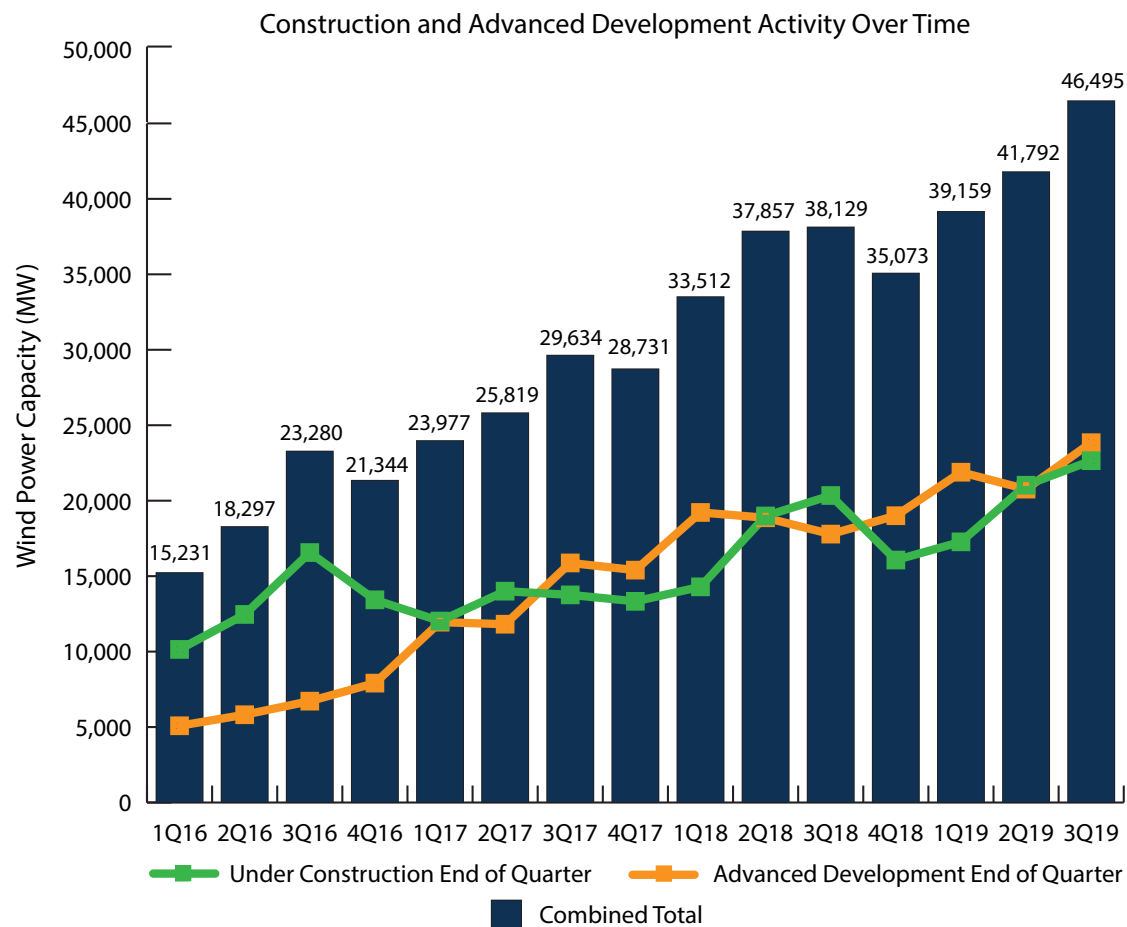
- Texas continues to lead the nation in installed capacity, surpassing 27 GW of wind power in the third quarter.
- Kansas became the fourth state to exceed 6,000 MW of operating wind energy, passing California in the state rankings.
- 19 states have over 1,000 MW of installed capacity.



