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SERVING RENEWABLE ENERGY'S FULL SPECTRUM

A WGL ENERGY WHITE PAPER

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INTRODUCTION

Today, a growing number of organizations and businesses choose off-site renewable energy, or corporate renewable energy procurement, to diversify their energy portfolios, achieve sustainability and meet budgetary goals. Across the spectrum of off-site renewable energy options, small and large solutions exist, but the mid-level options have been scarce.

At one end of the spectrum, many U.S. states and local utilities offer community solar and virtual net metering programs for small commercial customers that qualify for these often-nuanced programs. At the other end of the spectrum lies the RE100, a collaborative, global initiative uniting more than 100 influential businesses committed to 100% renewable electricity, (<http://there100.org/re100>), with large corporate members, such as Facebook, Google and Amazon, that can source energy directly from solar farms. These are complicated transactions and companies that do not have full-time energy and sustainability staffs that the Facebooks of the world employ are unable to take advantage of these structures.

So there remains a wide range of offtakers whose mid-scale energy needs haven't been fully addressed by traditional service models during the surge of off-site renewable purchasing. The American Council on Renewable Energy (ACORE), The Solar Energy Industries Association (SEIA) and Bloomberg New Energy Finance have hosted events focused on this sector and its growth prospects. Meanwhile, groups representing broader elements of society have become increasingly important advocates for greater adoption of renewable energy, including the Rocky Mountain Institute's Business Renewables Center (BRC), Ceres, and the World Resources Institute. All of these organizations produce valuable content, and their involvement gives further validation that this is an exciting and growing sector within the energy industry.

For renewable energy procurement, this trend requires new approaches and experienced partners who can deliver innovative solutions. WGL Energy embraces this development and, as described in this paper, is working with recognizable mid-level brands in delivering its off-site solution to the marketplace.

CORPORATE RENEWABLE ENERGY TAKES SHAPE

The emergence of the corporate renewables movement—and it is truly a movement—has been covered in *The Economist*,¹ *Moody's*,² and *The Wall Street Journal*.³ As reported in *Moody's*, “Companies across different industries are turning their attention toward renewable energy as a means to meet their sustainability goals.” That sets the trend for corporate renewables within the wider

CORPORATE INVOLVEMENT IN RENEWABLE ENERGY IN THE U.S.

SOURCE: RMI.ORG



ESG (Environmental, Social and Governance) movement that is attracting both companies and investors, globally. In addition, as the costs of renewable energy continue to fall, it is often simply good for the bottom line.

The recent decision by the U.S. government to withdraw from the Paris Climate Agreement seems to be having little impact on corporate renewables. Instead of impeding development, it led many organizations to join a pledge that “in the absence of leadership from Washington, states, cities, colleges and universities, businesses and investors, representing a sizeable percentage of the U.S. economy will pursue ambitious climate goals, working together to take forceful action and to ensure that the U.S. remains a global leader in reducing emissions.”⁴

Despite the administration’s decision on the Paris Agreement, incentives for renewable energy have not changed. Federal tax credits for wind and solar energy were already scheduled to phase out by 2020 for wind power and 2022 for solar power. However, state mandates and incentives remain unaffected, and the underlying economics of renewable energy continue to improve. In its latest quarterly market update, SEIA reported that 59% of solar photovoltaic (PV) procurement by utilities in the first half of 2017 was “voluntary,” prompted by economics rather than by policy or regulations.⁵

As seen in the graphic at left, the growth of corporate renewable energy is being led by some of the world’s most recognizable brands, including a rising number that, in conjunction with their sustainability goals, have committed to switch to 100% renewable energy by a specified date. That applies to 22 companies in the Fortune 500, including Walmart and GM, while nearly half of the remaining companies on the list have other renewable energy or carbon reduction goals.⁶

According to the BRC, there are now over 7,000 megawatts (MW) of corporate renewables under contract and based on publicly available corporate goals another 16,000 MW of renewable energy capacity will be needed by 2020 to meet these goals.⁷

