

American Wind Energy Association

U.S. Wind Industry First Quarter 2017 Market Report

A product of AWEA Data Services

Released April 27, 2017

The U.S. wind industry installed 2,000 megawatts (MW) during the first quarter of 2017, a 385% increase from the first quarter of 2016 and the second strongest first quarter on record. The addition of North Carolina's first utility-scale wind project brings U.S. installed wind power capacity to 84,143 MW across 41 states.

Project developers reported a combined 20,977 MW of wind capacity under construction or in advanced development, with 4,466 MW in combined new announcements. There are now 9,025 MW under construction and 11,952 MW in advanced development.

1,781 MW of power purchase agreements (PPA) were signed during the first quarter, the strongest first quarter for PPA announcements since the beginning of 2013. Utilities also announced 1,150 MW of planned wind capacity additions under direct ownership.

Table of Contents

Key Takeaways	3
U.S. Wind Power Capacity Growth	
U.S. Annual and Cumulative Wind Power Capacity Growth	4
U.S. Wind Power Capacity Installations, by Quarter	5
U.S. Installed Wind Power Capacity, by State	6
U.S. Installed Wind Power Capacity during First Quarter 2017, by State	7
U.S. Installed Wind Power Capacity, Top States	8
Wind Power Capacity Under Construction or in Advanced Development	9
Wind Power Capacity Under Construction	10
Map of Wind Power Capacity Under Construction	11
Map of Wind Power Capacity in Advanced Development	Full Version Only
Wind Power Capacity in Advanced Development	Full Version Only
Wind Power Procurement Activity	
Wind Power Capacity Offtake Status	Full Version Only
Utility Wind Power Capacity Procurement Trends	Full Version Only
Power Purchase Agreements Signed during 2017	Full Version Only
Project Acquisition Activity	Full Version Only
Turbine Manufacturer Trends	
Market Share for Turbine Manufacturers	Full Version Only
Appendices	
Map of Projects Online during 2017, Under Construction, or in Advanced Development	12
Utility-Scale Wind Projects Completed during 2017	13
Utility-Scale Wind Projects Under Construction	Full Version Only
Utility-Scale Wind Projects in Advanced Development	Full Version Only
New Power Purchase Agreements	Full Version Only
Electric Utility Requests for Proposals (RFPs)	Full Version Only

Key Takeaways

2017 Wind Project Installations

- The U.S. wind industry installed 2,000 MW of wind capacity during the first quarter, the strongest first quarter for installations since 2009 and the second strongest first quarter ever. Installation activity was stronger than the first three of quarters of 2016 combined.
- There are now 41 states with utility-scale wind projects. North Carolina commissioned the 208 MW Amazon Wind Farm US East, with all wind output contracted to Amazon Web Services. This is only the second wind project to be built in the Southeast and the first to be built in 12 years.
- 12 states commissioned a total of 25 projects during the first quarter. Texas led with 724 MW, followed by Kansas (481 MW), New Mexico (242 MW), North Carolina (208 MW), and Michigan (149 MW).
- There are now 84,143 MW of installed wind capacity in the United States, with more than 53,000 wind turbines operating in 41 states plus Guam and Puerto Rico.
- GE Renewable Energy, Siemens, and Vestas captured a combined 88% of the U.S. wind turbine market during the first quarter.

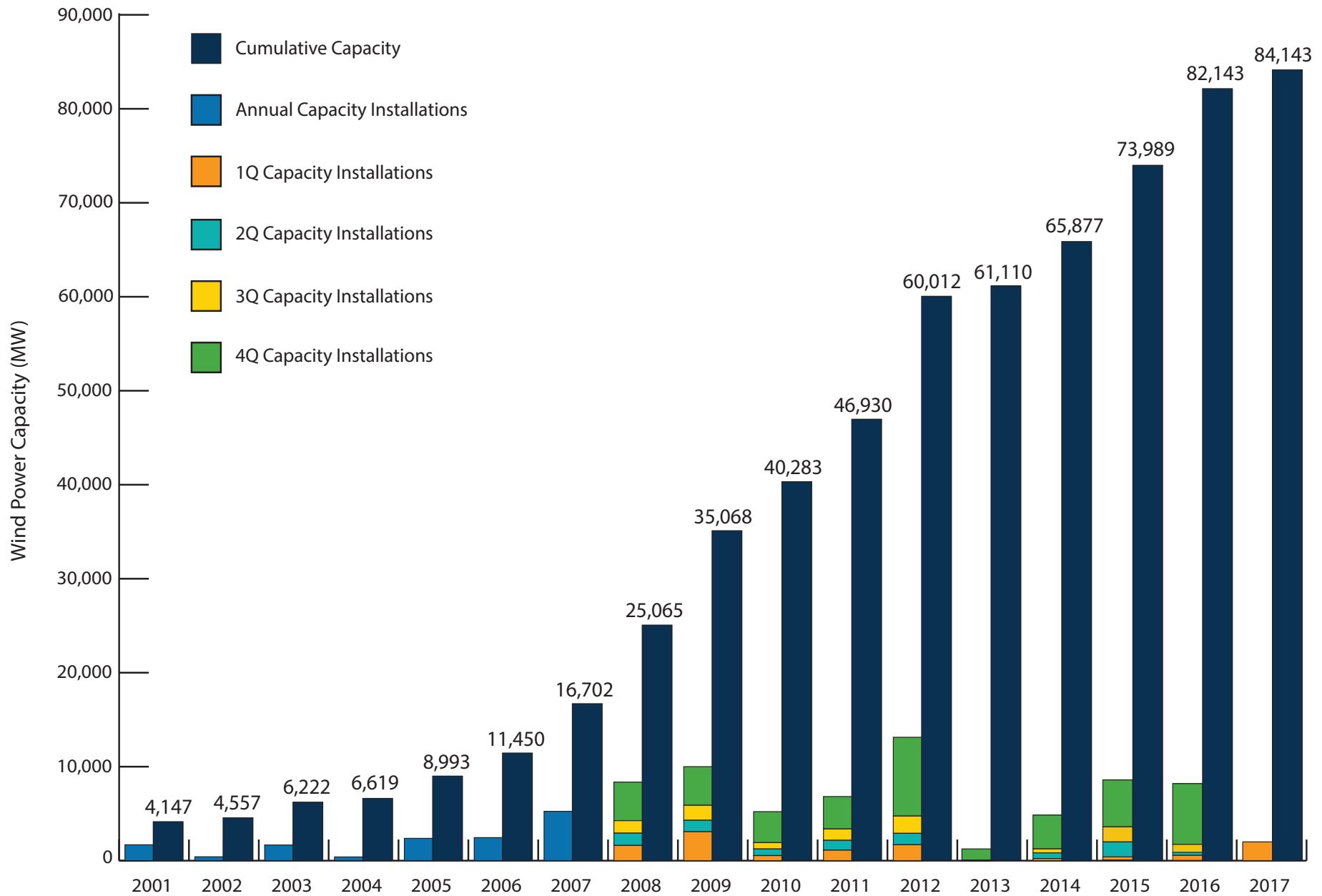
Wind Capacity Under Construction or in Advanced Development

