



Clean Power Quarterly

2021 Q2



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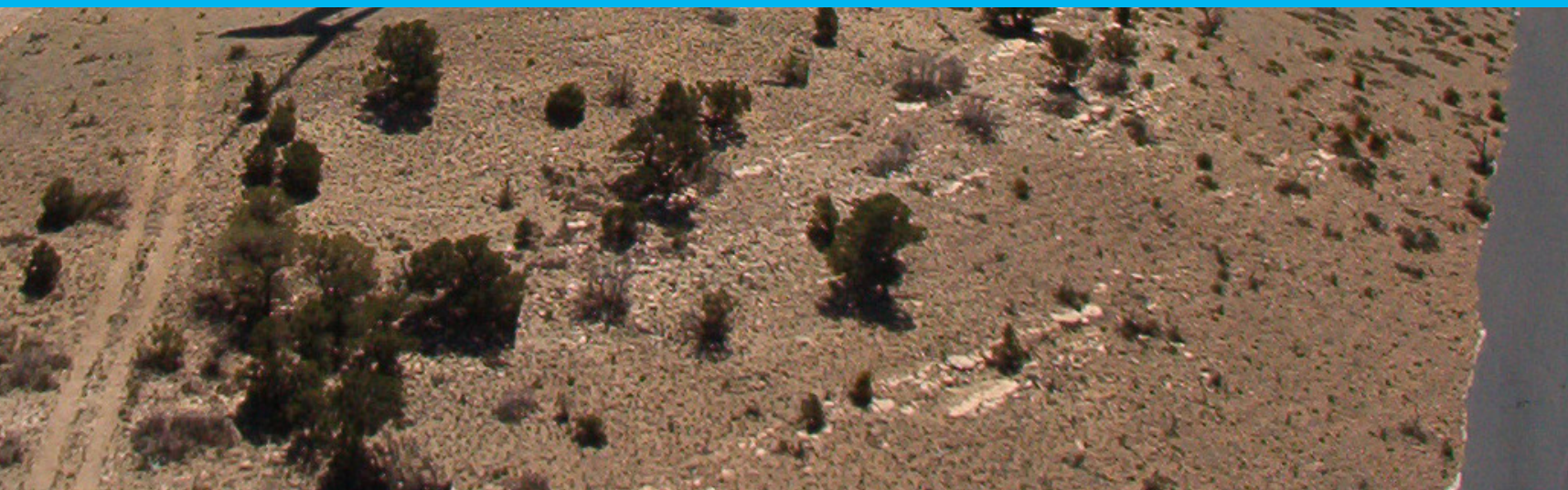
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2021 Q2 Highlights



2021 Q2 Highlights

Clean Power Project Installations

- The U.S. clean energy industry installed 5,620 MW of clean power capacity in the second quarter of 2021—a record for second quarter installations. Additions in the first half of the year total 9,915 MW, supplanting 2020 as the most active first six months for installations.
- Project owners commissioned 56 new projects across 27 states in the second quarter. Texas once again led with 1,489 MW installed, followed by California (585 MW), Michigan (424), Florida (373 MW), and Kansas (301MW).
- There is now over 180,216 MW of operating clean power capacity in the United States

Clean Power Capacity Under Construction and in Advanced Development

- At the end of the second quarter there were 906 projects totaling 101,897 MW of capacity in the near-term development pipeline, including 37,725 MW under construction and 64,172 MW in advanced development.
- Clean power projects totaling 4,276 MW started construction and 10,520 MW entered advanced development in the second quarter.
- Solar represents the largest share of capacity in the clean power pipeline, accounting for 54%, followed by land-based wind (23%), offshore wind (14%), and battery storage (9%).
- Texas now represents 17% of the total development pipeline, followed by offshore wind projects in Federal Waters, (14%), California (10%), Indiana (5%), New Mexico (4%), and Nevada (4%).

Clean Power Procurement Activity

- Power purchasers and project developers reported 4,048 MW of new Power Purchase Agreements (PPAs) in the second quarter, bringing first half year totals to 7,344 MW
- Corporate customers have announced nearly 30,000 MW of clean power PPAs in total after signing up another 955 MW of clean power PPAs in the second quarter of 2021.





Clean Power Capacity Growth



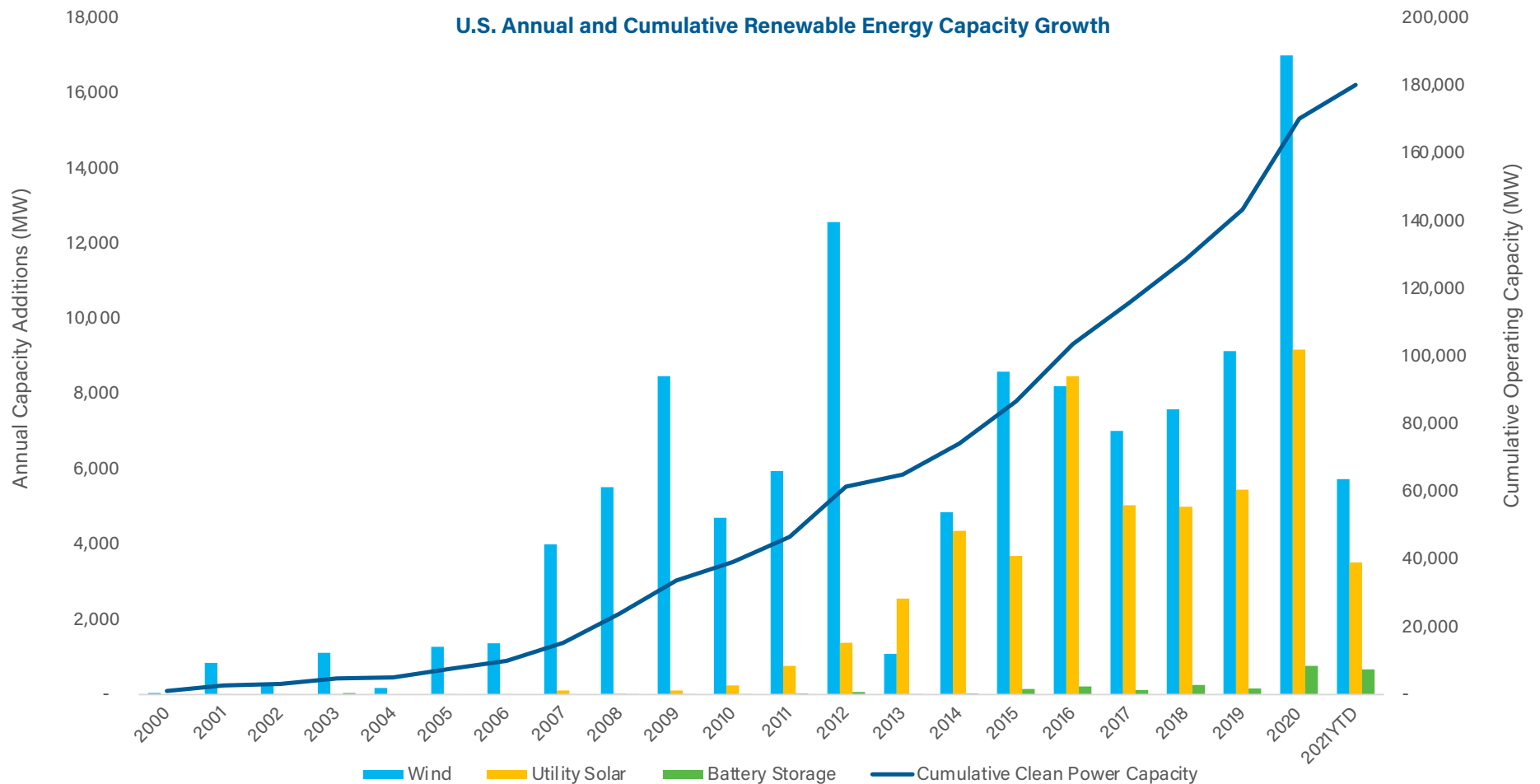
Record installs in first half of the year

Second quarter installations

- The industry commissioned 5,620 MW of new clean power capacity in the second quarter of 2021, the highest second quarter on record and a 13% increase over 2020's second quarter volume.
- Clean power additions were up 17% in the first six months of 2021 compared to the same period last year.
- Additions for the first half of 2021 totaled 9,915 MW, the highest first half for new clean power installations.

