

Corporate Clean Energy Procurement State of the Market

Perspectives and Best Practices
from the U.S. Market Leader





EXECUTIVE SUMMARY

PARTNERING TO HELP CORPORATIONS ACHIEVE ESG COMMITMENTS

2019 proved a landmark year for renewable energy procurement by a class of nontraditional power buyers: corporations.

According to Bloomberg New Energy Finance's [1H 2020 Corporate Energy Market Outlook](#), companies bought a record-shattering amount of clean energy through power purchase agreements last year, up more than 40% from 2018's record. Put in context, 2019's total—19.5 GW—was equivalent to more than 60% of all the renewable energy capacity added across the United States the entire year.

So why and how are these companies making the transition to clean energy? The *why* is increasingly clear. ESG commitments, paired with the compelling financial returns of renewable energy purchases, are driving procurement decisions in new ways. Buyers increasingly seek renewables as cost-competitive sources of new power generation that offer a hedge against price volatility seen in traditional energy options.

But for many power buyers, the *how* remains elusive. This white paper offers buyers a detailed look at the various renewable energy solutions available to fit diverse needs and priorities: power purchase agreements (PPAs; traditional and virtual), project investment, green tariffs, retail electric service, and environmental attributes.

In a remarkable year for renewable energy procurement, global energy research firm Wood Mackenzie named Apex Clean Energy the top corporate renewable energy provider of 2019 and, overall, the top wind power provider for commercial and industrial (C&I) customers to date (Figures 1 and 2).

Apex's track record began in 2014—at the onset of the corporate renewable energy market in the United States—with IKEA's first U.S. wind farm investment. Since then, Apex, as a 100% clean energy company, has worked with all types of power buyers and service providers to offer the breadth of renewable products and is therefore uniquely qualified to share best practices for buyers seeking to purchase on their terms and harness their internal expertise to achieve broad ESG goals. This report will help identify procurement strategies and resources that new and experienced energy buyers alike can use to help scale new projects and reach beyond their current energy solutions.