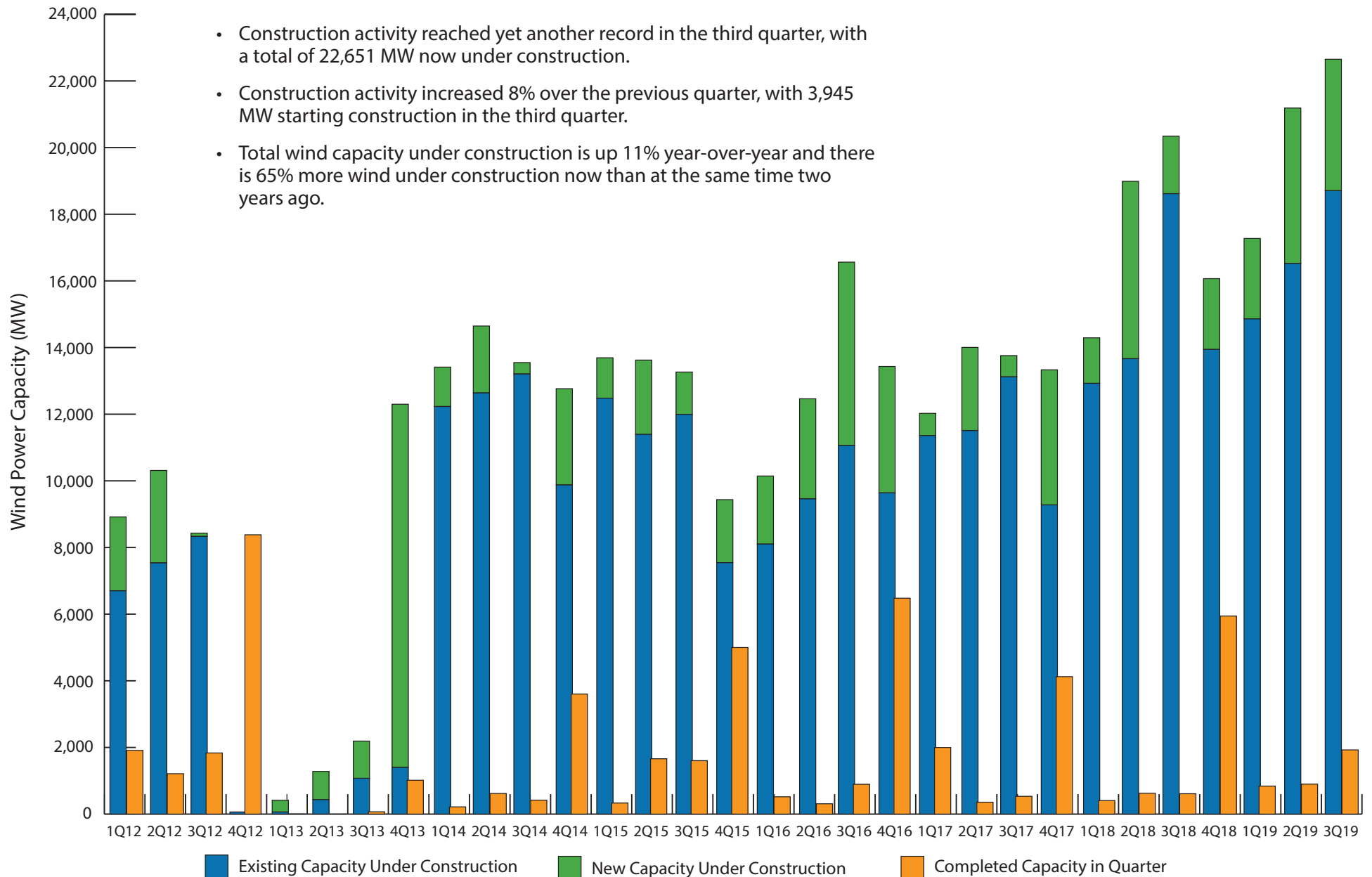
>0 to 500 MW
 >500 to 1,000 MW
 >1,000 to 2,500 MW
 >2,500 to 5,000 MW
 >5,000 to 10,000 MW
 >10,000 MW

Wind Power Capacity Under Construction or in Advanced Development

- The near-term U.S. wind project pipeline grew to a new record in the third quarter of 2019. There are now 46,495 MW of wind power capacity either under construction (22,651 MW) or in advanced development (23,844 MW), including 5,796 MW of offshore wind. The total pipeline increased 11% over the second quarter and 22% year-over-year as thanks to strong demand from utilities and corporate purchasers, as well as an increase in offshore wind project announcements.
- Project developers announced a record 10,090 MW in combined new activity in the third quarter of 2019, with projects totaling 3,945 MW starting construction and an additional 6,145 MW entering advanced development.
- Wind projects currently under construction have been underway for an average of roughly one year, while projects in advanced development have been underway for 14 months, on average. Half of the capacity underway started construction or entered advanced development in 2019.



Wind Power Capacity Under Construction



Note: Project developers self-report projects as under construction. The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60; projects are presumed to have taken steps to qualify for the PTC through safe harbor or physical construction.

Wind Power Capacity Under Construction, by State

Member Version Only

Note: Project developers self-report projects as under construction. The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60; projects are presumed to have taken steps to qualify for the PTC through safe harbor or physical construction.