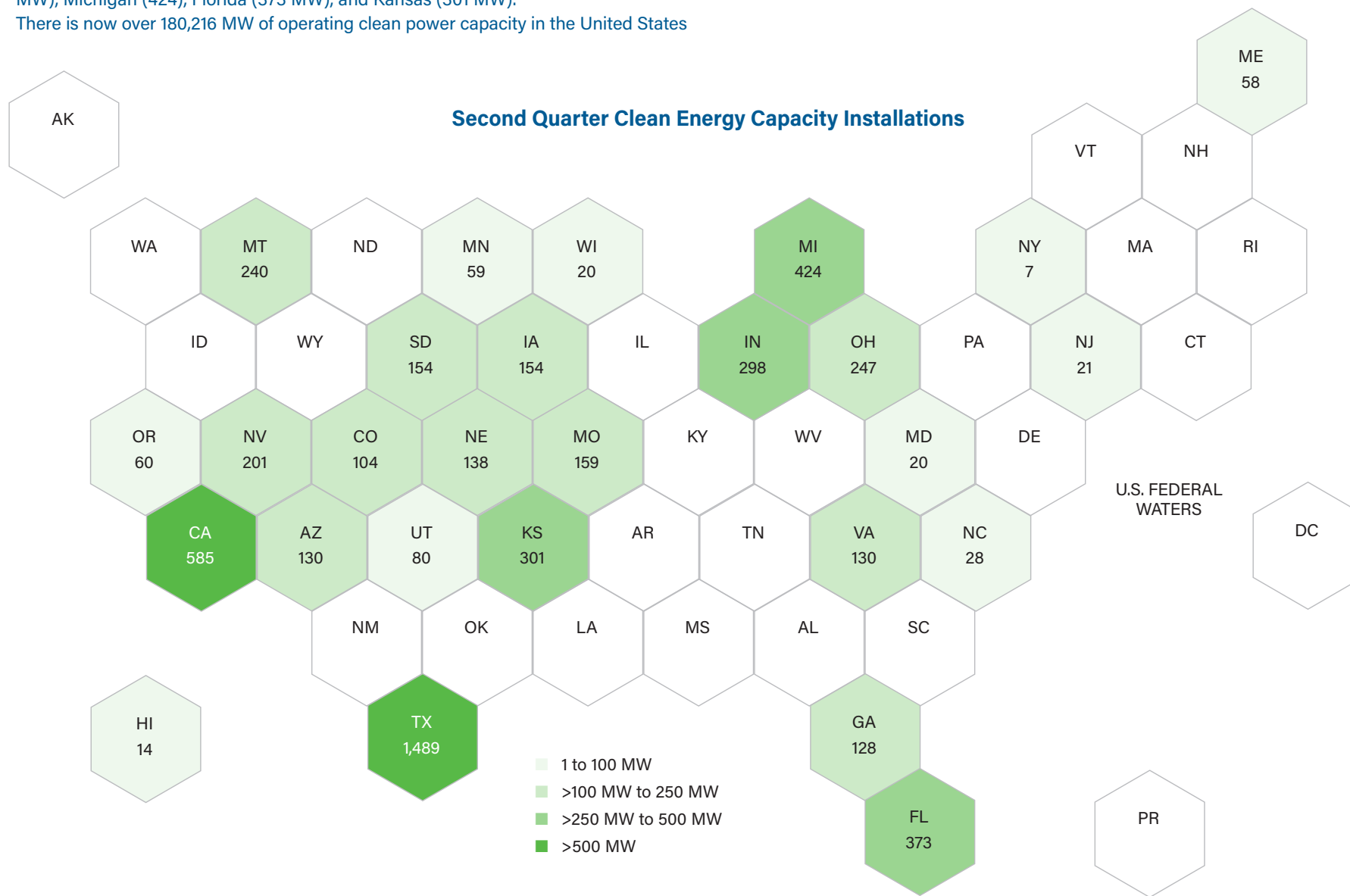
Clean Power eclipses 180 GW

- There is now over 180,216 MW of operating clean power capacity in the U.S.
- Cumulative wind capacity increased 2.2% over the quarter to 127,804 MW and represents the largest share of clean power capacity on the grid. Utility solar capacity makes up the second largest share of cumulative capacity with 48,894 MW, followed by battery storage with 2,527 MW.



Installations surge across states

- There is now over 180,216 MW of operating clean power capacity in the United States