FIGURE 1. APEX LEADS THE MARKET IN CORPORATE TRANSACTIONS

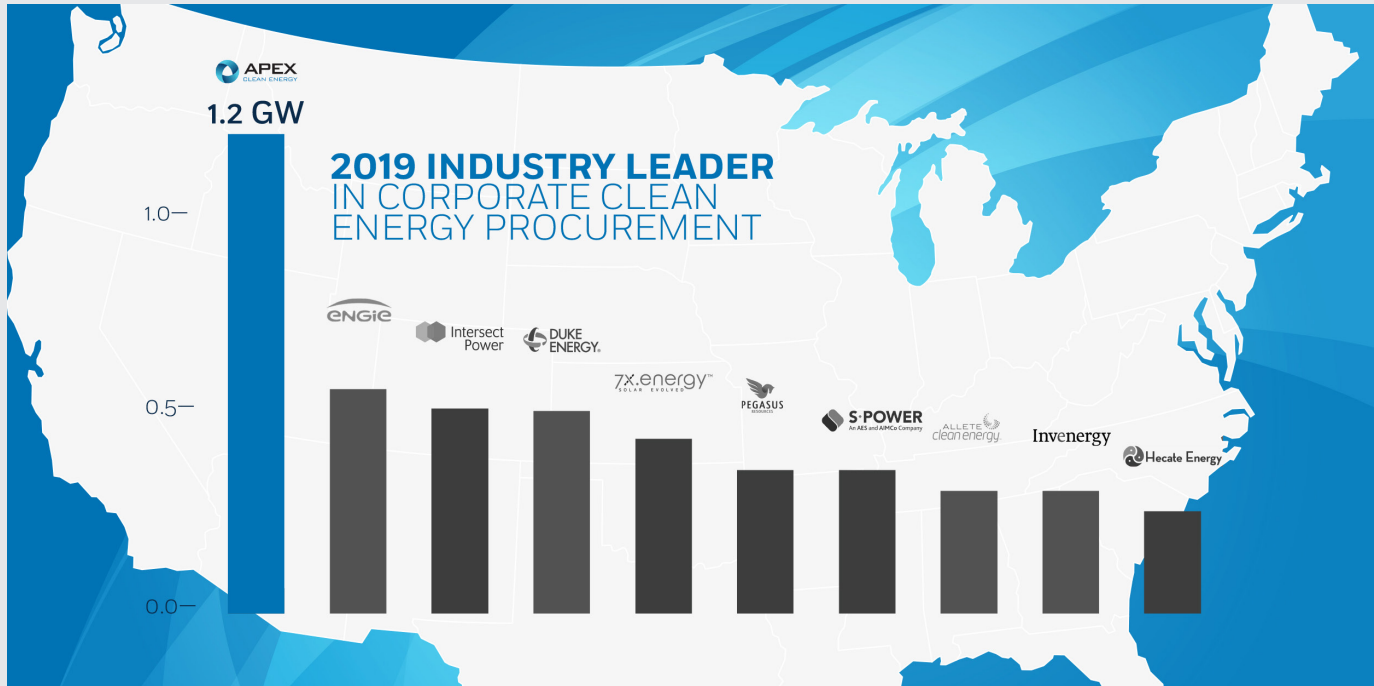
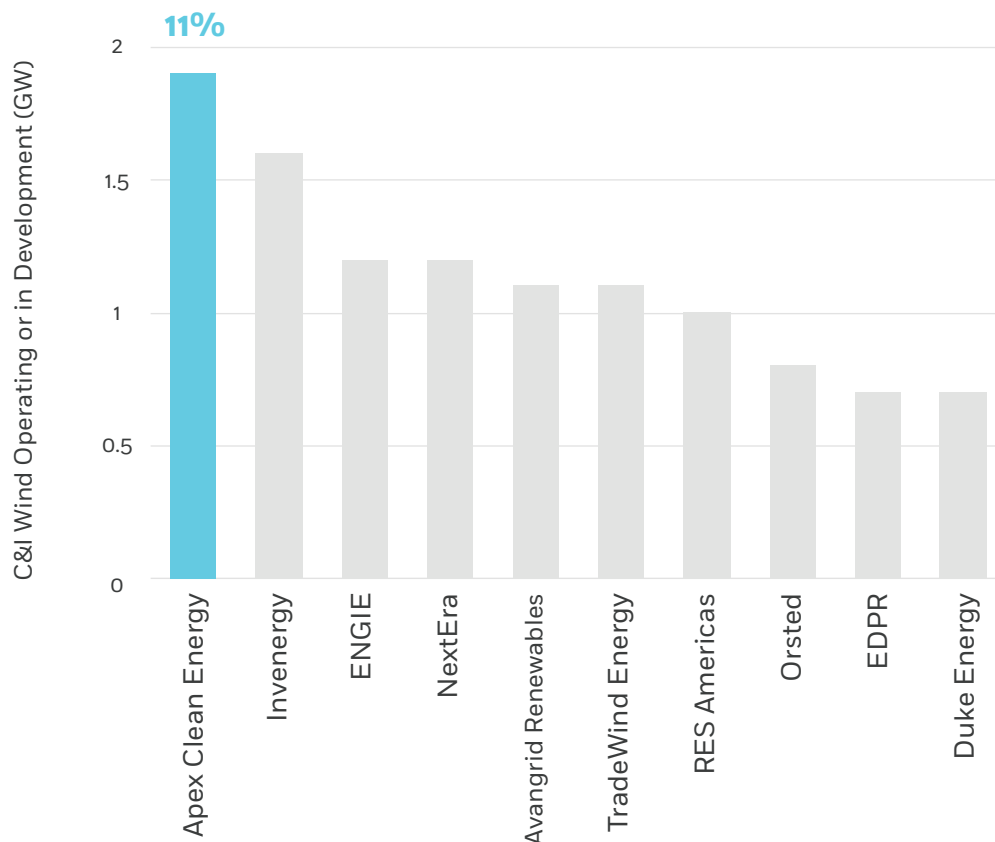


FIGURE 2. TOP WIND POWER PROVIDERS FOR C&I CUSTOMERS



Data source: Wood Mackenzie, "U.S. Corporate Procurement of Wind and Solar 2020"

“Corporations have purchased over 50GW of clean energy since 2008. That is bigger than the power generation fleets of markets like Vietnam and Poland. These buyers are reshaping power markets and the business models of energy companies around the world.

Jonas Rooze, Lead Sustainability Analyst, [Bloomberg New Energy Finance](#)”

Key Takeaways



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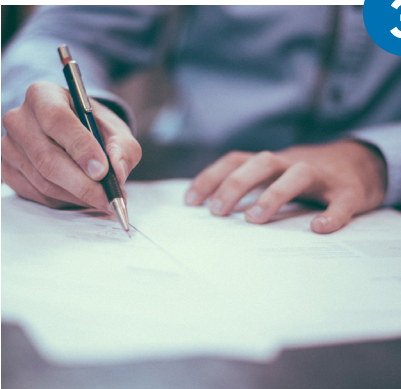
The growing market includes buyers of all types and sizes.