Wind Power Capacity in Advanced Development

Member Version Only

Note: AWEA defines a project as in advanced development if it has not yet started construction but has either signed a PPA (or similar long-term contract), announced a firm turbine order, or been announced to proceed under utility ownership.

Wind Power Capacity in Advanced Development, by State

Member Version Only

Note: AWEA defines a project as in advanced development if it has not yet started construction but has either signed a PPA (or similar long-term contract), announced a firm turbine order, or been announced to proceed under utility ownership. Offshore wind capacity is assigned to a state based on the BOEM lease area location.

Member Version Only

Wind Power Capacity Offtake Status

Member Version Only

Quarterly Wind Power Purchase Agreements

Member Version Only

Note: PPA totals reflect the original offtaker and do not include sleeved PPAs or subsequent sales through utilities. Totals do not include PPAs for projects that were later cancelled.

2019 Power Purchase Agreements

Member Version Only

Map of Power Purchase Agreements Signed in 2019

Member Version Only

Mergers & Acquisitions Activity

Member Version Only

Wind Turbine Manufacturer Market

Member Version Only

Land-based Turbine Technology Trends

Member Version Only

Note: Data represents projects that have reported turbine models to AWEA.

Regional Turbine Technology Trends

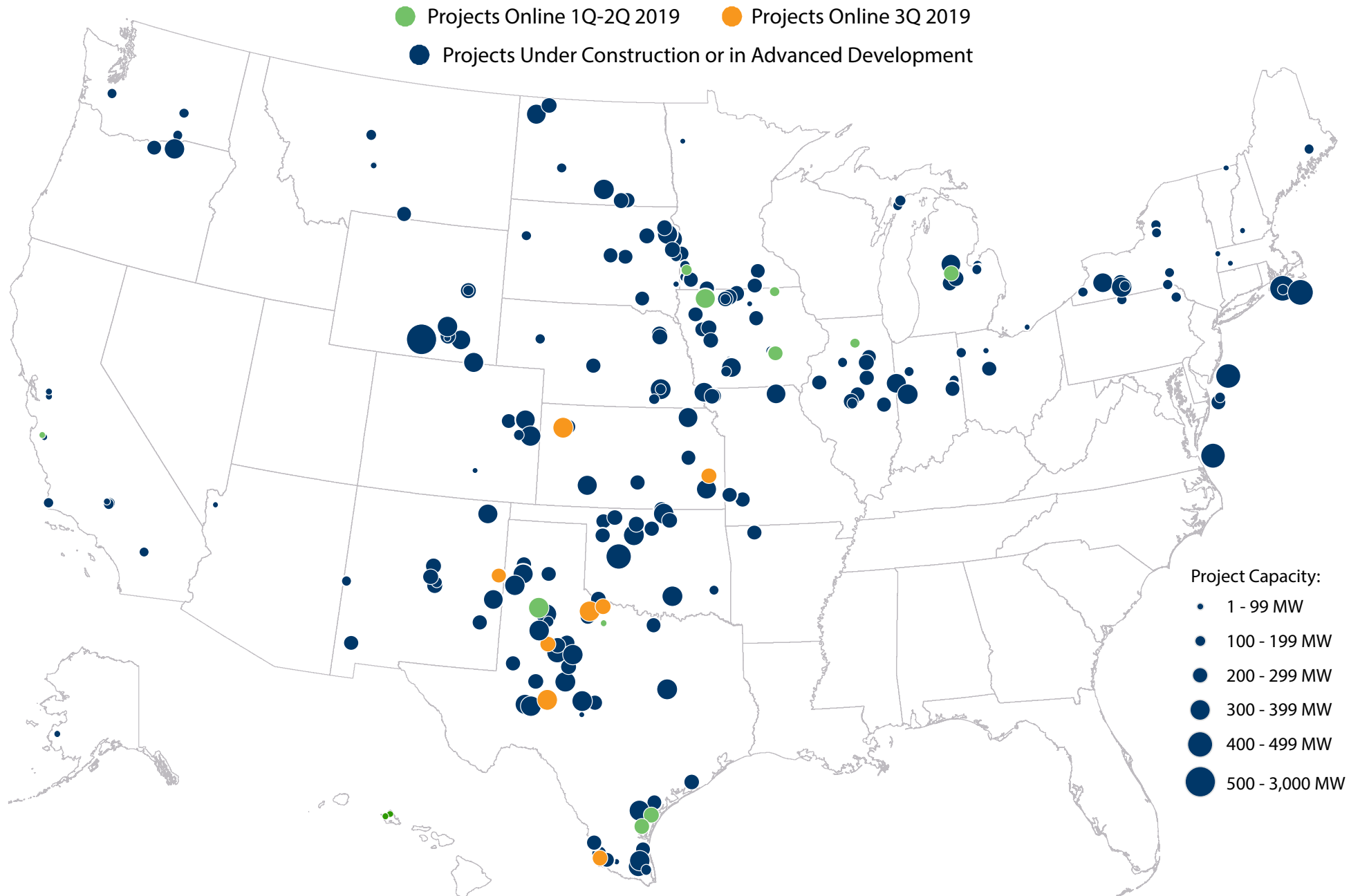
Member Version Only

Note: Data represents land-based projects that have announced turbine models to AWEA.

Member Version Only

Member Version Only

Map of Projects Online in 2019, Under Construction, or in Advanced Development



Utility-Scale Wind Projects Completed in 2019

State	Project Phase Name	Project Capacity (MW)	Turbine OEM	Turbine Model	Project Developer(s)	Project Owner(s)	Power Purchaser(s)
First Quarter 2019							
AK	St. Mary's Wind Turbine	0.90	EWT Americas	DW-52-900	Alaska Village Electric Coop	Alaska Village Electric Coop	Alaska Village Elec Coop
IL	Mendota Hills Repowering	76.13	Siemens Gamesa Renewable Energy	SG 2.6-126	Leeward Renewable Energy Development, LLC	Leeward Renewable Energy, LLC	Digital Realty
IA	English Farms	170.30	GE Renewable Energy	GE 2.3-116; GE 2.5-127	Interstate Power and Light Co, Tradewind Energy	Interstate Power and Light Co	Interstate Power and Light Co