FILLING THE “GREEN-ENERGY GAP”

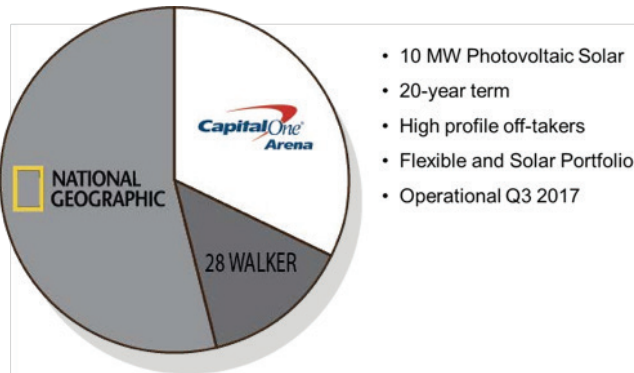
While the momentum this demonstrates is impressive, the majority of the players in this market and the associated coverage of it are missing something. Announcements and deals by companies the size of Facebook and Google attract much attention, as do innovations at the other end of the size spectrum like community solar or “virtual net metering.” In the process, though, a key segment in the middle of the market tends to be overlooked. The Wall Street Journal⁸ has referred to it as “the green-energy gap.”

The majority of businesses and organizations that purchase electricity fall into this gap. So do many of WGL Energy’s existing customers for gas and electricity. WGL Energy has a track record of creating attractive renewable energy solutions for this portion of the market, including our recent Baker Point project. A single off-site solar installation serves electricity matched with national solar renewable energy credits (SRECs) to Washington, D.C.’s Capital One Arena (formerly the Verizon Center), National Geographic’s headquarters, and a Baltimore real estate company.

Three other developments are shaping the evolution of corporate renewables, particularly in the middle market (based on the scale of customer energy usage). The first is the steadily growing attractiveness of solar photovoltaic energy (PV) compared to more established forms of renewable energy such as wind power. Initially, the capacity associated with corporate renewable energy projects was predominantly from wind projects, but since 2014 PV has been taking increased market share as a result of improved economics.

The second major shift worth noting is the growth of off-site solar power, starting at the lower end of the scale with small businesses and the residential market, as well as customers’ interest in the additionality of supporting the development of new solar projects. On-site renewable energy can be very valuable. However, it also faces many hurdles, including but not limited to utility or state policies, roof availability, lease restrictions, and solar shading that reduces output. Meeting a

WGL ENERGY OFFSITE SOLAR AT BAKER POINT



firm's electricity needs onsite may also require covering more surface area than is available or convenient.

Investing in on-site power also often competes with other business priorities or long-term site plans. As the Wall Street Journal noted, "Such companies can get better returns from investing their money in their stores and factories."⁹

After reviewing and/or implementing on-site generation, the next step is to consider programs that function like on-site generation. This includes community solar and virtual net metering or aggregate net energy metering programs. These programs are intended to treat off-site renewable energy from shared or third-party installations in the same way it would be handled if generated on site at the customer's facility. They are valuable but tend to be very nuanced and are only available in certain markets.

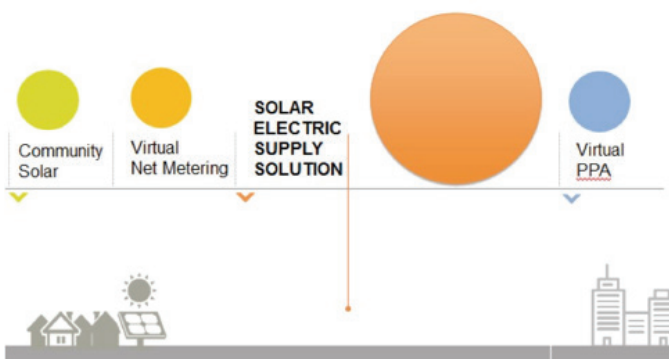
For example, although community solar is available in multiple states, there are only a few markets where it is significant, such as Colorado, Minnesota, New York, Massachusetts, and soon Maryland. The community solar market as a whole is expected to total around 400 MW in 2017,¹⁰ increasing to about 500 MW in the subsequent years. That is still only a fraction of the 16,000 MW of demand from the corporate sector that is expected by 2020.