More than just PPAs:
The market offers
solutions of all sorts.

2



3



The path forward:
Which solution works
for your company?



PART 1 BUYERS OF ALL TYPES AND SIZES

For every company, no matter its size, energy makes growth possible. More and more, companies are looking to clean energy procurement as a strategic business decision to support their advancement and bottom line.

Renewable energy resources such as wind and solar power are no longer just ways to meet sustainability goals. Nontraditional energy buyers—large and small corporations, states, municipalities, etc.—increasingly seek renewables as cost-competitive sources of new power generation that offer a hedge against price volatility from traditional energy sources.

By working with dozens of top corporations and entities—including [McDonald's](#), the [Commonwealth of Virginia](#), the [U.S. Department of Defense](#),

and many more—Apex has learned firsthand what it takes to develop a successful energy partnership (Figure 3). Each organization, whether a new or experienced purchaser, has different needs, and the scope of those requirements can be as diverse as the products and services the company delivers. Leading priorities range from energy security to carbon risk management, energy price hedging, environmental stewardship, and local impact.

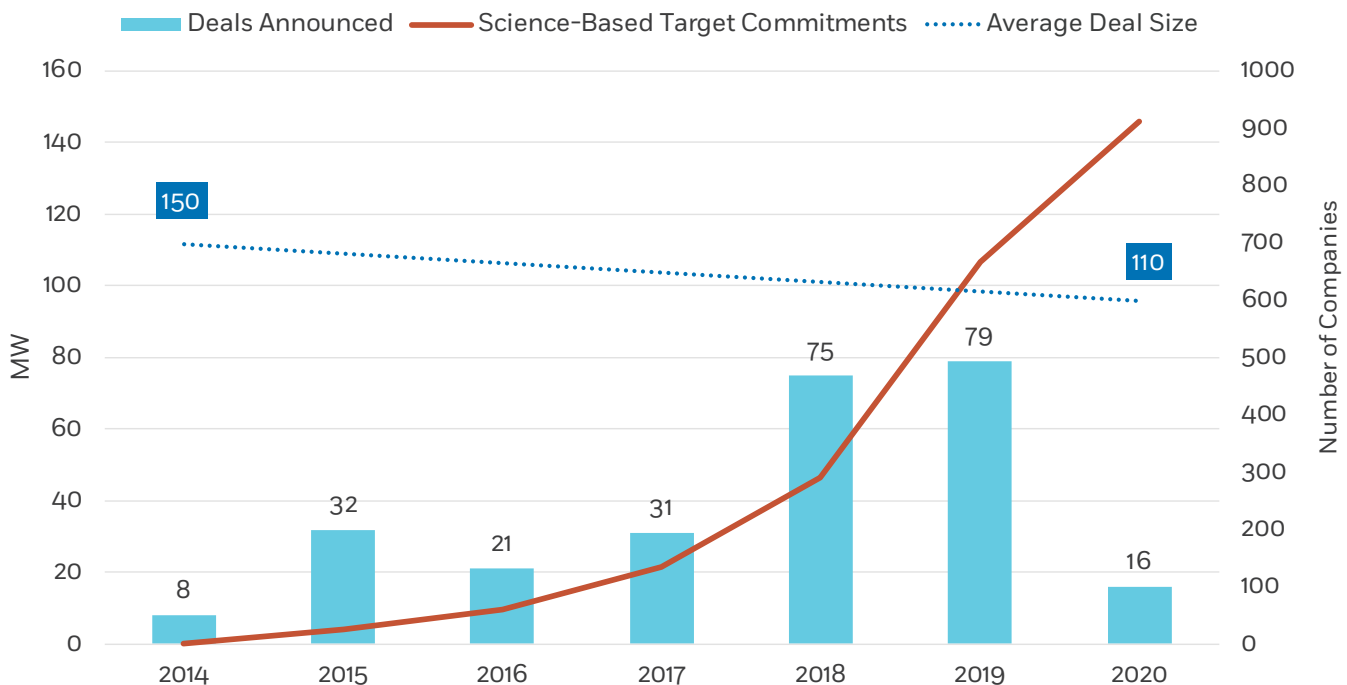
In the same way that no two corporations are the same, every wind or solar farm is different, and every renewable transaction can be tailored to meet varying priorities. The next generation of deals requires creativity, flexibility, and ingenuity to invent new ways of doing business—already, this is evident.