IA	Saratoga	66.00	Vestas	V116-2.0	Madison Gas & Electric Co	Madison Gas & Electric Co	Madison Gas & Electric Co
IA	Upland Prairie	299.30	GE Renewable Energy	GE 2.3-116; GE 2.5-116	Apex Clean Energy, Interstate Power and Light Co	Interstate Power and Light Co	Interstate Power and Light Co
MI	Pine River	161.30	GE Renewable Energy	GE 2.3-116; GE 2.5-116	Invenergy	DTE Energy	The DTE Electric Company
MN	Stoneray	66.63	Siemens Gamesa Renewable Energy	SWT-2.3-108; SWT-2.625-120	EDF Renewables	EDF Renewables	Southern Minnesota Municipal Power Agency
Second Quarter 2019							
CA	Mann Packing	1.70	GE Renewable Energy	1.7-100	Foundation Windpower	Foundation Windpower	Mann Packing, Excess to PG&E
TX	Hale Wind	478.00	Vestas	V110-2.0; V116-2.0	Tri Global Energy; NextEra Energy Resources	Xcel Energy	Southwestern Public Service Co
TX	Patriot Wind	226.05	Vestas	V126-3.45; V136-3.6	Apex Clean Energy; Clearway Energy Group	Avangrid Renewables	Hedge Contract (ERCOT)
TX	Seymour Hills	30.00	GE Renewable Energy	GE 2.5-127	ENGIE North America	ENGIE North America	Akamai Technologies (8MW); Ingersoll Rand (22 MW)
Third Quarter 2019							
KS	Prairie Queen	199.28	Siemens Gamesa Renewable Energy	SG 2.6-126	EDP Renewables North America LLC	EDP Renewables North America; Axium Infrastructure	Kansas City Power & Light
KS	Solomon Forks	275.63	Siemens Gamesa Renewable Energy	SG 2.625-120	ENGIE North America Inc.	ENGIE North America Inc.	Target (100 MW); T-Mobile (160 MW); Merchant (15.63 MW)
NM	Grady	220.50	Siemens Gamesa Renewable Energy	SWT-2.625-120	Pattern Energy Group LP; National Renewable Solutions	Pattern Energy Group LP	Sacramento Municipal Utility District
TX	Foard City	350.28	GE Renewable Energy	GE 2.5-127	Innergex	Innergex	Luminant Energy (300 MW); Merchant (ERCOT) (50.28)
TX	Gopher Creek Wind Farm	158.00	Vestas North America	V116-2.0	Tri Global Energy	Terna Energy	Hedge Contract
TX	Lockett	183.75	GE Renewable Energy	GE 2.5-127	Lincoln Clean Energy	Lincoln Clean Energy	Hedge (147 MW); Unknown
TX	Rio Bravo	237.60	Vestas North America	V136-3.6	Longroad Energy Partners	Sammons Renewable Energy	Hedge Contract
TX	Santa Rita East	302.40	GE Renewable Energy	GE 2.5-127	Invenergy	AEP Renewables; Invenergy	Grupo Bimbo (100 MW); Merck & Co (60 MW); Merchant (42.4 MW); Novartis (100 MW)

Utility-Scale Wind Power Projects Under Construction

Member Version Only

Note: The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60.