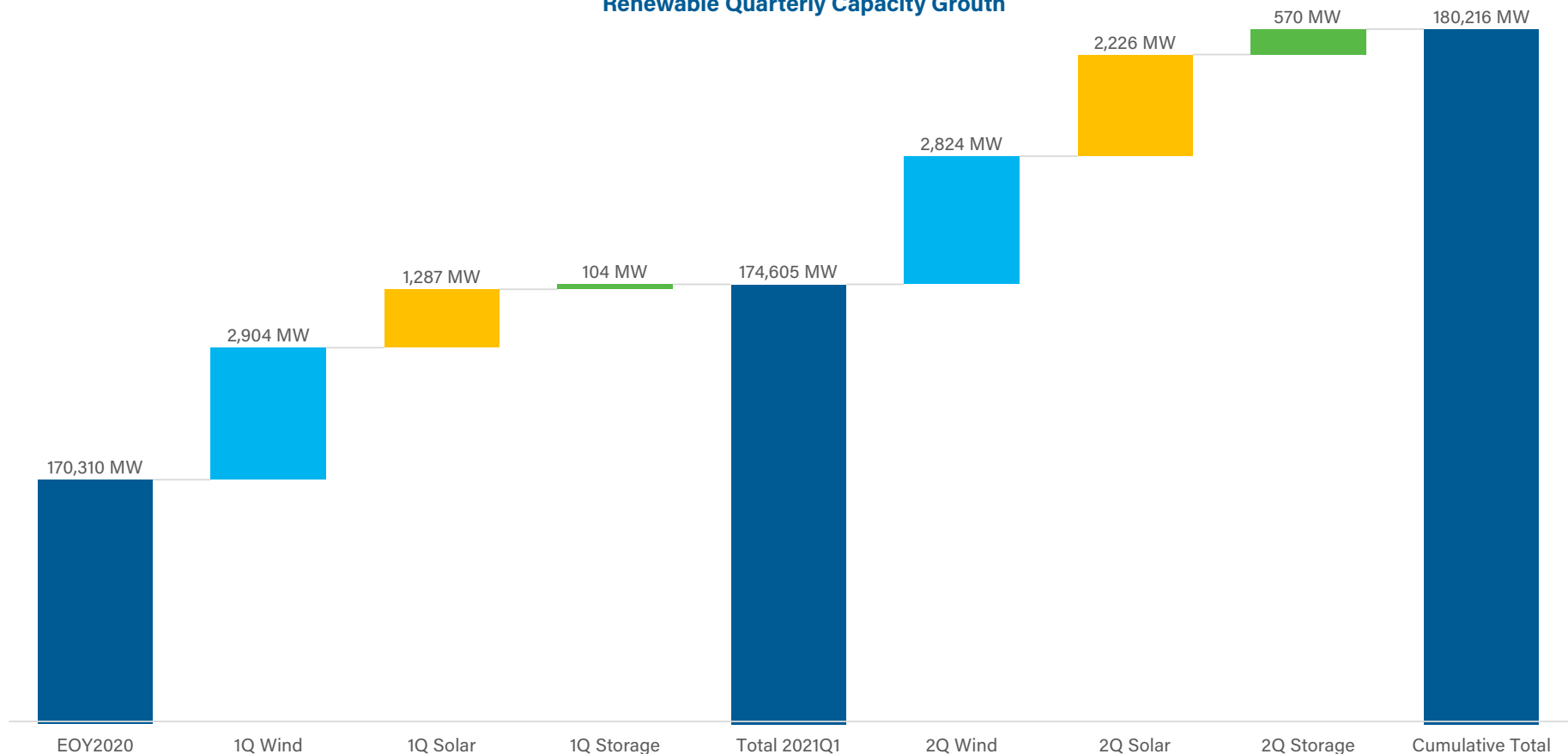
Renewable quarterly capacity growth

- In the second quarter, four companies added more than 500 MW to their portfolios—NextEra Energy, EDP Renewables, ENGIE, and Algonquin Power & Utilities.
- NextEra Energy led quarterly installations with 847 MW, thanks in part to starting operations at five solar projects, the Discovery Solar Energy Center, Orange Blossom Solar Center, Rodeo Solar Center, Sabal Palm Solar Energy Center, and Willow Solar Energy Center.
- Additionally, Algonquin Power & Utilities brought online the 301 MW Neosho Ridge wind project, the third largest wind project to reach commercial operations in the second quarter.
- EDP Renewables delivered three projects in the second quarter, with a combined capacity of 691 MW. ENGIE brought online four projects totaling 603 MW.

Top owners of Q2 installations

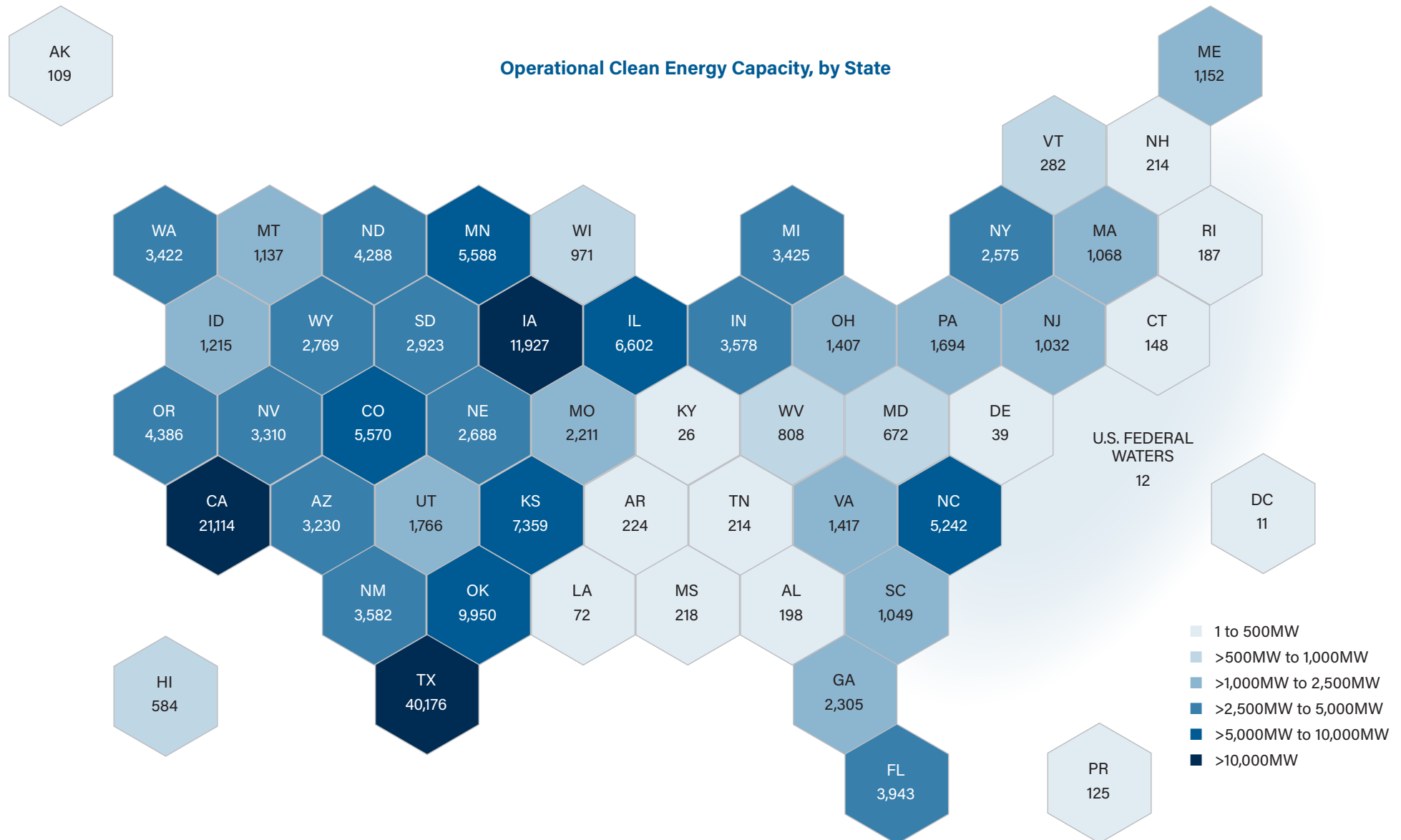
- Battery energy storage experienced the most dramatic quarterly growth as installations surged 439% over the 104 MW installed in the first quarter. Year-to-date storage capacity additions now tally 674 MW, not far off the full year 2020 total.
- Utility solar witnessed the largest quarter-over-quarter growth in capacity additions with project installations surging 73% over deployments in the first quarter. So far this year, solar additions total 3,513 MW.
- Wind additions were stable across both quarters this year, combining to total 5,728 MW of year-to-date installations.
- Cumulative clean power capacity grew 3% in the second quarter, outpacing the 2.5% growth found in the first quarter.