- There are now 9,025 MW under construction and 11,952 MW in advanced development, a combined 20,977 MW of wind capacity, the highest level since AWEA began tracking both categories at the beginning of 2016.
- Project developers announced 4,466 MW in combined new activity during the first quarter, including 668 MW in new construction announcements and 3,798 MW in new advanced development announcements.
- 42% of combined activity is located in Texas and the Plains states, with an additional 37% located in the Midwest.

Wind Power Procurement Activity

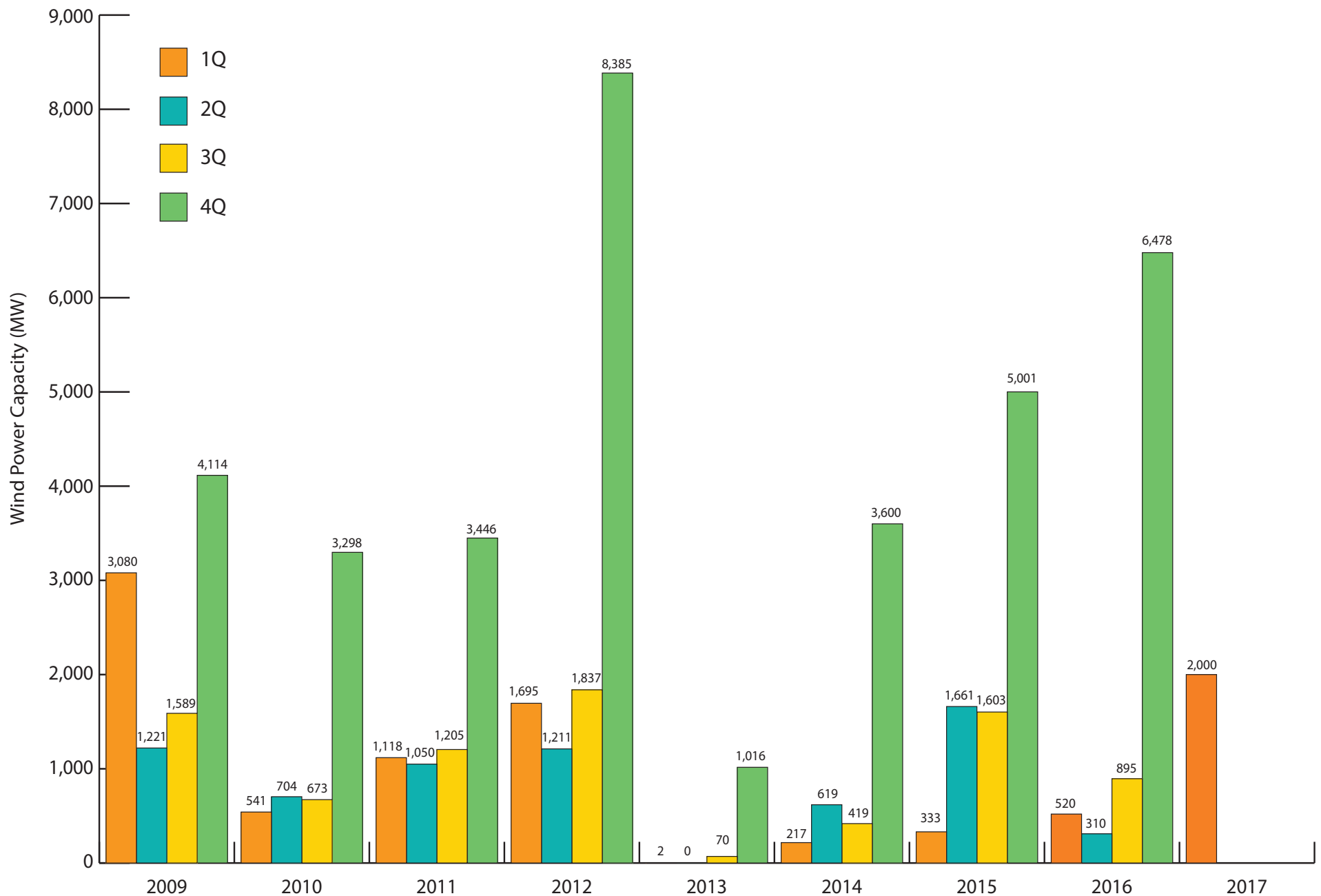
- Project developers signed 1,781 MW of PPAs during the first quarter, the strongest first quarter for PPA announcements since the beginning of 2013.
- Utilities and rural electric cooperatives represent 95% of total project capacity contracted (1,693 MW). Home Depot and Intuit also signed wind PPAs for the first time.
- 24% of the 2,000 MW installed in the first quarter are contracted to non-utility purchasers including the U.S. Army and Google Energy.
- Utilities announced 1,150 MW of planned wind capacity additions under direct ownership during the first quarter, concentrated among Xcel Energy (922 MW), DTE Energy (161 MW), and Madison Gas and Electric (66 MW). This activity contributes to a total of 5,801 MW in total announcements made since the beginning of 2016.