FIGURE 3. BREAKDOWN OF APEX'S 2019 DEALS, BY SECTOR



More pathways to buy and finance clean energy exist than ever before, expanding the marketplace to new buyers and allowing them to purchase on their terms and meet their priorities. Today's opportunity is in accelerating the rate at which corporations that have smaller electricity demands—but the same large goals for future growth and purpose—procure renewable energy. Already, this is happening with innovative transaction structures, including [PPA aggregation](#) (see Figure 4).

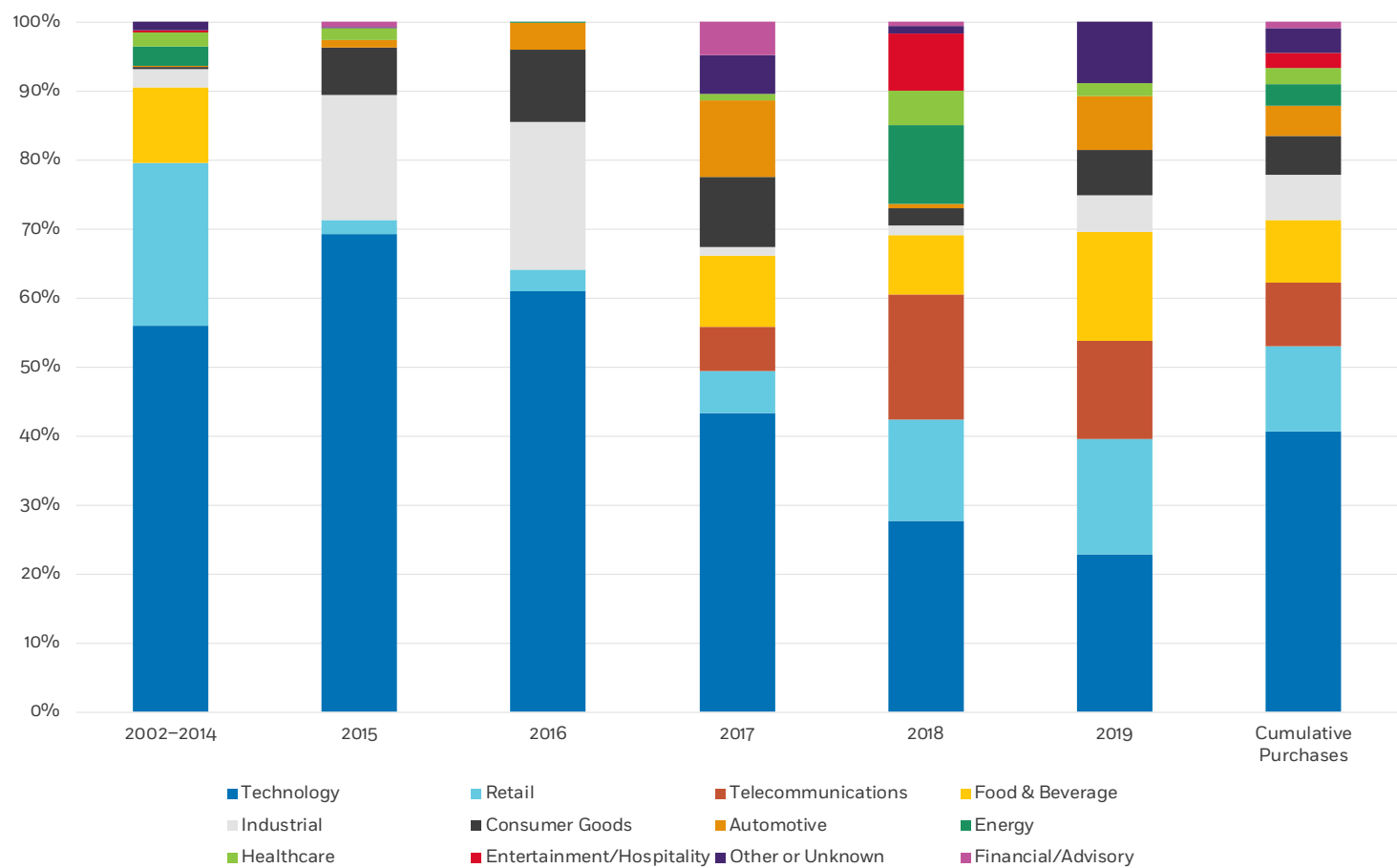
FIGURE 4. CORPORATE CUSTOMER MARKET TRENDS, 2014–2020 YTD



Data sources: [Renewable Energy Buyers Alliance](#), [ScienceBasedTargets.org](#)

These clear benefits mean that not only is the number of clean power transactions rising year after year, but the number and diversity of buyers is expanding. Between 2002 and 2014, technology and retail companies accounted for nearly 80% of corporate wind purchases. Today, they account for 53%—with telecommunications, food and beverage, automotive, and industrial among other sectors now representing significant offtake amounts, according to the American Wind Energy Association (AWEA) report [“Wind Powers American Business 2020” \(PDF\)](#) (see Figure 5).

