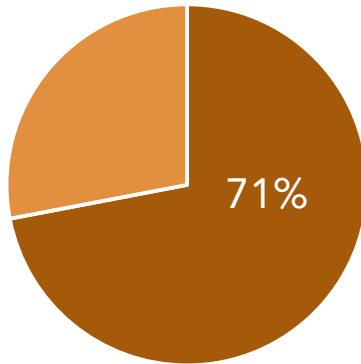


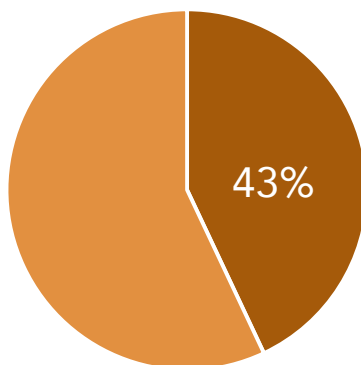


71 Fortune 100 companies have targets, driving market demand

Fortune 100



Fortune 500



Corporate America is nothing if not efficient and fast-paced—when companies like Walmart, Microsoft, and Google decide to make a change, they execute. Demand for advanced energy among the nation’s top companies is no exception: in 2015, less than a decade after companies first started to sign large-scale, long-term power purchase agreements for renewable energy, corporate wind contracts outstripped utility demand. These purchases were dominated by a small number of large corporations, but businesses large and small are increasingly seeking ways to invest in wind, solar, energy storage, fuel cells, and other advanced energy technologies. As the list of completed projects grows at an accelerating pace, it is clear that the trend initiated by these leading companies is spreading quickly.

To quantify the extent of this growing demand, Advanced Energy Economy (AEE) assessed the renewable energy and sustainability goals of the Fortune 100 and the Fortune 500, which are the top 100 and 500 companies in the United States, respectively, by gross revenue. As of 2016, this analysis shows that 71 Fortune 100 companies and 215 Fortune 500 companies (43%) have a sustainability target, renewable energy target, or both. Just as important as the overall numbers, AEE also found that these targets extend across industry segments—again indicating that target-setting is an increasingly normal element of good business practice.

These targets are good news for states: companies are deploying their private capital to finance projects that will bring in new jobs and tax revenue while improving the resource diversity of the grid and in some cases decreasing reliance on imported electricity. But in many states, there are not clear mechanisms for companies to fulfill their commitment to procure advanced energy. This brief explores the targets companies are setting, and their options for securing the advanced energy projects needed to meet them.

Policy and regulatory changes are needed in many states for companies to follow through on these commitments.

Power purchase agreements (PPAs) are a key way for companies to procure power from large, offsite projects, but they are only available to companies in restructured markets. **Sleeved PPAs** allow companies in traditionally regulated markets to contract with an offsite project, with the utility acting as an intermediary to contract for power from the project on behalf of the customer.

For some companies, negotiating and signing a long-term PPA may not be feasible. Subscription-based **renewable energy tariffs** (sometimes called “green tariffs”) allow customers to easily opt-into a portfolio of renewable energy delivered by their regular utility. To serve as a viable option, the tariff must be structured according to customer needs.

Many companies wish to procure power from **onsite** distributed energy resources such as solar, energy storage, or fuel cells, while still remaining connected to the utility grid. There are several purchasing structures for such projects to meet different customer needs and preferences. In some states, companies have a range of options, but in others legislation is needed to enable **third-party ownership** of onsite systems.

Some companies wishing to benefit from distributed energy resources may not be able to host such resources onsite. **Shared (or “community”) renewable energy** is a subscription-based model that allows multiple customers to share the output of a single nearby offsite project.

General Motors in Texas

The auto giant has operations across the country, yet the majority of its PPAs to date are in Texas—and for good reason.

With a newly announced goal to source its massive nine terawatt-hour global annual electricity consumption with 100% renewable energy, GM is looking beyond the onsite solar and landfill gas that it already uses to power its facilities. Two of the company's three PPAs signed to date are in Texas, and the third powers its operations in Mexico. Relative to other states where GM operates, mostly in the midwest, Texas has not only favorable economics for wind energy, but also a competitive market structure that more readily accommodates corporate procurement.