U.S. Annual and Cumulative Wind Power Capacity Growth

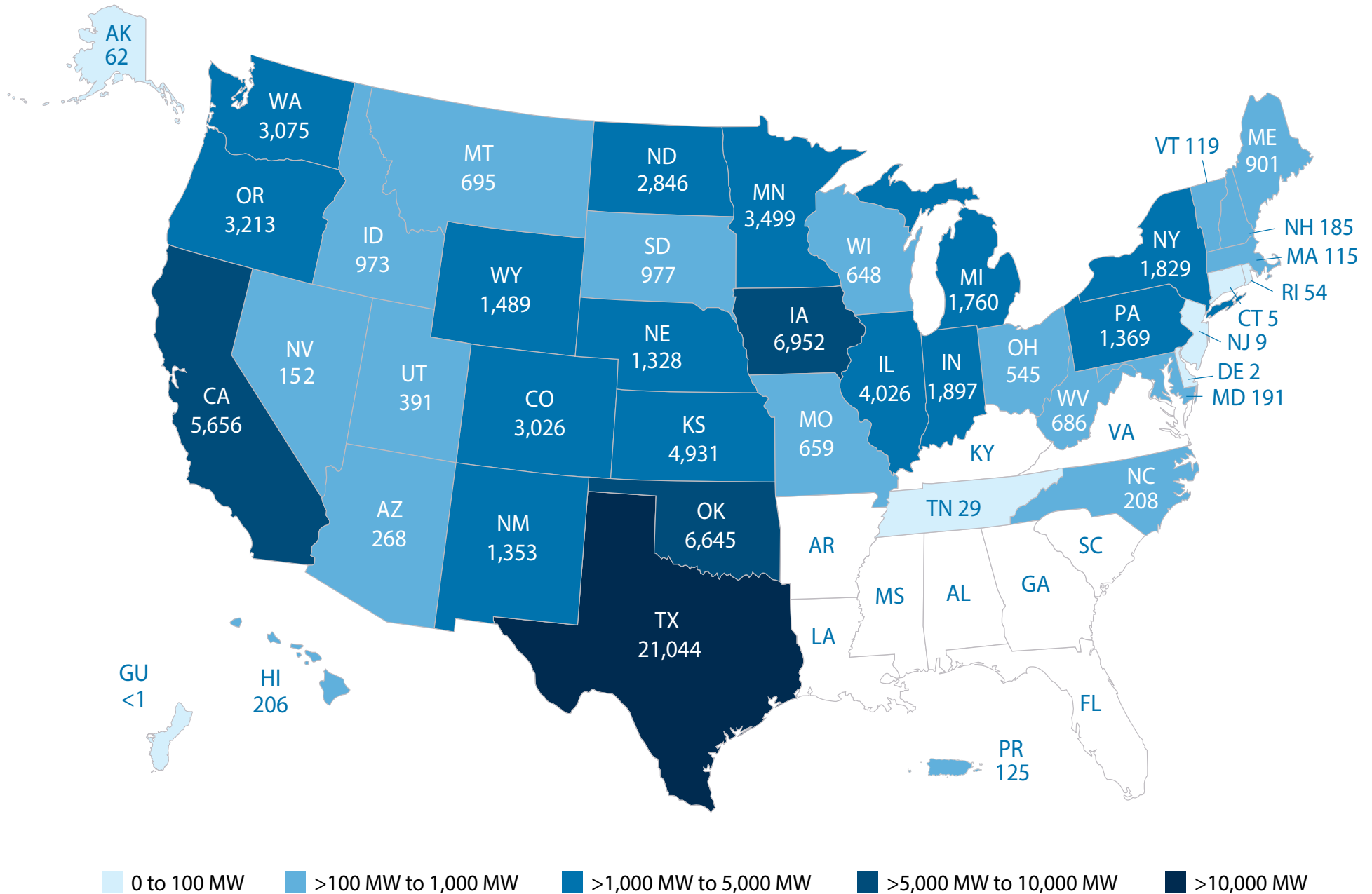


Note: Utility-scale wind capacity includes installations of wind turbines larger than 100-kW for the purpose of the AWEA U.S. Wind Industry Quarterly Market Reports. Annual capacity additions and cumulative capacity may not always add up due to decommissioned and repowered wind capacity. Wind capacity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