FIGURE 5. CORPORATE WIND ENERGY PURCHASES OVER TIME, BY SECTOR



Data source: AWEA, “Wind Powers American Business 2020”

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While corporate wind purchases have grown significantly in recent years, it is still a relatively new market that only a fraction of US companies have entered and represents a large opportunity for future growth.

[American Wind Energy Association](#)

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PART 2 SOLUTIONS BEYOND THE PPA

As the market for corporate procurement has matured and expanded, so too have the solutions that companies seek. This section provides an overview of the four primary pathways that allow corporate customers access to large-scale clean energy projects: project ownership, power purchase agreements, environmental attributes, and green tariffs or retail electric services.

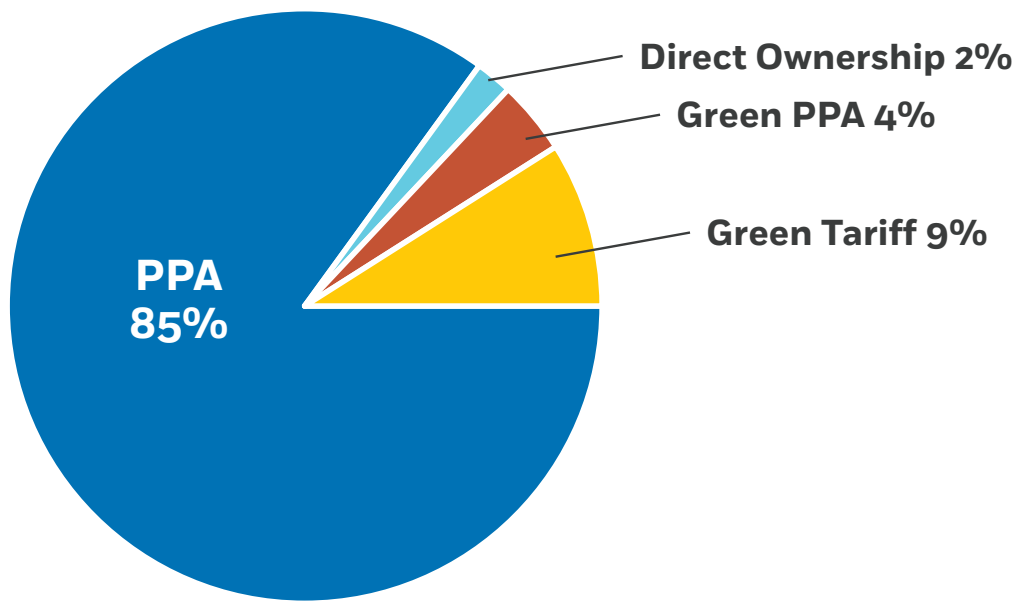
Solution 1: Project Investment

For corporations with the appetite, project ownership provides many of the benefits of a clean energy investment with the added incentive of a return on investment. IKEA, an early market lead-

er in the United States, owns wind farms across North America. Apex operates four facilities on behalf of IKEA, two of which were [purchased from Apex](#). These facilities generate renewable energy equivalent to more than three times IKEA's U.S. energy demand.

Increasingly, experienced renewable energy purchasers have been participating in the tax equity market—an indication of buyers' growing sophistication as they navigate procurement. In 2017, [Starbucks](#) provided tax equity for a solar farm in North Carolina, and in 2019, [Facebook](#) for the first time invested directly in a clean energy project via tax equity.

FIGURE 6. CUMULATIVE WIND ENERGY PURCHASES BY AGREEMENT TYPE



Data source: AWEA, “Wind Powers American Business 2020”

Solution 2: Power Purchase Agreement

Power purchase agreements (PPAs) remain the solution of choice for many buyers seeking to purchase at scale. Major players like [Walmart](#), [Facebook](#), and [Google](#)—to name just a few—continue to pursue PPAs as a means of meeting 100% renewable energy goals—corporate targets that demand purchasing at scale.

Since 2014, PPAs—and in particular virtual power purchase agreements (VPPAs)—have become the primary purchasing mechanism, representing 85% of all corporate wind transactions to date, according to AWEA’s [“Wind Powers American Business 2020” \(PDF\)](#) (see Figure 6).