Microsoft in Wyoming

In collaboration with Black Hills Energy, Microsoft designed a solution that could be replicated elsewhere

In search of a competitive project to power its new Wyoming data center with renewable energy, Microsoft negotiated two agreements with its local utility provider, Black Hills Energy. One agreement involved Microsoft purchasing Renewable Energy Certificates from a 59-megawatt (MW) wind project adjacent to Microsoft's data center in Cheyenne. In addition, Microsoft approached Black Hills with an innovative solution to deliver reliability without additional costs for ratepayers. Microsoft will be served under a new tariff that allows the utility to reach behind the meter to fulfill grid needs using Microsoft's new, on-site backup natural gas generators, avoiding the need to construct a new power plant. The tariff structure is available to other eligible customers, paving the path for a creative solution that lowers costs while also lowering overall grid emissions.

Lockheed Martin in North Carolina

With full retail choice and no barriers to signing a PPA, Lockheed Martin was able to secure a 17-year contract for 30 MW of solar in North Carolina.

While much of North Carolina is under Duke Energy's vertically integrated utility territory, the eastern part of the state is restructured, allowing Lockheed Martin to sign a power purchase agreement with a solar farm selling into the wholesale market. Because restructured markets provide a clear pathway for companies to pursue PPAs, Lockheed Martin was able to focus solely on key aspects of the deal itself, such as price, risk, and contract length. That does not mean the project was easy—as a government defense contractor, Lockheed Martin has a number of additional logistical hurdles to gain approval of any long-term project—but without additional regulatory hurdles the project was able to move forward.

AIMING FOR 100%

Of the Fortune 500, there are a number of companies that have committed to get 100% of their electricity needs from renewable energy. These companies (and their ranking in the Fortune 500) are listed below:

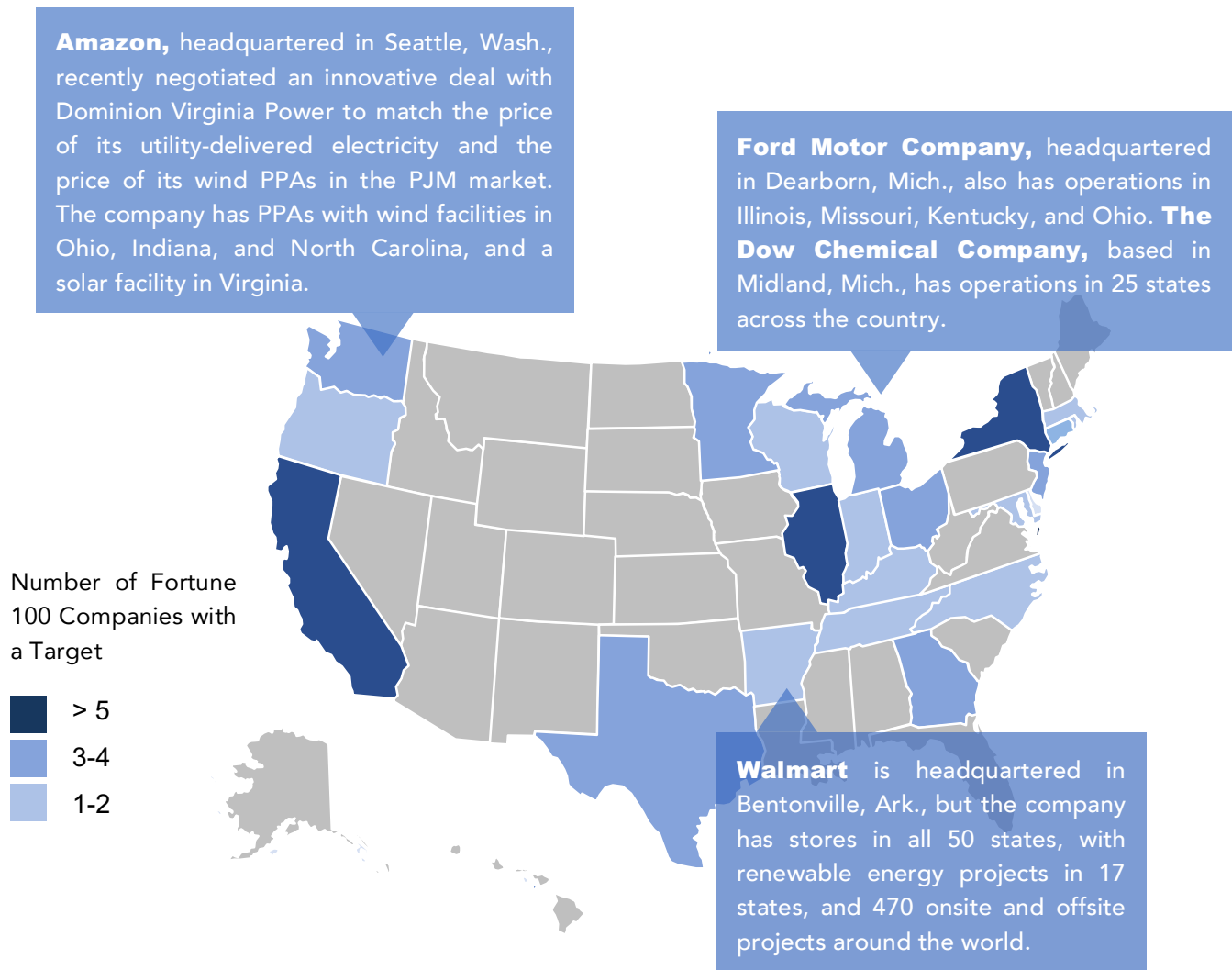
1. Walmart (#1)
2. Apple (#3)
3. General Motors (#8)
4. Amazon (#18)
5. HP (#20)
6. Microsoft (#25)
7. Bank of America (#26)
8. Wells Fargo (#27)
9. Procter & Gamble (#34)
10. Alphabet (#36)
11. Johnson & Johnson (#39)
12. Goldman Sachs Group (#74)
13. Nike (#91)
14. AbbVie (#123)
15. Starbucks (#146)
16. Facebook (#157)
17. VF (#231)
18. Voya Financial (#252)
19. Biogen (#263)
20. Avon Products (#370)
21. Salesforce (#386)
22. Coca-Cola European Partners (#397)