Renewable Quarterly Capacity Growth



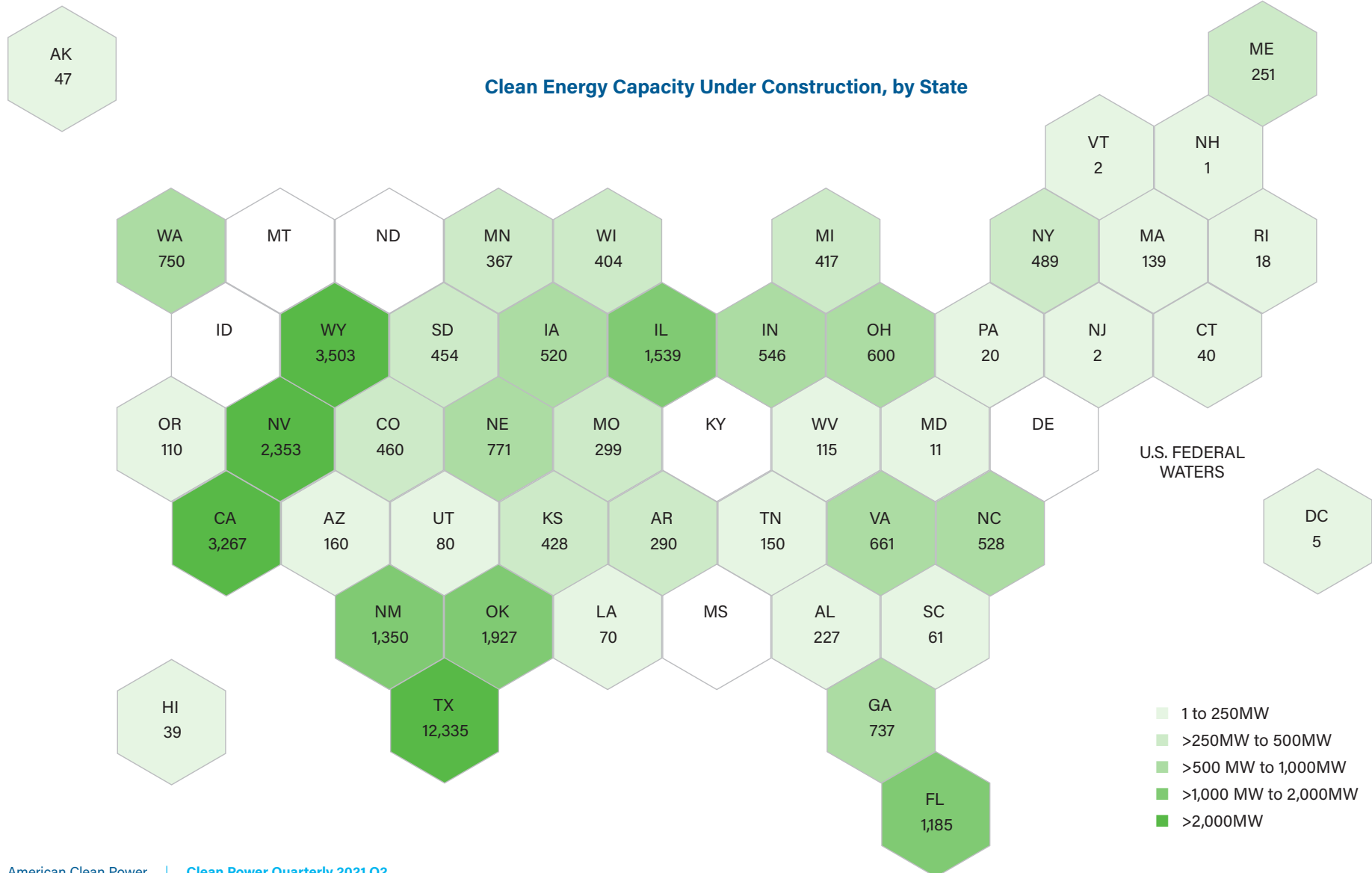
Operational clean power capacity

Nearly 10 GW of clean energy installed in the first half of 2021



Project construction pipeline

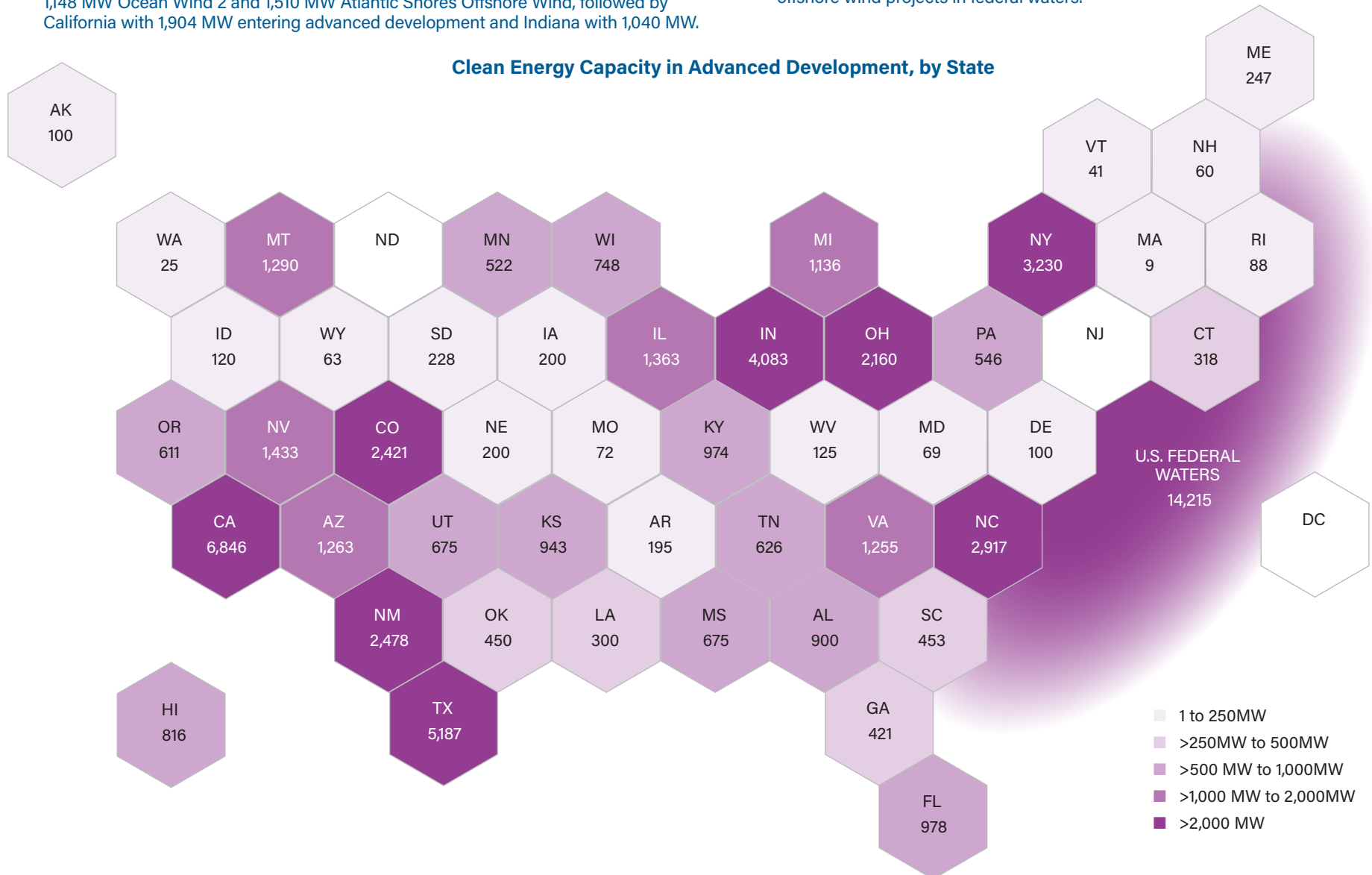
- At the end of June, there was 37,725 MW of clean power capacity under construction.
- Total construction activity spans 400 project phases in 45 states and D.C.
- In the second quarter, project developers started construction on 4,276 MW across 27 projects in 10 states.
- Of the 4,276 MW under construction, solar accounts for 55% of the construction pipeline, followed by wind with 40%, and storage with the remaining 5%.
- Texas saw the largest uptick in projects entering the construction phase in the second quarter, where projects totaling 2,496 MW started construction. Indiana had 502 MW start construction, followed by Illinois (293 MW), Iowa (286 MW), and California (200 MW).
- On a regional basis, Texas led with 32% of total construction activity based on capacity. The Mountain West follows with 20%, and the Midwest with 11%.