VPPAs allow buyers to maintain the existing arrangement with their utility while hedging their exposure by contracting directly with projects. This structure also enables companies to claim additionality with the construction of new renewable energy facilities that stimulate job creation and [economic development](#) in rural communities.

When corporations invest in wind or solar energy, their actions create a ripple effect of positive change.

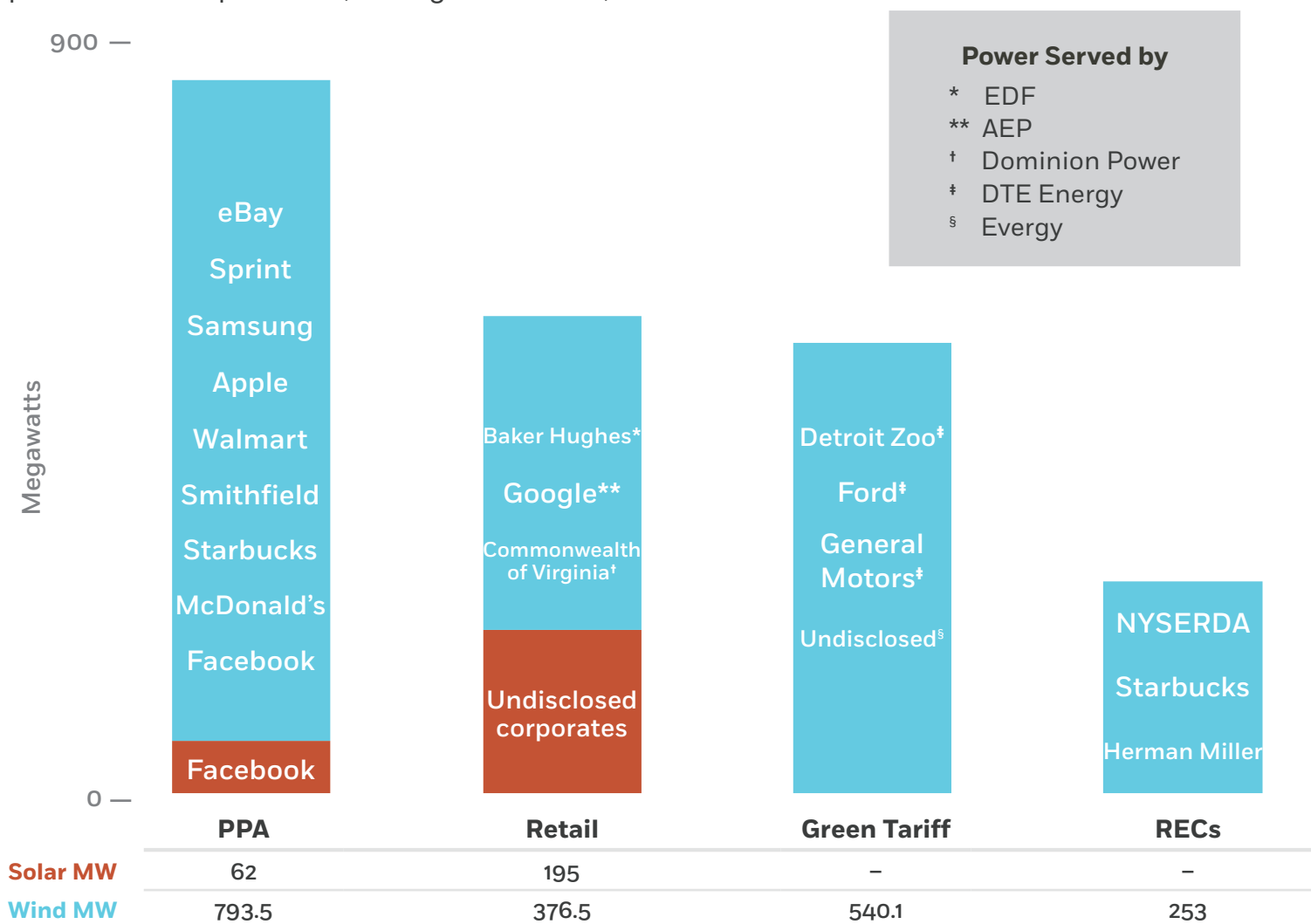
Nowhere is this ripple effect clearer than at Aviator Wind—the largest single-phase, single-site wind farm in the United States—from which Facebook and McDonald’s are purchasing clean energy.

Watch the video here:



FIGURE 7. FLEXIBLE TRANSACTIONS TO SERVE ANY CUSTOMER

In 2019, Apex contracted over 2 GW—the most in the industry—of diverse wind and solar products for corporations, state governments, and utilities.