Utility-Scale Wind Power Projects Under Construction

Member Version Only

Note: The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60.

Utility-Scale Wind Power Projects Under Construction

Member Version Only

Note: The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60.

Utility-Scale Wind Power Projects Under Construction

Member Version Only

Note: The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60.

Utility-Scale Wind Power Projects Under Construction

Member Version Only

Note: The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60.

Utility-Scale Wind Power Projects Under Construction

Member Version Only

Note: The AWEA under construction definition is at the discretion of the project developer and may be different from the start construction definition under IRS Notices 2013-29 and 2013-60.

Utility-Scale Wind Power Projects in Advanced Development

Member Version Only

Note: AWEA defines a project as in advanced development if it has not yet started construction, but has either signed a PPA, announced a firm turbine order, or been announced to proceed under utility ownership.

Utility-Scale Wind Power Projects in Advanced Development

Member Version Only

Note: AWEA defines a project as in advanced development if it has not yet started construction, but has either signed a PPA, announced a firm turbine order, or been announced to proceed under utility ownership.

Utility-Scale Wind Power Projects in Advanced Development

Member Version Only

Note: AWEA defines a project as in advanced development if it has not yet started construction, but has either signed a PPA, announced a firm turbine order, or been announced to proceed under utility ownership.

Utility-Scale Wind Power Projects in Advanced Development

Member Version Only

Note: AWEA defines a project as in advanced development if it has not yet started construction, but has either signed a PPA, announced a firm turbine order, or been announced to proceed under utility ownership.

Utility-Scale Wind Power Projects in Advanced Development

Member Version Only

Note: AWEA defines a project as in advanced development if it has not yet started construction, but has either signed a PPA, announced a firm turbine order, or been announced to proceed under utility ownership.

State Offshore Wind Project Winners

Member Version Only

2019 Power Purchase Agreements

Member Version Only

2019 Power Purchase Agreements

Member Version Only

2019 Project Acquisition Activity

Member Version Only

Note: Data include operating project acquisitions, and do not include projects acquired either upon or prior to commercial operation. YieldCo drop-downs are not considered project acquisitions.

2019 Project Acquisition Activity

Member Version Only

Note: Data include operating project acquisitions, and do not include projects acquired either upon or prior to commercial operation. YieldCo drop-downs are not considered project acquisitions.

2019 Project Acquisition Activity

Member Version Only

Note: Data include operating project acquisitions, and do not include projects acquired either upon or prior to commercial operation. YieldCo drop-downs are not considered project acquisitions.

Electric Utility Renewable Energy Requests for Proposals (RFPs)

Member Version Only

Electric Utility Renewable Energy Requests for Proposals (RFPs)

Member Version Only

This Report is Powered by WindIQ

WindIQ is your comprehensive database of all online, under construction, and advanced development wind projects and wind-related manufacturing facilities in the United States, with interactive web mapping features.

All current AWEA Business and Utility members can access WindIQ at www.awea.org/windiq or www.windiq.awea.org.

For additional AWEA industry data & analysis, please visit www.awea.org/marketreports where you can download previous versions of the Quarterly Market Reports and the latest Annual Market Report.

The U.S. Wind Industry Third Quarter 2019 Market Report can be accessed at www.awea.org/2019marketreports.





About the American Wind Energy Association

AWEA is the national trade association of the U.S. wind energy industry. We represent 1,000 member companies and over 100,000 jobs in the U.S. economy, serving as a powerful voice for how wind works for America. Members include global leaders in wind power and energy development, turbine manufacturing, and component and service suppliers. They gather each year at the Western Hemisphere's largest wind power trade show, the AWEA WINDPOWER® Conference & Exhibition. Find information about wind energy on the AWEA website, www.awea.org. Gain insight into industry issues on AWEA's blog, Into the Wind. And please join us on Facebook, and follow @AWEA on Twitter.



1501 M St. NW, Suite 900
Washington, DC 20005

P: 202.383.2500
F: 202.383.2505

awea.org