Advanced development activity

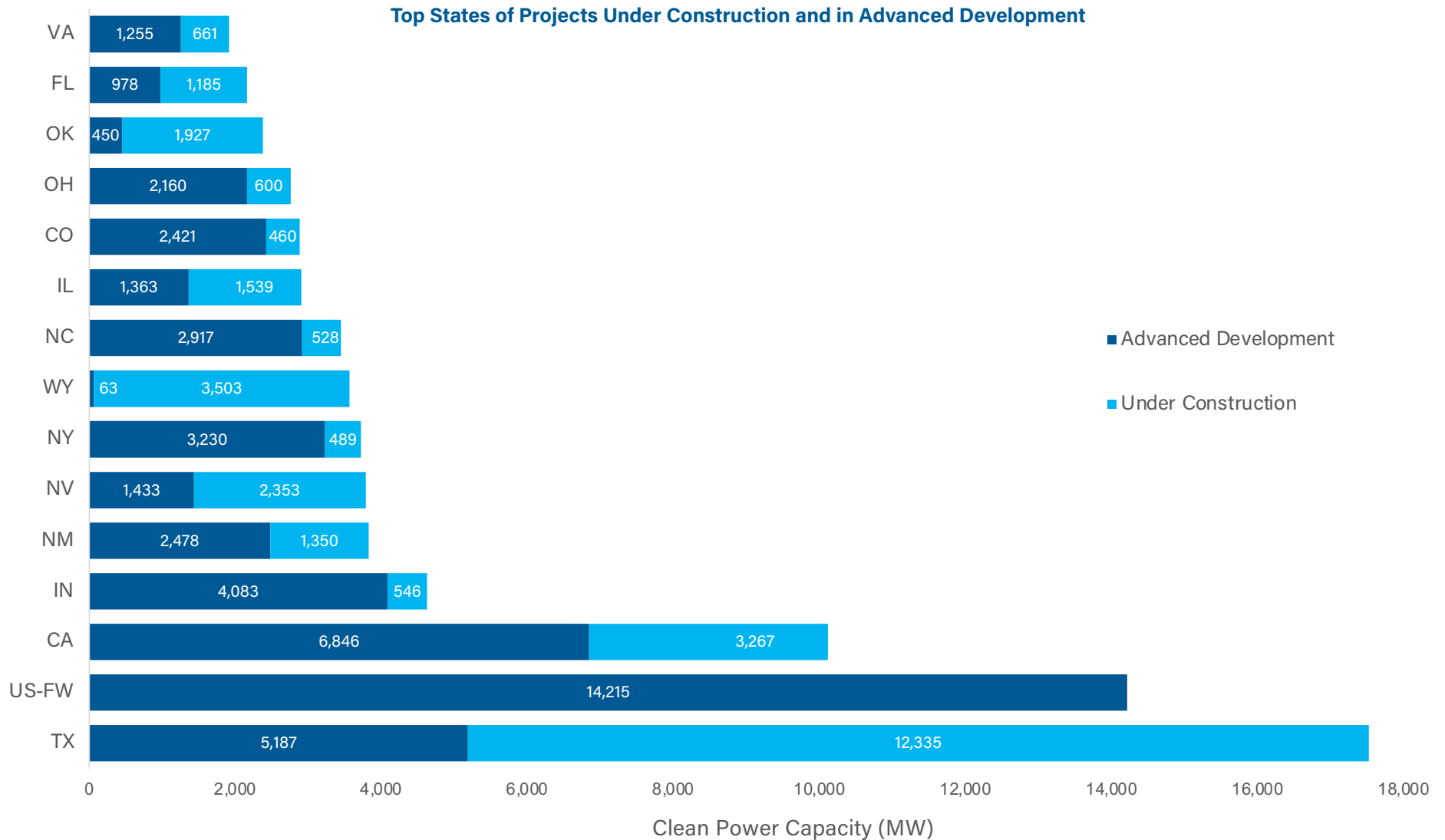
- Project developers reported 64,172 MW of clean power capacity in advanced development at the end of June.
- The industry announced that 10,520 MW worth of clean power projects entered the advanced development phase in the second quarter.
- Federal Waters (2,658 MW) led new announcements for the quarter, thanks to the 1,148 MW Ocean Wind 2 and 1,510 MW Atlantic Shores Offshore Wind, followed by California with 1,904 MW entering advanced development and Indiana with 1,040 MW.
- In the second quarter, more solar projects entered the advanced development stage than any other renewable energy, representing 49% of advanced development activity. Offshore wind accounted for the second largest share with 25% of advanced development activity, followed by storage (14%), and land-based wind (11%).
- Total advanced development activity spans 515 project phases across 48 states and 18 offshore wind projects in federal waters.

Clean Energy Capacity in Advanced Development, by State



Clean power project pipeline

- The 101,897 MW of combined construction and advanced development activity is spread across 906 projects in 49 states and D.C., plus 18 projects in Federal Waters.
- Texas hosts more activity than any other state, representing 17% of the total development pipeline. California comes in second (10%), followed by Indiana (5%), New Mexico (4%), and Nevada (4%).
- A total of 8 states have more than 3,000 MW of clean power capacity in the pipeline.



Clean power project pipeline

Wind

- The wind industry currently has 23,742 MW of total development activity, representing 37% of the pipeline.
- Total offshore wind capacity increased 23% in the second quarter and accounts for 14% (14,247 MW) of the total wind project pipeline.
- Texas has the most land-based wind in the near-term pipeline, representing 22% of the project pipeline, followed by Wyoming (14%), and Oklahoma (8%).
- Montana saw the largest uptick in development activity with the 750 MW Clearwater Energy project entering advanced development.
- Indiana saw a 302% increase in under construction activity from the first quarter. In the second quarter, EDP Renewables started construction on the 302 MW Indiana Crossroads wind project.

Solar

- Solar accounts for the largest share of development activity with 54,904 MW, representing 54% of the total pipeline.
- There are 707 solar projects in advanced development in 47 states and D.C.
- Texas once again hosts more activity than any other state with 20% of the total solar pipeline, followed by California with 11%, Indiana with 7%, and North Carolina with 6%.

Storage

- There is currently 9,003 MW of combined battery storage capacity in the project pipeline, including 3,444 MW under construction and 5,559 MW in advanced development, representing 9% of total development activity.
- Pipeline activity is spread across 159 project phases in 21 states.
- California leads with more battery storage activity than any other state, representing 42% of combined storage pipeline activity. Texas comes in second with 15%, followed by Nevada (12%), and Arizona (6%).



Geographically diverse contracting

In the second quarter, PPAs were signed for projects in 11 states across the U.S.

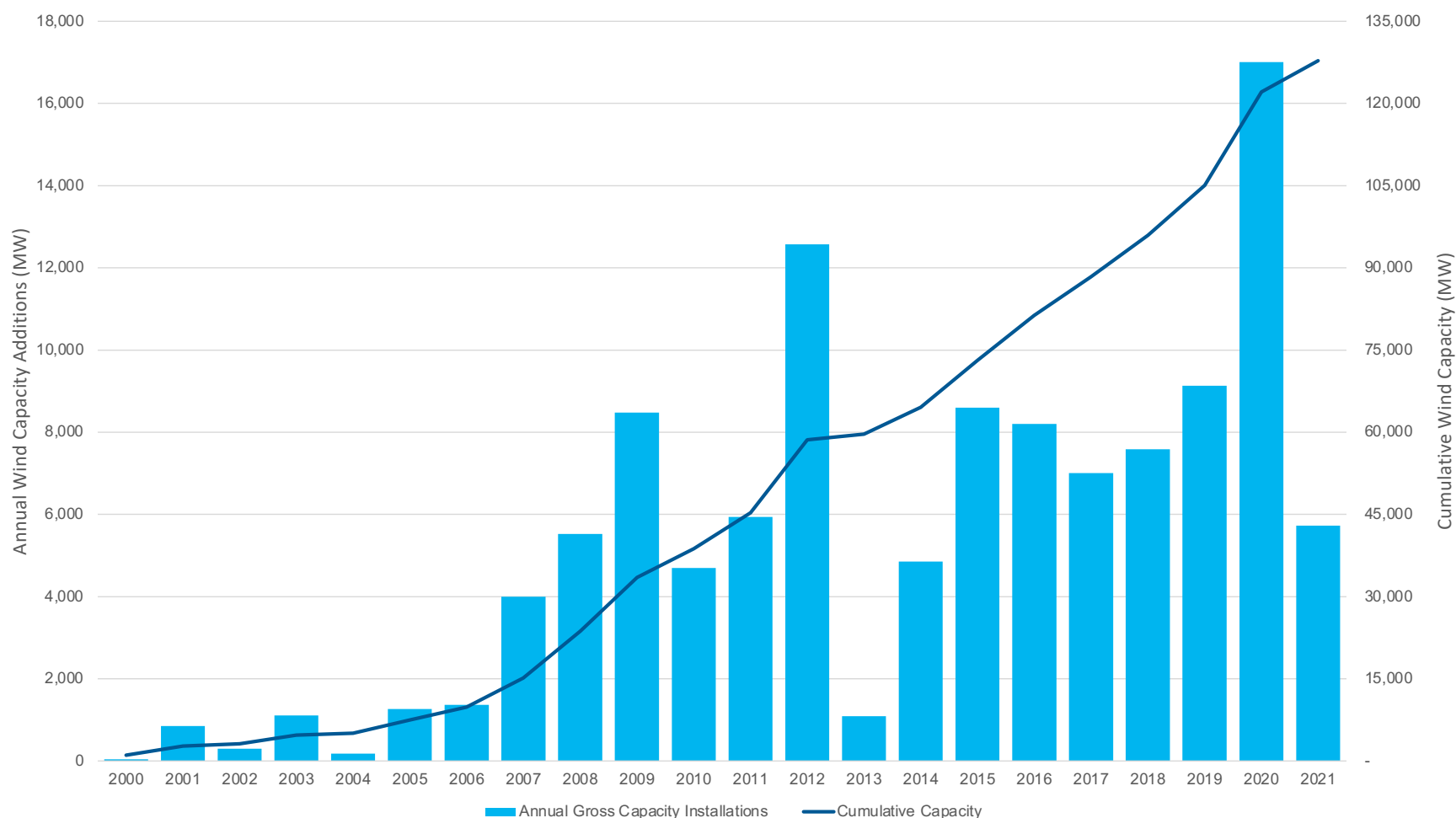
Map of Power Purchase Agreements Signed in 2021