Solution 3: Renewable Energy Credits/Environmental Attributes

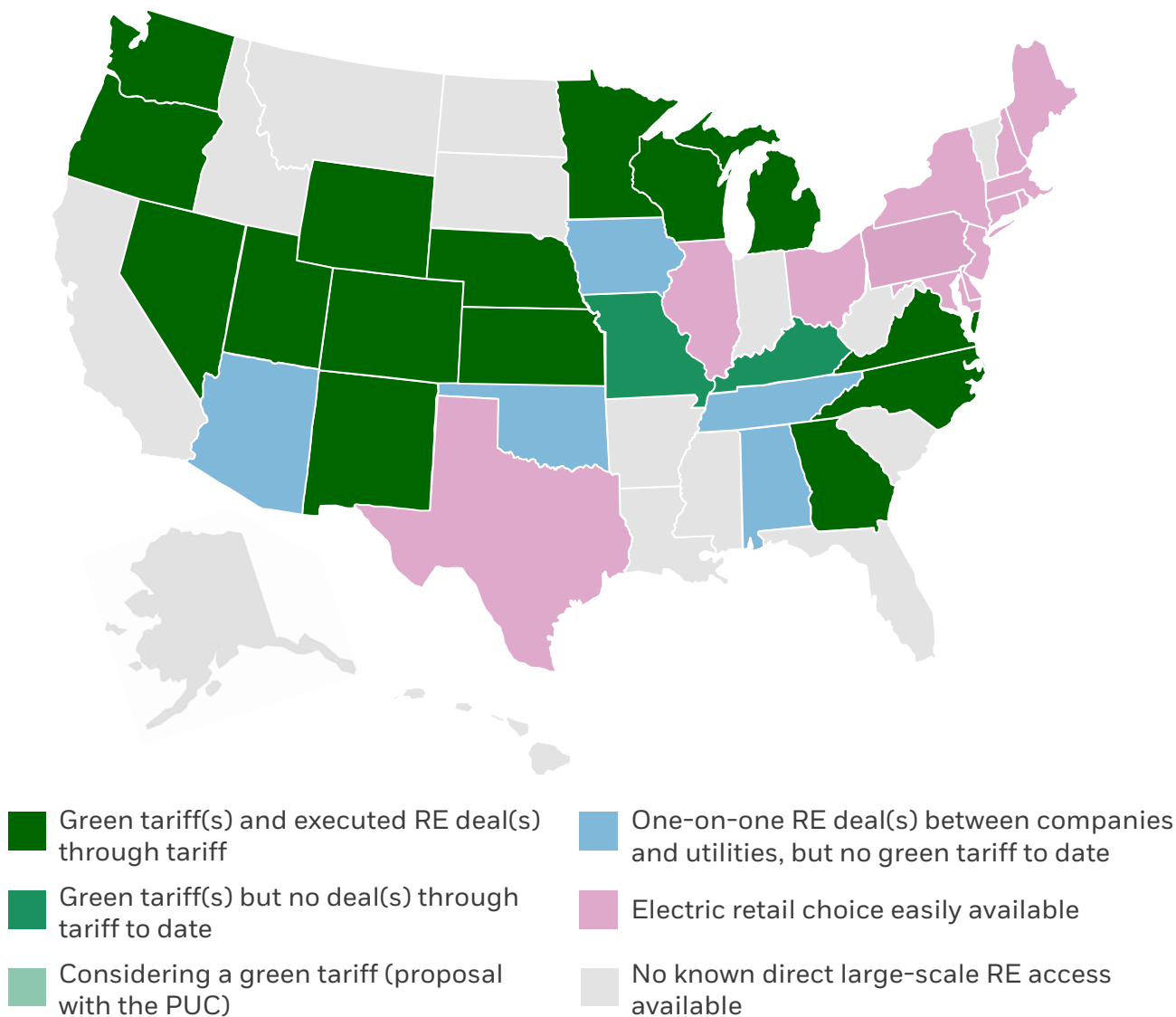
In years past, many corporate customers dipped their toes in the water with short-term purchasing of renewable energy credits (RECs). Even for experienced buyers, RECs remain a key part of the strategy for meeting annual sustainability targets. For instance, to bridge the gap until [Starbucks's PPA](#) with the Apex-developed Diamond Spring Wind facility begins in 2021, the retail company is purchasing over 1.5 million RECs from Old Settler Wind, owned by Apex and Northleaf Capital Partners.