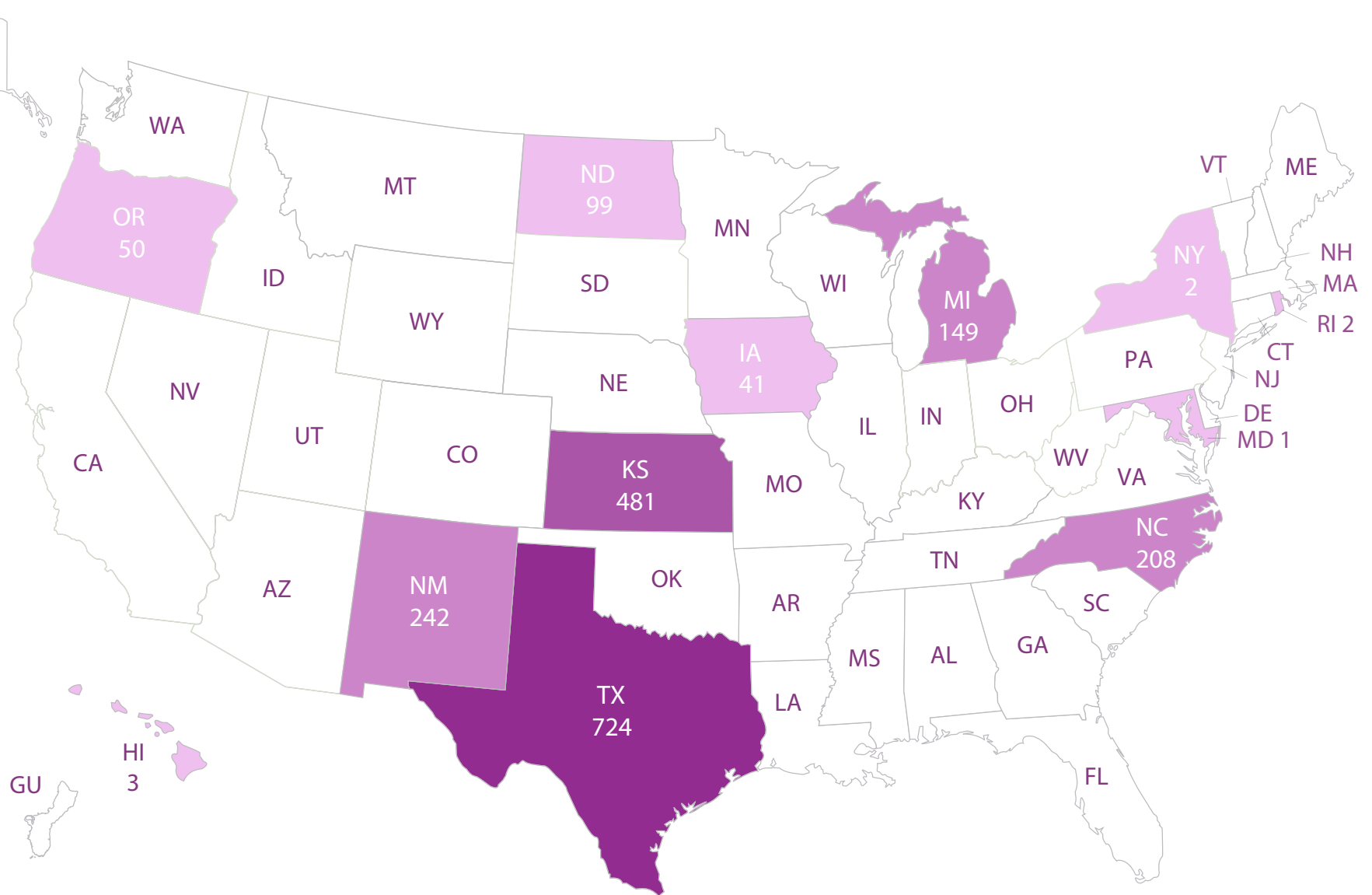
U.S. Wind Power Capacity Installations, by Quarter