Large tranche of wind projects online in Q2

- The wind industry installed 2,824 MW of new capacity—a record for second quarter installations. In fact, 10% more wind was installed in the second quarter of 2021 compared to the same period last year.
- The higher volume of installations this quarter was in part due to projects originally planned for commercial operations in the first quarter of 2021 being pushed to the second quarter of the year.
- DTE Energy's 384 MW Isabella I & II was the largest project to start commercial operations in the first six months.
- The average size of wind projects installed in the second quarter was 177 MW.
- Year-to-date the industry has added 31 projects across 13 states totaling 5,728 MW, an increase of 30% compared to the first half of 2020.

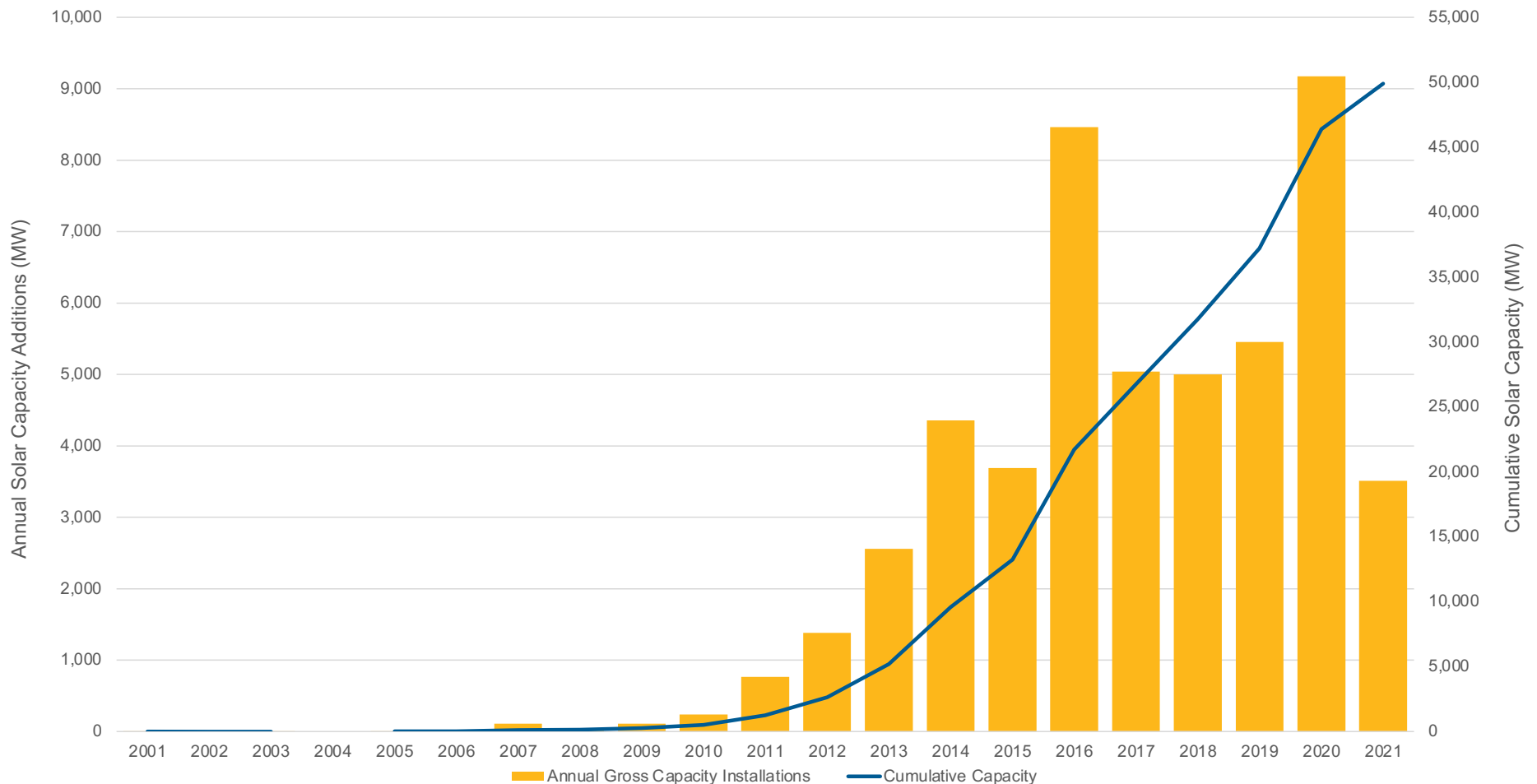
U.S. Annual and Cumulative Wind Power Capacity Growth



Solar installations continue to accelerate in Q2

- The clean energy industry installed 73% more solar capacity in the second quarter compared to the first quarter, bringing total operating solar capacity for the first half of the year to 3,513.
- Solar capacity additions are down 13% compared to the first six months of 2020.
- Forty-six states and D.C. have operational utility solar power capacity. California leads the solar industry with over 13.6 GW of installed capacity, more than double second placed Texas.
- Nearly 30% of installed utility solar power is in California, followed by Texas (11%), North Carolina (10%), Florida (9%), and Nevada (6%).