As with the initial trend of top companies leading the push to purchase advanced energy, these 22 companies are concentrated at the top of the Fortune 500: 11 are in the Fortune 50 and only six fall below the Fortune 200. Overwhelmingly, these companies are heading into a 100% renewable energy commitment having already completed a renewable energy purchase of one form or another—but that does not mean that reaching 100% will be easy.

For companies with operations in states that do not have a clear pathway to purchase advanced energy, achieving these commitments takes significant effort and creativity. In some cases, this groundwork is being used to develop a clear path for other companies to follow suit. In contrast, in states that allow multiple pathways to purchase advanced energy onsite and offsite, following through on renewable energy commitments simply requires that a company do the due diligence to select a pathway and execute a deal. While this work can itself be significant, it is much easier without the added complexity of regulatory and market barriers.

COMPANIES ARE SEEKING ADVANCED ENERGY ACROSS THE MAP

Companies headquartered across the country are setting renewable energy and/or sustainability targets—and they often want to site projects close to their operations, which are even more spread out.

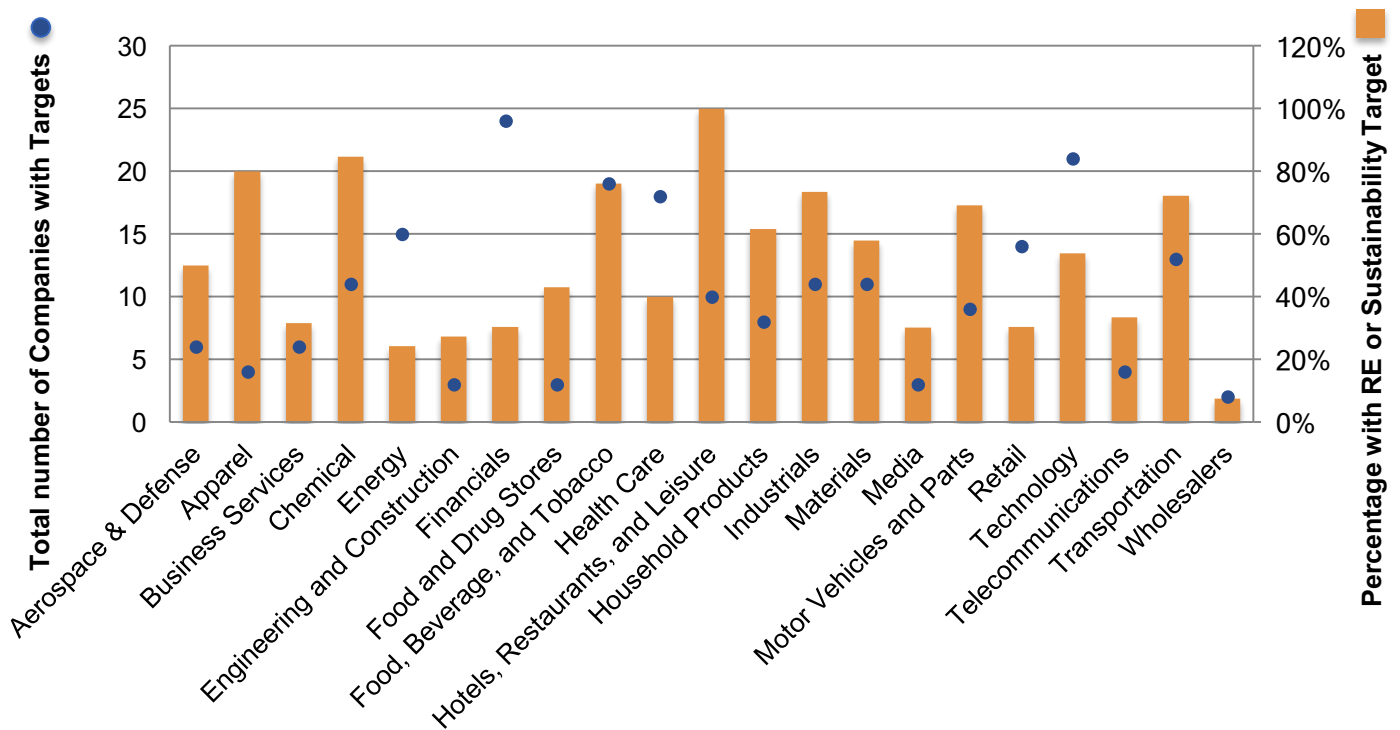


As companies with operations generally spanning many states, the Fortune 100 and Fortune 500 are faced with a patchwork of different choices when sourcing advanced energy. In some states, these companies can pursue either onsite or offsite projects with relative ease, while in other states such options are either very difficult to negotiate or off the table entirely. Leading companies have thus far made a lot of progress toward their goals by pursuing projects in states without regulatory or market barriers, and by negotiating one-off deals in states that do have

barriers. Smaller companies—those lower down on the Fortune 500 list, or off the Fortune 500 list—are often financially and logistically unable to navigate these market and regulatory barriers. Large and small companies alike would reach (or, in some cases, maintain) their goals much more readily and cost-effectively if their options to do so extended across the entire footprint of their operations—that is to say, collectively, all 50 states.