U.S. Installed Wind Power Capacity, by State

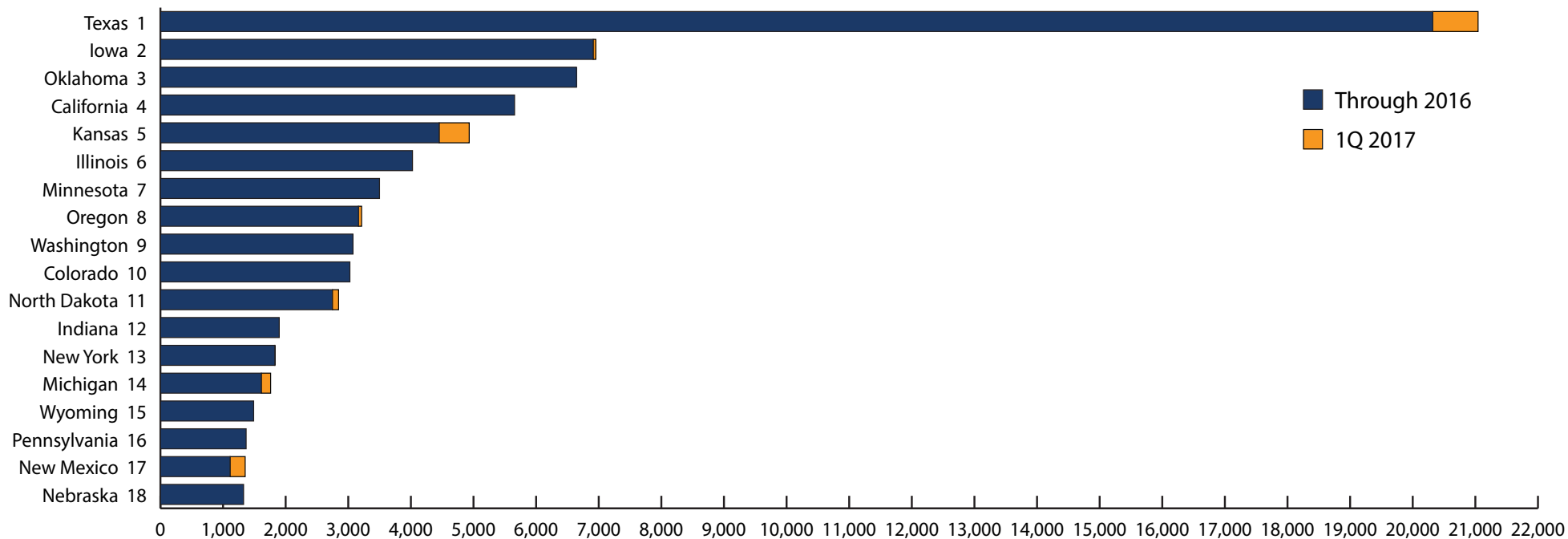


U.S. Installed Wind Power Capacity during First Quarter 2017, by State



0 to 100 MW >100 MW to 250 MW >250 MW to 500 MW >500 MW to 1,000 MW >1,000 MW

U.S. Installed Wind Power Capacity, Top States



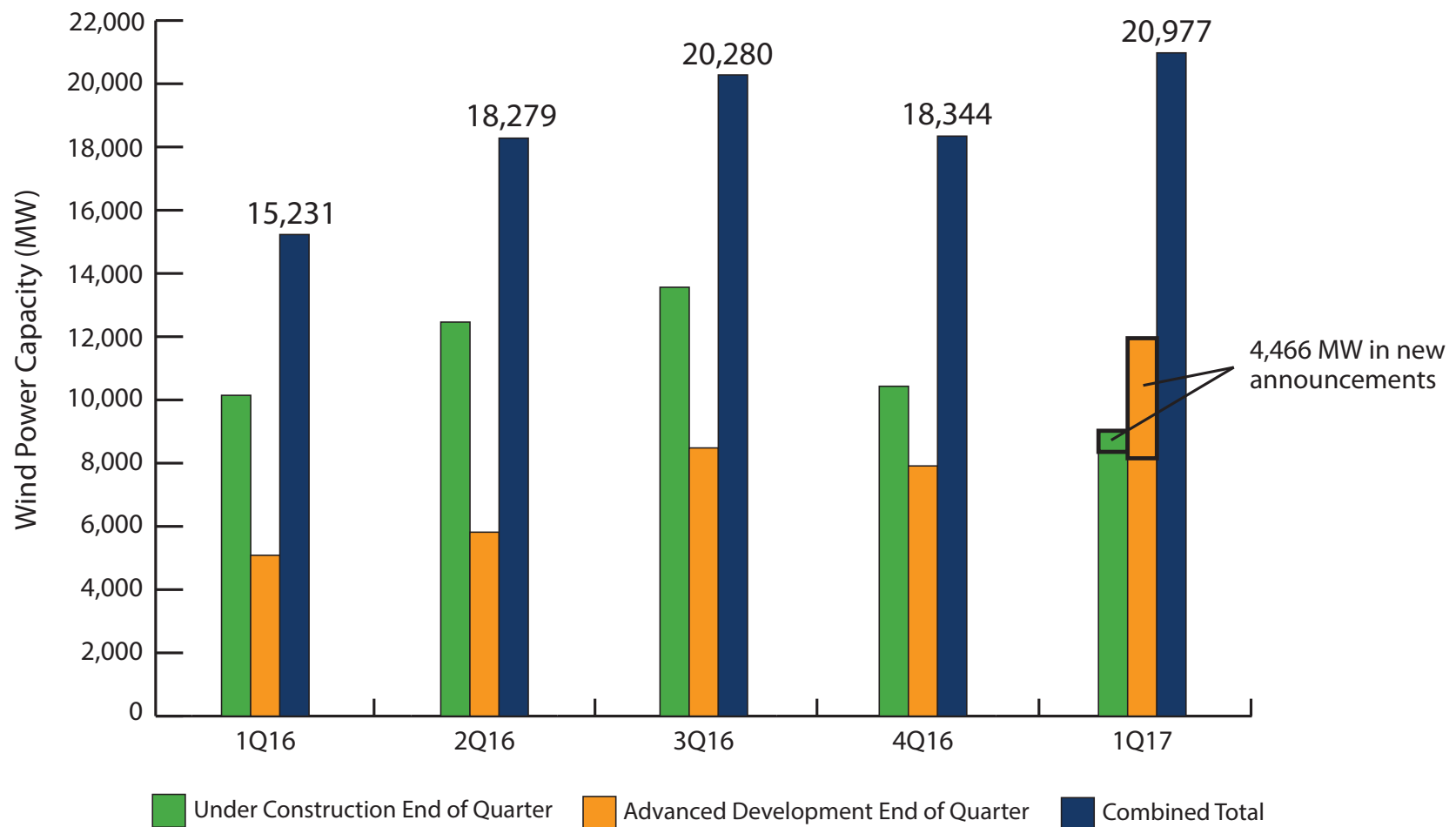
Top Five States with Wind Power Capacity Additions (MW)

State	1Q
Texas	724
Kansas	481
New Mexico	242
North Carolina	208
Michigan	149

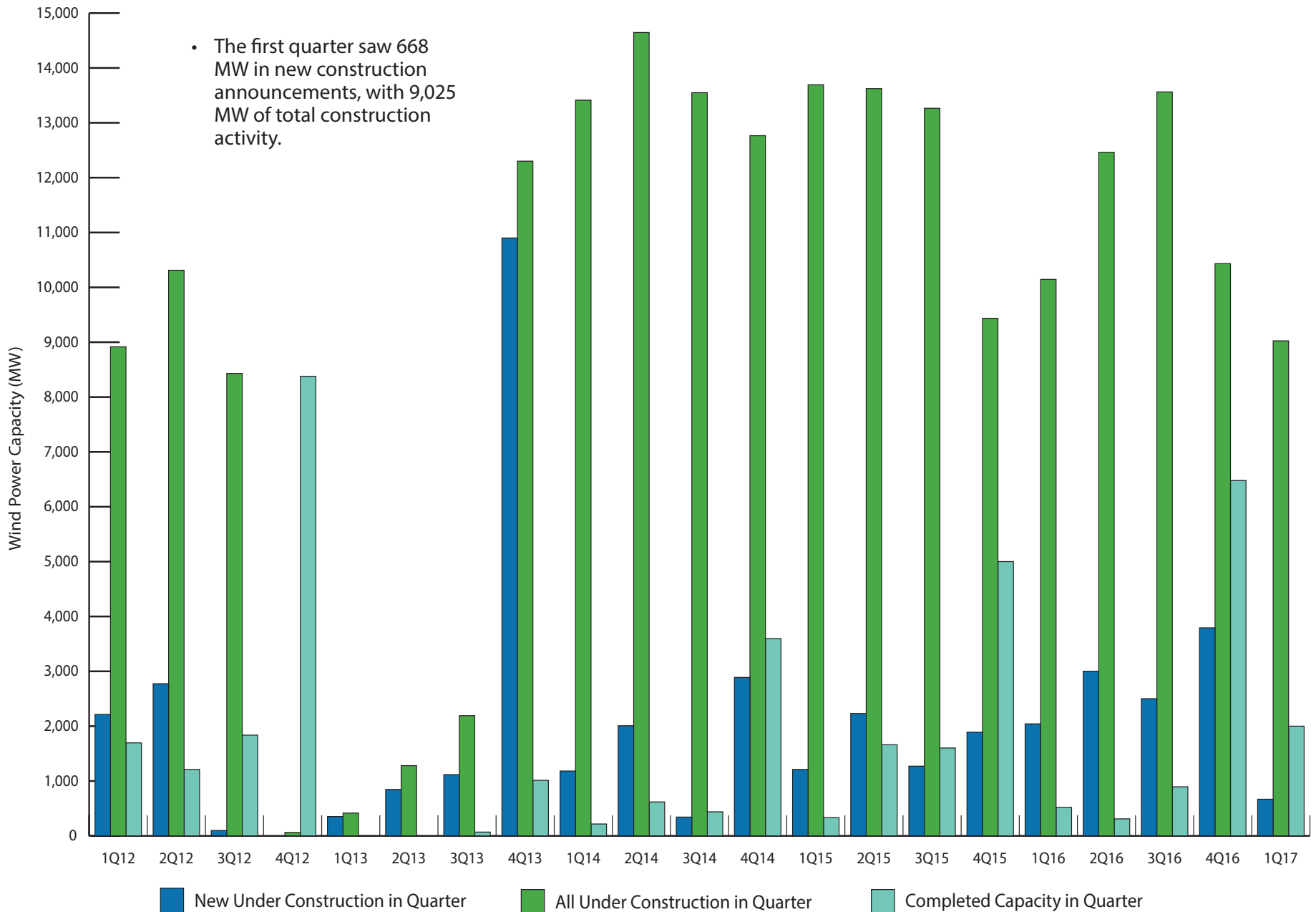
- 12 states commissioned a total of 25 project phases during the first quarter.
- North Carolina brought online its first utility-scale wind project, the 208 MW Amazon Wind Farm US East
- Texas (724 MW) and Kansas (481 MW) led the nation in first quarter installations, followed by New Mexico (242 MW), North Carolina (208 MW), and Michigan (149 MW).
- Texas continues to lead the nation with 21,044 MW of installed capacity, more than triple the installed capacity of any other state.
- New Mexico surpassed Nebraska during the first quarter to regain 17th place in the state rankings.