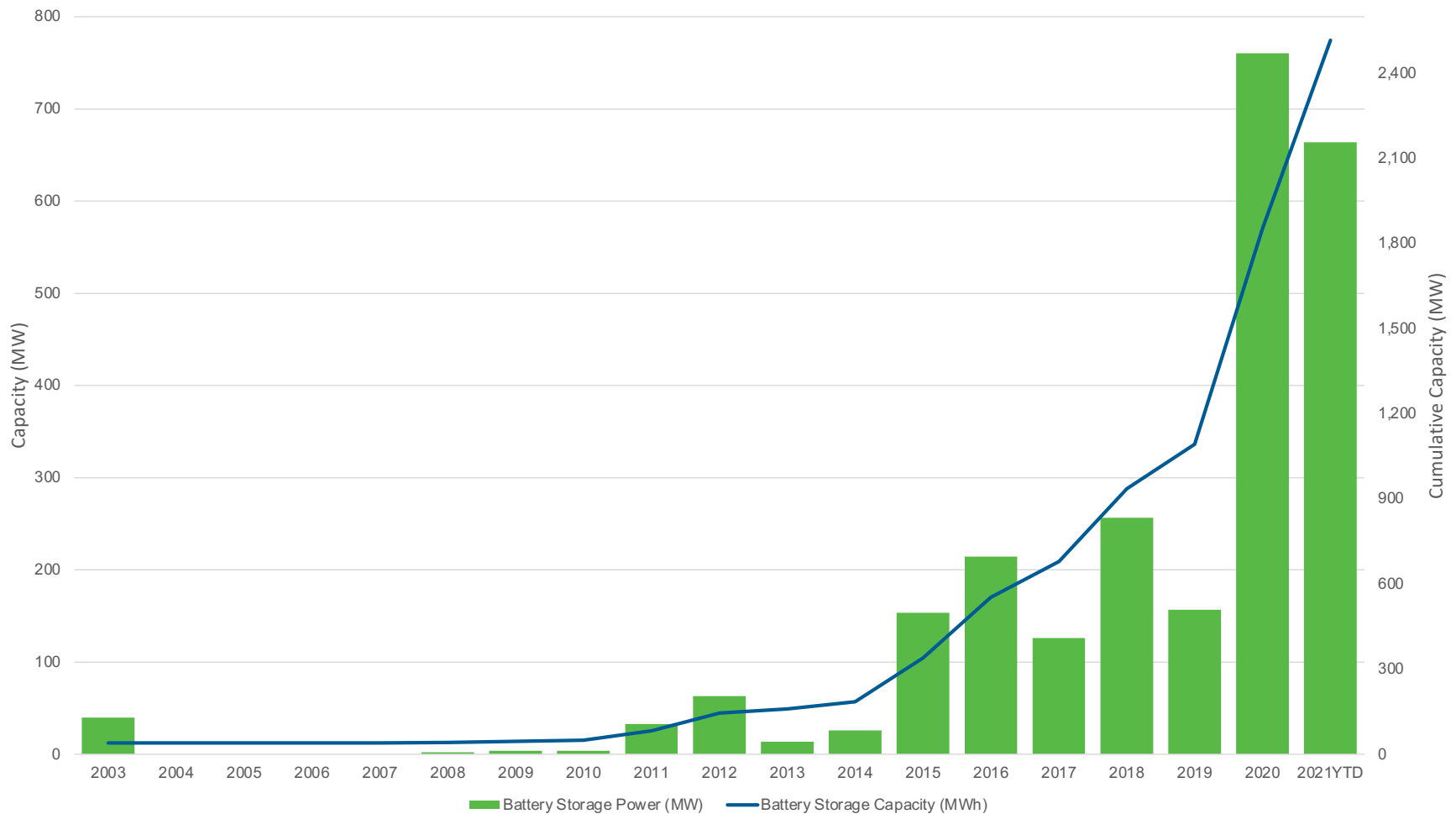
U.S. Annual and Cumulative Utility Solar Power Capacity Growth



Storage installations accelerate

- In the second quarter, battery storage capacity additions increased 447% over the first quarter, bringing total operating capacity for the first half of the year to 674 MWh.
- Storage capacity installations in the first half of the year increased by 683% compared to the first half of 2020.
- There are currently 202 operating battery storage projects across 34 states. California hosts the most battery storage with over 1.3 GW (55%) of installed capacity, followed by Texas with 303 MW (12%), Illinois (133 MW, 5%), Hawaii (77 MW, 3%), and Arizona (72 MW, 3%).
- Lithium-ion batteries with 2-to-4-hour durations are the most common.