TARGETS SPAN ALL SECTORS

Hospitality, chemical, and apparel lead with 100%, 85%, and 80% of companies setting targets, respectively.



Looking at the commitments across the Fortune 500 by sector, it is clear that setting renewable energy and sustainability targets is not a sector-specific trend, but rather an economy-wide norm.

Of course, there are outliers on both sides. Leading sectors in 2016 are hotels, restaurants, and leisure (10 of 10 companies); chemical (11 of 13 companies); apparel (4 of 5 companies); food, beverage, and tobacco (19 of 25 companies); industrials (11 of 15 companies); transportation (13 of 18 companies); and motor vehicles and parts (9 of 13 companies). Sectors lagging behind are wholesalers (2 of 27 companies); energy (15 of 62 companies); and engineering and construction (3 of 11 companies). This sector-by-sector clustering of leading and lagging companies may reflect a certain degree of peer leadership, with target-setting becoming a norm more rapidly in certain sectors than others.

Interestingly, with only four exceptions, the top-ranked Fortune 500 company within each sector did have a target—and there were only two sectors in which there were no companies in the top three that had set a renewable energy and/or sustainability target (wholesalers and business services).

If companies are following their peers, we can expect to see the portion of companies that have set renewable energy and/or sustainability targets to continue to rise above the current 71% and 43% for the Fortune 100 and Fortune 500, respectively. As these figures rise, so too will the urgency to develop clear and replicable pathways for companies to follow through on these commitments across all 50 states.

A note on methodology: The tallies of company commitments are based on publicly available information, gathered in August, 2016. Companies with recently achieved targets were included. Only companies with numeric targets were included in the targets, i.e., companies with aspirational goals to “rely more on renewable energy” were not counted as having a target. Company examples are based on press releases and other publically available information. The Fortune 500 list, sector breakdown, and headquarter locations all came from Fortune.com.