Wind Power Capacity Under Construction or in Advanced Development

- There are now 20,977 MW of wind power capacity under construction (9,025 MW) or in advanced development (11,952 MW), the highest level since AWEA began tracking both categories at the beginning of 2016.
- Project developers announced 4,466 MW in combined new activity during the first quarter, including 668 MW in new construction announcements and 3,798 MW in new advanced development announcements.
- The 20,977 MW is spread across 133 project phases in 26 states. 42% of combined activity is located in Texas and the Plains states, with an additional 37% located in the Midwest, and 12% located in the Mountain West states of Colorado and New Mexico.

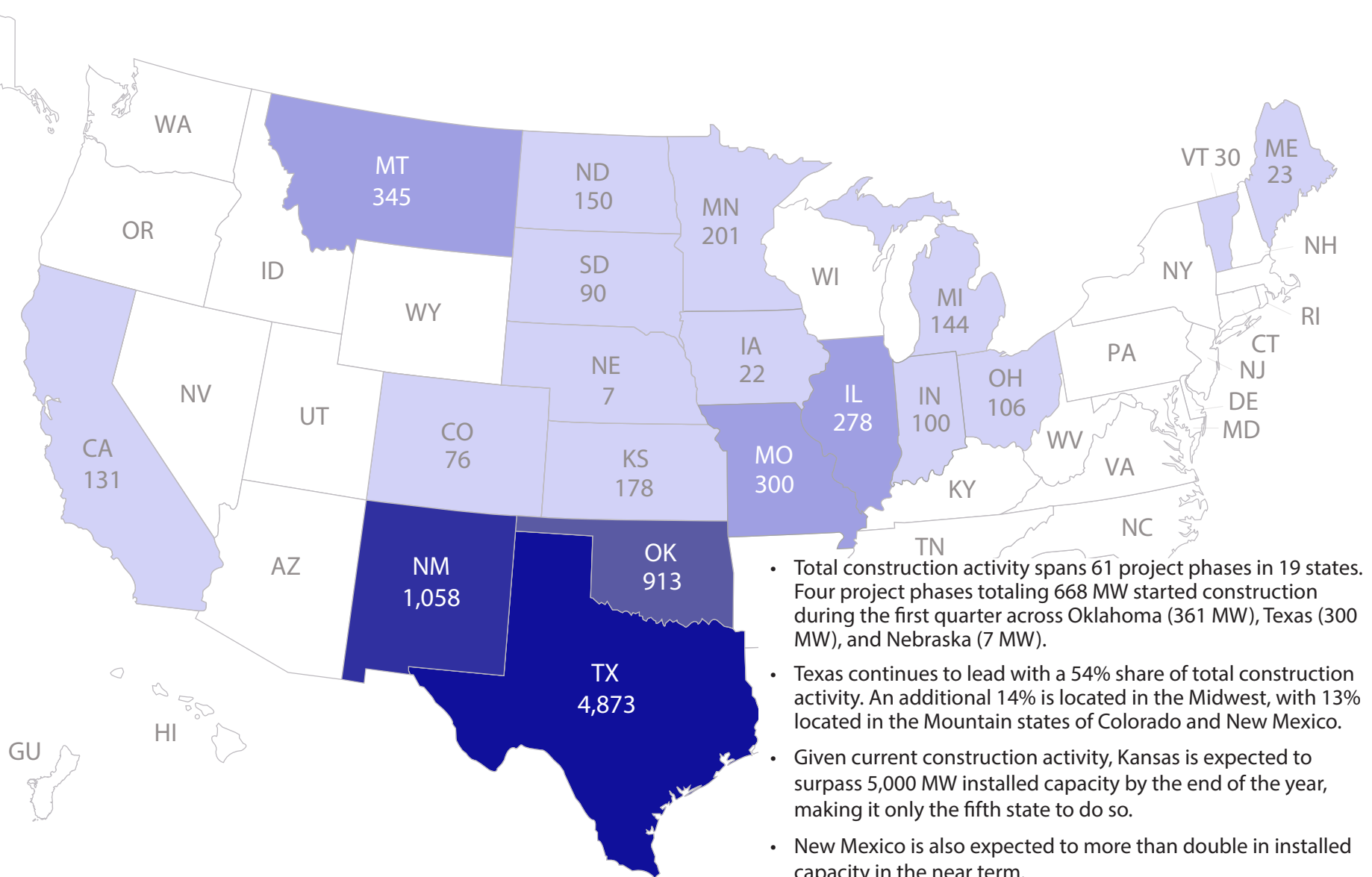


Wind Power Capacity Under Construction



Note: Projects reported as under construction are presumed to have taken steps to qualify for the PTC through safe harbor or physical construction.