U.S. Annual and Cumulative Utility Battery Storage Capacity Growth





Hybrid Projects

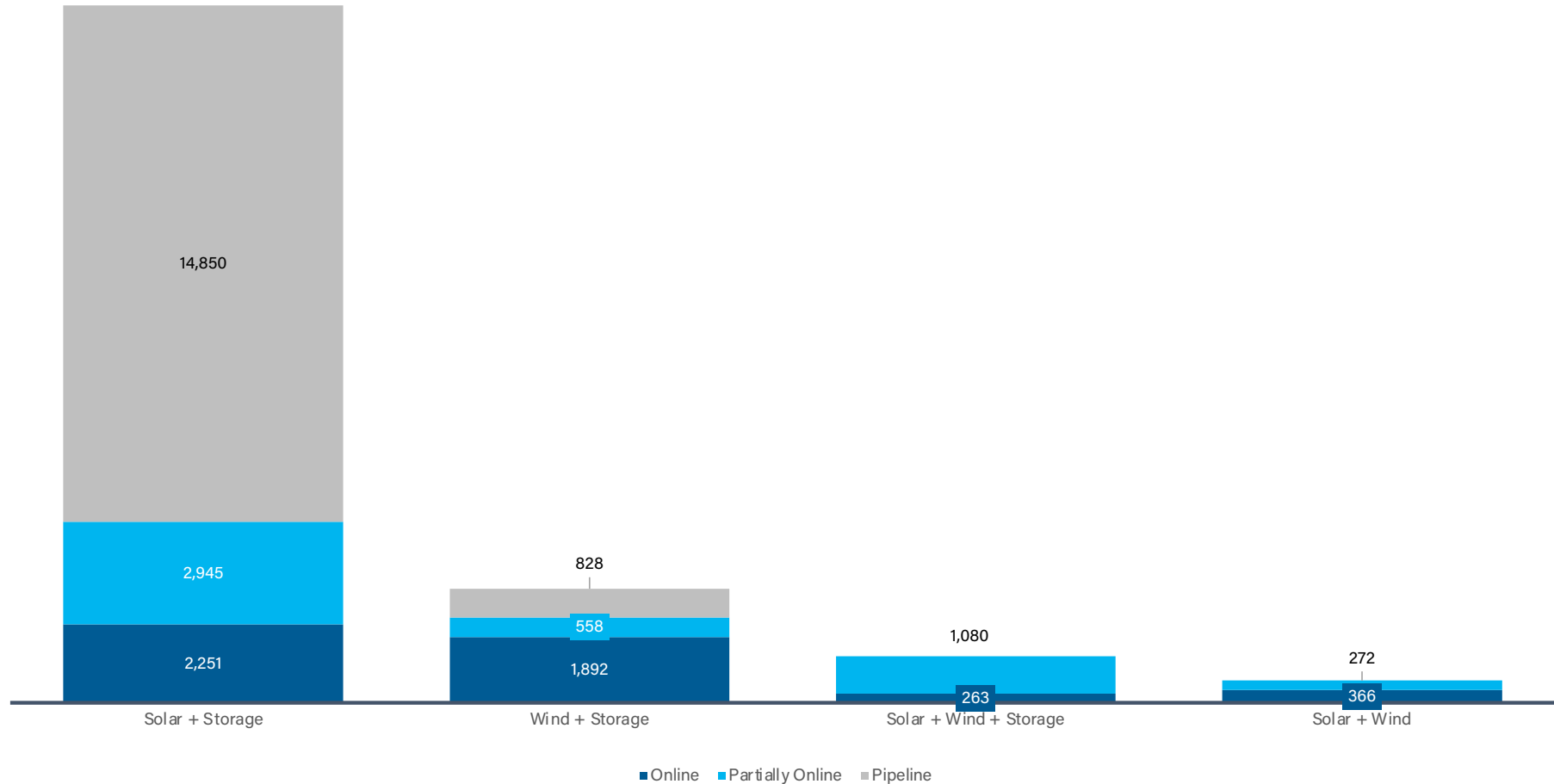


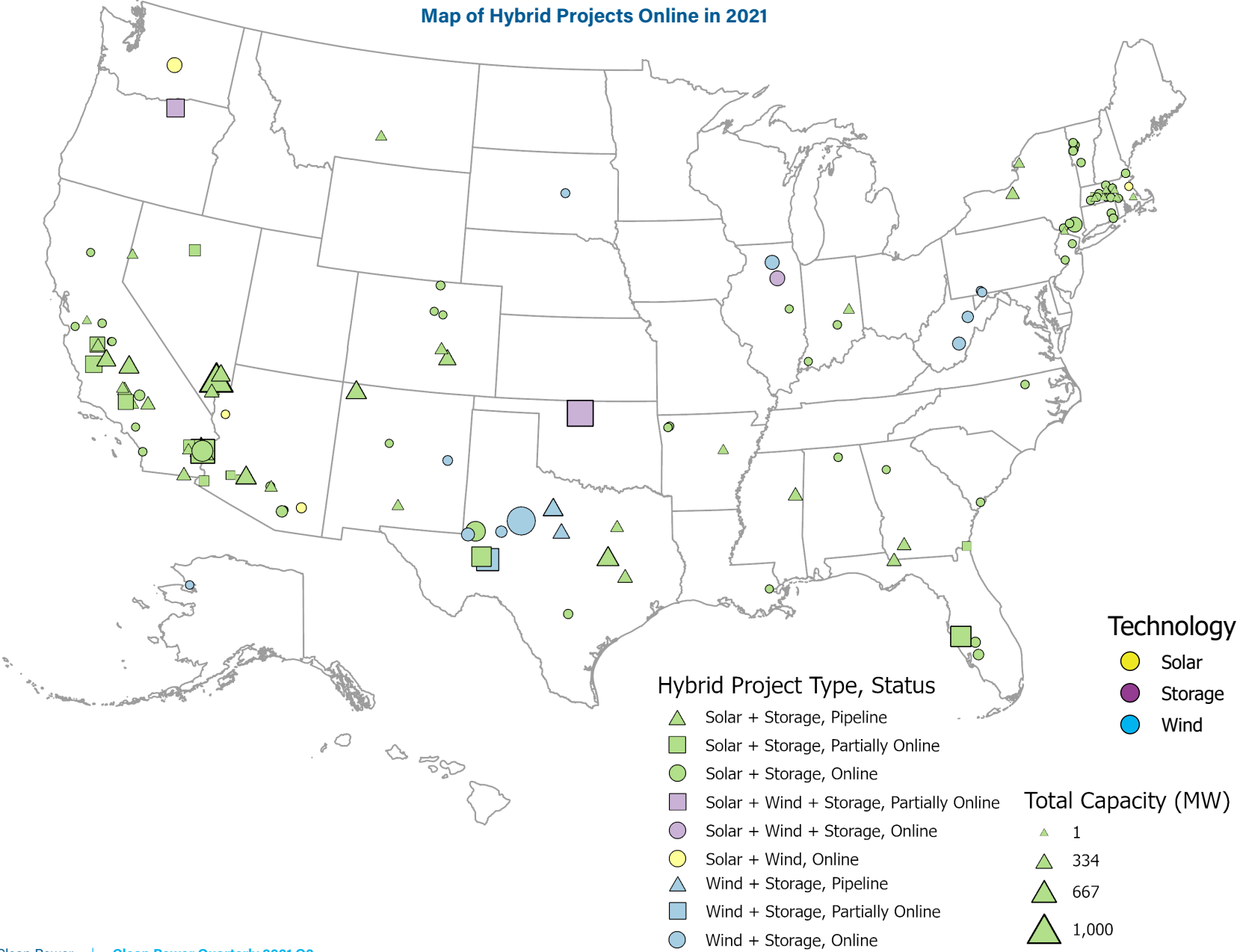
HYBRID PROJECTS

27% of solar projects are paired with energy storage

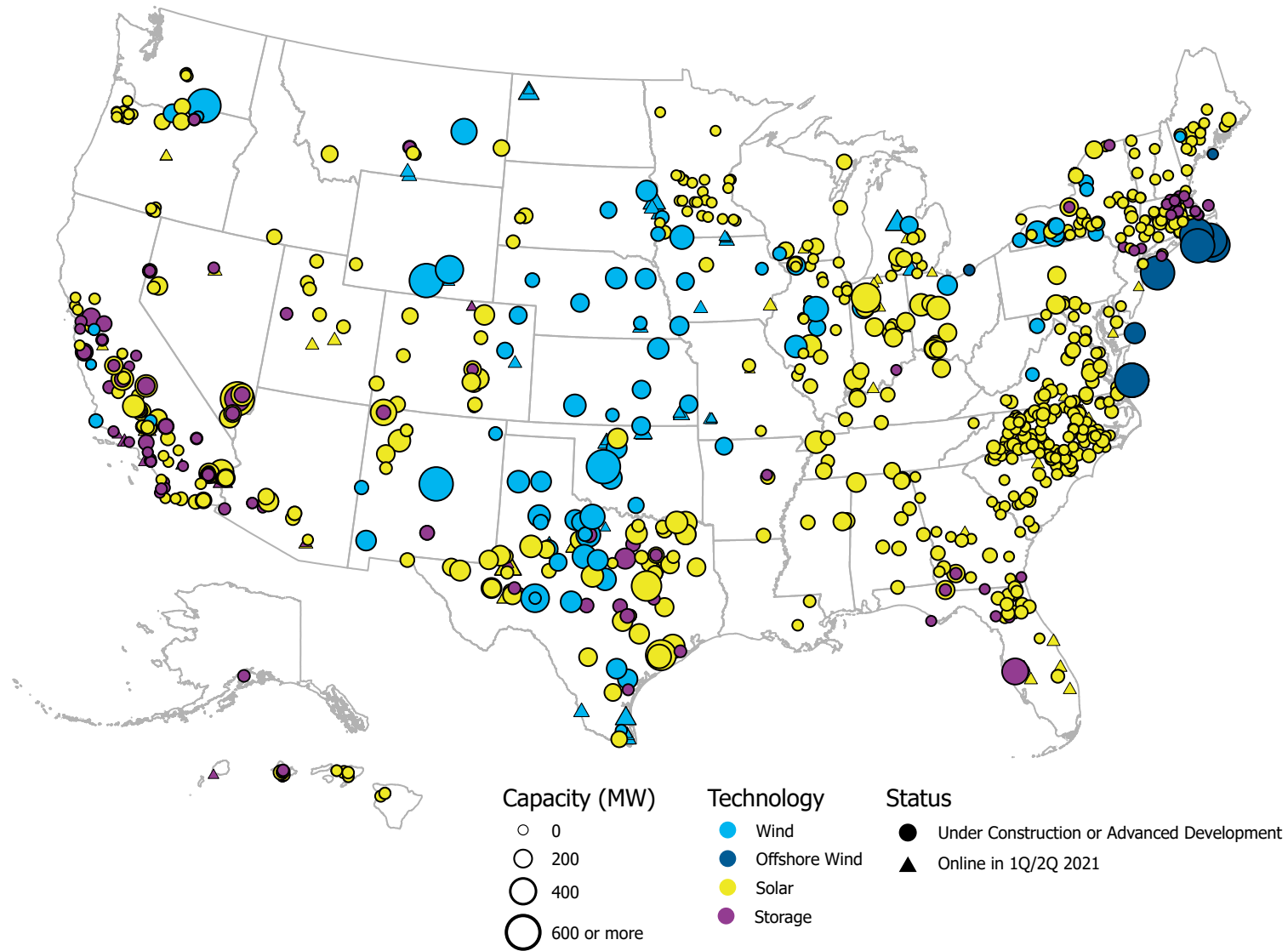
- Solar-plus-storage projects are the most common operating hybrid projects with 2,251 MW on the grid. Wind-plus-storage is the second largest operating hybrid class with 1,892 MW.
- A large swath of both solar-plus-storage- (2,945 MW) and solar-plus-wind-plus-storage (1,080 MW) are partially online with all capacity expected to be operational in coming months.
- At the end of June, there was 14,850 MW of solar-plus-storage and 828 MW of wind-plus-storage capacity in the near-term pipeline.
- Hybrid projects account for 27% of the solar projects in the development pipeline.
- The U.S. currently has 2,251 MW of operating solar-plus-storage projects, representing 5% of operating solar projects.

Operational Hybrid Power Projects





Map of Projects Online in 2021



American Clean Power is the voice of companies from across the clean power sector that are powering America's future, providing cost-effective solutions to the climate crisis while creating jobs, spurring massive investment in the U.S. economy and driving high-tech innovation across the nation. We are uniting the power of America's renewable energy industry to advance our shared goals and to transform the U.S. power grid to a low-cost, reliable, and renewable power system. Learn more about the benefits clean power brings to America at www.cleanpower.org.

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