Long-term REC purchases are a key procurement method for government entities such as the [New York State Energy Research and Development Authority](#) (NYSERDA) and the [Illinois Power Agency](#) (IPA). Corporate buyers solely seeking RECs can demonstrate support for projects most effectively through long-term REC purchases from new-build projects.

Solution 4: Green Tariffs and Retail Electric Services

As utilities have scaled up efforts to engage customers and respond to increasing demand from corporate customers, green tariffs and retail electric solutions have emerged as growing solutions in regulated and deregulated markets respectively. In Michigan, a regulated energy market, green tariffs have enabled a number of non-traditional buyers to purchase renewable power. Through DTE Energy’s MIGreenPower program, Isabella Wind will provide clean power to meet the renewable energy needs of large commercial and industrial customers including [Ford](#), [General Motors](#), [the University of Michigan](#), and [the Detroit Zoo](#). In Texas, on the other hand, where customers can shop openly for solutions amid the deregulated market, [Baker Hughes](#) transacted with EDF Energy Services for power from Apex’s White Mesa Wind—part of an agreement to purchase 100% of its Texas electricity from renewable sources.

FIGURE 8. U.S. RENEWABLE ENERGY OPTIONS BY STATE



Data source: [Renewable Energy Buyers Alliance](#) (accessed June 2020)



PART 3 THE PATH FORWARD

The economic benefits of clean energy are one of the key drivers for corporations exploring renewable procurement. For potential renewable purchasers seeking to define their own value proposition and seek the best fit in the market, Figure 9 provides a comparison of renewable energy products, their economic benefits, and their requirements.

For many corporations, the timing of their purchase is also key. Purchasing from a project before construction oftentimes brings more value than a purchase after a facility is already operating. Buyers who financially support new or expanding renewable generation sources see more direct impact and can claim additionality for adding new generation to the grid and creating verifiable emissions avoidance (see Figure 10).

FIGURE 9. WHICH SOLUTION BEST FITS YOUR COMPANY'S NEEDS?

	Upfront Capital	Energy Hedge	Return on Investment	Tax Benefits	Energy Cost Savings
Project Investment					
Retail Electric Services					
Power Purchase Agreement					
Environmental Attributes					

FIGURE 10. ADDITIONAL INDIRECT BENEFITS OF WIND AND SOLAR PROCUREMENT

Using a 300 MW wind and a 200 MW solar project in Texas as examples:

	WATER WITHDRAWALS AVOIDED	FOSSIL FUEL EMISSIONS AVOIDED	CONSTRUCTION AND LONG-TERM JOBS CREATED	LOCAL REVENUE CREATED	HOMES POWERED
					
300 MW Wind	16 billion gallons	565,000 tons of CO ₂ 1.3 million pounds of NO _x and SO ₂ combined	150 during construction 8–12 during operations	\$70 million in landowner payments \$70 million in local tax payments	112,000
200 MW Solar	6 billion gallons	230,000 tons of CO ₂ 536,000 pounds of NO _x and SO ₂ combined	150 during construction 4–6 during operations	\$30 million in landowner payments \$33 million in local tax payments	49,000

Data sources: [EPA AVERT](#) (emissions); Union of Concerned Scientists (2012), [UCS EW3 Energy-Water Database V.1.3](#) (water withdrawals); Apex internal calculations



CONCLUSION THE CHOICE IS YOURS

To reach the fast-evolving corporate market's full potential, Apex is creating a path for renewable energy purchasers of all sizes and types.

Benefiting from one of the industry's deepest and most diverse pipelines of utility-scale wind and solar projects under development—and the ability to negotiate highly customized renewable power purchase agreements to meet the precise needs of corporate offtakers—Apex takes a partnership approach to enable companies to benefit from low-cost clean energy that provides resiliency and redundancy to ensure reliable power for their operations.

Apex Clean Energy delivers peak confidence and peak performance to our partners. As we look at the years ahead, we see the busiest cycle we've ever imagined, in no small part driven by a corporate market ready to help accelerate the shift to a clean energy future.

Learn more about how these renewable energy solutions can be tailored to fit your power needs. Contact **Vice President of Business Development Erik Haug** at erik.haug@apexcleanenergy.com or (540) 449-4666 to design your solution.

About Apex Clean Energy

Apex Clean Energy develops, constructs, and operates large-scale wind and solar power facilities across North America. Our mission-driven team of more than 200 renewable energy experts uses a data-focused approach and an unrivaled portfolio of projects to create solutions for the world's most innovative and forward-thinking customers. For more information on how Apex is leading the transition to a clean energy future, visit apexcleanenergy.com.