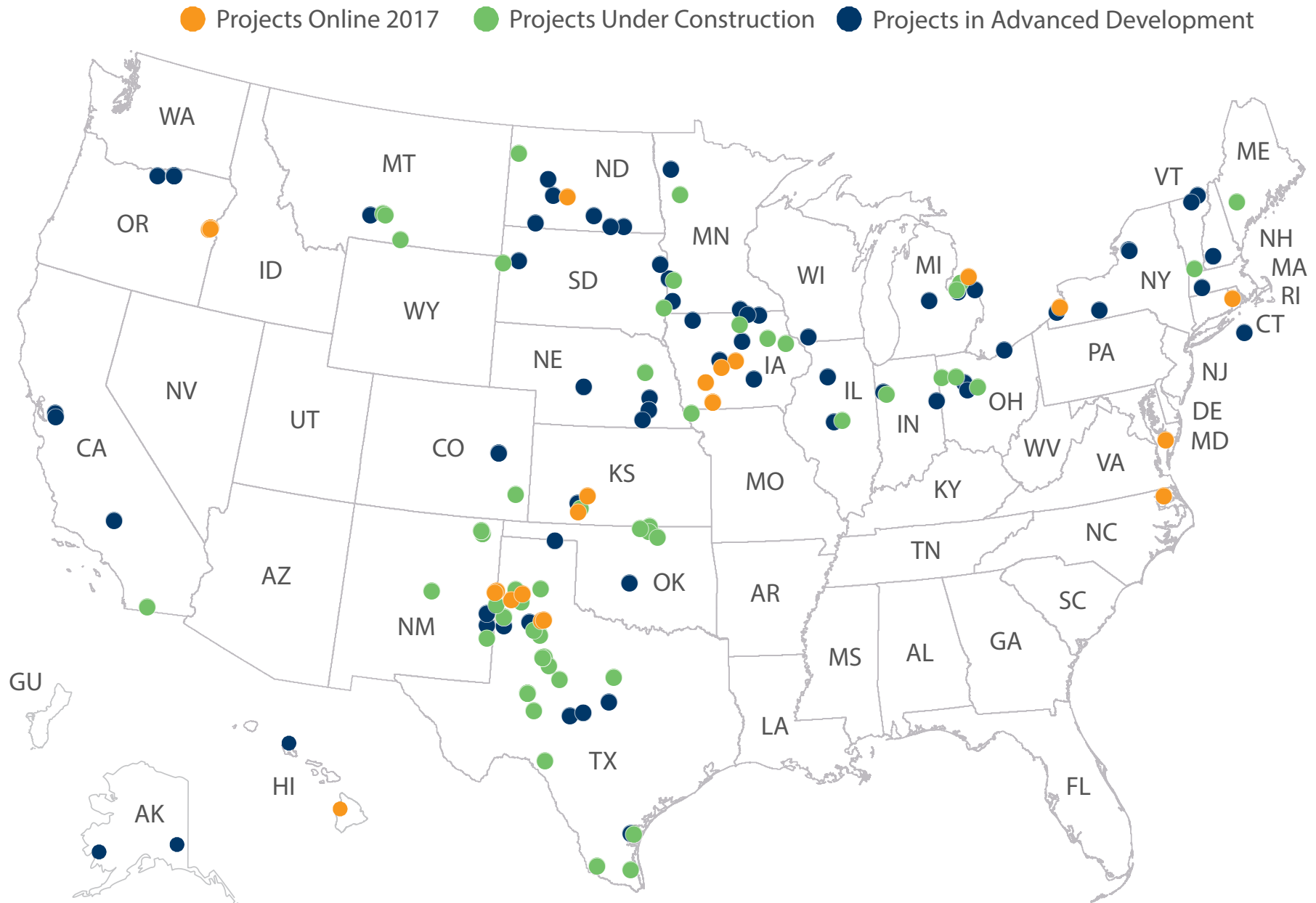
Map of Wind Power Capacity Under Construction



- Total construction activity spans 61 project phases in 19 states. Four project phases totaling 668 MW started construction during the first quarter across Oklahoma (361 MW), Texas (300 MW), and Nebraska (7 MW).
- Texas continues to lead with a 54% share of total construction activity. An additional 14% is located in the Midwest, with 13% located in the Mountain states of Colorado and New Mexico.
- Given current construction activity, Kansas is expected to surpass 5,000 MW installed capacity by the end of the year, making it only the fifth state to do so.
- New Mexico is also expected to more than double in installed capacity in the near term.

0 to 250 MW
 >250 MW to 500 MW
 >500 MW to 1,000 MW
 >1,000 MW to 2,000 MW
 >2,000 MW

Map of Projects Online during 2017, Under Construction, or in Advanced Development



Utility-Scale Wind Projects Completed during 2017

State	Project Phase Name	Project Capacity (MW)	Turbine OEM	Turbine Model	Project Developer	Project Owner	Power Purchaser
First Quarter 2017							
HI	Lalamilo Wells Repowering	3.30	Vestas	V47	Lalamilo Wind Company LLC	Lalamilo Wind Company LLC	Hawaii County Department of Water Supply
IA	30 MW Iowa DG Portfolio	30.00	Nordex USA	AW125/3000	Optimum Renewables	Building Energy Wind Iowa	Interstate Power & Light
IA	August Wind Energy LLC	1.79	GE Renewable Energy	1.7-100	Greenfield Power	August Wind Energy LLC	Central Iowa Power Cooperative
IA	Birch Power LLC	1.79	GE Renewable Energy	1.7-100	Greenfield Power	Birch Power LLC	Central Iowa Power Cooperative
IA	Mason Wind LLC Perry	6.00	HZ Windpower	H111-2000	Mason Wind LLC	Mason Wind LLC	Interstate Power & Light
IA	Roseman Energy LLC	1.79	GE Renewable Energy	1.7-100	Greenfield Power	Roseman Energy LLC	Central Iowa Power Cooperative
KS	Cimarron Bend II	200.00	Vestas	V110-2.0	Enel Green Power North America; Tradewind Energy	Enel Green Power North America; GE Energy Financial Services	Kansas City Board of Public Utilities
KS	Western Plains	280.60	Siemens	SWT-2.3-108	Infinity Wind Power	Westar Energy	Westar Energy
MD	Crisfield Waste Water Treatment Plant	0.75	Aeronautica	54-750	Crisfield Wastewater Treatment Plant	Crisfield Wastewater Treatment Plant	Crisfield Wastewater Treatment Plant, Excess to Delmarva Power
MI	Deerfield	149.00	Vestas	V110-2.0	Algonquin Power; RES Americas	Algonquin Power	Wolverine Power Supply
NC	Amazon Wind Farm US East	208.00	Gamesa	G114-2.0	Avangrid Renewables	Avangrid Renewables	Amazon Web Services
ND	Oliver III	99.25	GE Renewable Energy	1.7-100; 2.0-116	NextEra Energy Resources	NextEra Energy Resources	Minnkota Power
NM	Broadview Energy JN LLC	98.90 (of 181.70)	Siemens	SWT-2.3-108	National Renewable Solutions; Pattern Energy Group LP	Pattern Energy Group LP	Southern California Edison
NM	Broadview Energy KW LLC	142.60	Siemens	SWT-2.3-108	National Renewable Solutions; Pattern Energy Group LP	Pattern Energy Group LP	Southern California Edison
NY	Seneca Nation	1.50	VENSYS	VENSYS 82	Seneca Nation of Indians	Seneca Nation of Indians	Seneca Nation of Indians, Excess to National Grid
OR	Benson Creek	10.00	GE Renewable Energy	2.0-116	Oregon Windfarms LLC	Oregon International Holdings LLC	Idaho Power
OR	Durbin Creek	10.00	GE Renewable Energy	2.0-116	Oregon Windfarms LLC	D. E. Shaw Renewable Investments LLC	Idaho Power
OR	Jett Creek	10.00	GE Renewable Energy	2.0-116	Oregon Windfarms LLC	Homestead Windfarm LLC	Idaho Power
OR	Prospector	10.00	GE Renewable Energy	2.0-116	Oregon Windfarms LLC	D. E. Shaw Renewable Investments LLC	Idaho Power
OR	Willow Spring	10.00	GE Renewable Energy	2.0-116	Oregon Windfarms LLC	8030 Companies Inc.	Idaho Power
RI	WED Coventry 5	1.50	VENSYS	VENSYS 82	Wind Energy Development LLC	Wind Energy Development LLC	National Grid

Utility-Scale Wind Projects Completed during 2017

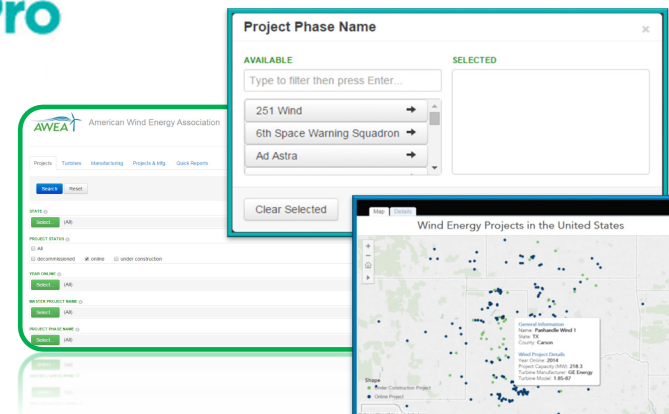
State	Project Phase Name	Project Capacity (MW)	Turbine OEM	Turbine Model	Project Developer	Project Owner	Power Purchaser
TX	Bethel	276.00	GE Renewable Energy	2.3-116	Invenergy; Orion Energy	Southern Power	Google Energy (225 MW); Merchant (51 MW)
TX	Broadview Energy JN LLC	82.80 (of 181.70)	Siemens	SWT-2.3-108	National Renewable Solutions; Pattern Energy Group LP	Pattern Energy Group LP	Southern California Edison
TX	Cotton Plains Wind	50.40	GE Renewable Energy	2.4-107	Apex Clean Energy	Northleaf Capital Partners	Defense Logistics Agency
TX	Falvez Astra	163.20	GE Renewable Energy	2.4-107	WindHQ	WindHQ	Merchant (ERCOT)
TX	Old Settler Wind	151.20	GE Renewable Energy	2.4-107	Apex Clean Energy	Northleaf Capital Partners	Allianz Risk Transfer

AWEA Industry Data & Analysis

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 AWEA U.S. Wind Industry First Quarter 2017 Market Report can be accessed at www.awea.org/1Q2017.

Access AWEA Market Database Pro at www.awea.org/database for a comprehensive database of all online, under construction, and advanced development wind projects with turbine level data, and active wind-related manufacturing facilities.



For a spreadsheet with underlying data or with any corrections, please contact Hannah Hunt at hhunt@awea.org.

AWEA Industry Data & Analysis

New Data Products this Quarter!

AWEA released its ninth annual “U.S. Wind Industry Annual Market Report Year Ending 2016” on April 11th, 2017.

The 164-page report provides a comprehensive review of U.S. wind industry trends, detailed market rankings, wind project activity, jobs growth, economic benefits, manufacturing data, and more.

Members can download the report for free and non-members can purchase the report at <http://www.awea.org/amr2016>.

AWEA’s latest report “Property Tax Treatment of Commercial Wind Energy Projects” provides a comparative overview of state property tax treatment in the 40 states with operational wind projects at the end of 2016.

Created in partnership with the law firm Polsinelli, the report is designed to help AWEA members navigate the complex and varying property tax structures among different states and localities, and act as an educational tool for state level policy advocacy.

Members can download the report for free at <http://www.awea.org/propertytax>.