Much of the Fortune 500 has teams of experts focused on their large energy expenses, enabling them to purchase the entire output of large off-site projects and manage the associated complexities. Meanwhile, smaller energy users in certain renewable energy-friendly markets can tap into programs designed for their limited needs. Where does that leave everyone else? WGL Energy is addressing that challenge with our solar electric supply solutions for customers that fall into the green-energy gap.

Developing solutions for mid-sized customers begins with an understanding of how organizations purchase electricity. Retail energy markets fall into two main categories, regulated or deregulated. While only 17 states plus the District of Columbia

ANSWERS FOR THE MIDDLE MARKET

RANGE OF OFFSITE RENEWABLE STRUCTURES





are at least partially deregulated, these tend to be in heavily populated areas with more than half of the U.S. population residing in deregulated markets.

Organizations located in regulated markets have fewer options available to purchase renewable energy than those in deregulated markets, although these options have increased recently. According to the World Resources Institute, there are 13 green tariffs spread across 10 states for organizations in regulated markets.¹¹ These tariffs often come with a minimum load or term requirement and at times are at a premium compared to “brown power.”

Organizations in regulated markets that do not have a green tariff available or cannot qualify for one have fewer options. They may utilize what is commonly known as a virtual power-purchase agreement (PPA), which combines fixed-price power from a specified out-of-state asset with a mechanism that gives the customer a final price that adjusts with the local market. This is also sometimes called a swap or contract for differences. Many virtual PPAs have been executed to date, but these deals come with high complexity, no local or regional benefits, and can be challenging to justify economically.

A more extreme alternative is for customers to leave their utility. Until recently, paying an exorbitant fee to leave the electric utility would have sounded risky if not impossible. Today it is becoming almost commonplace for large users in Nevada, where Caesars Entertainment, MGM and Switch have all paid in the hundreds of millions of dollars to exit the utility.¹² Like the Virtual PPA, this option entails much complexity and requires an enormous energy load and sophisticated analysis.

Those organizations fortunate enough to operate in deregulated markets have more options. They can take part in virtual PPAs much like their counterparts in regulated markets, and they can also work with their retail energy supplier to incorporate renewable energy into their supply mix. This allows for more flexibility in terms of location, structure, project size and term length.

This is still not always simple, as pointed out in the aforementioned article from The Wall Street Journal: “Smaller companies—not just mom-and-pop operations, but multibillion-dollar brands as well—are finding it isn’t so easy to tap into solar or wind power. It can require armies of lawyers, accountants and clean-energy experts to hammer out contracts with power producers and navigate a thicket of regulations that vary widely from state to state.”

The article goes on to point out that one solution is to aggregate several smaller users in an effort to reap the economies of scale realized by the large users.



Two notable examples of this are the MIT Solar project¹³ and the GWU/American University¹⁴ solar projects. Such aggregation deals still require PPAs, which are complex documents that warrant extensive finance, risk, accounting and legal review. The aggregation agreements themselves also require significant time to complete, and they come with high legal, accounting and consulting fees. Customers choosing this path must also still procure the “residual” supply necessary when the variable output of the asset does not meet their needs.

At WGL Energy, we believe that retail energy suppliers are in the best position to offer a seamless, economical solution. We routinely serve as aggregators, understand energy markets deeply, and have direct experience in owning and operating renewable energy assets. Customers shouldn’t have to go to the market and enlist peers to join them in purchasing renewable energy in the hope that they will have the same view of the market, the same term and risk appetite, and similar contract timing needs.

Retail suppliers like WGL Energy are ideally positioned to purchase the power from a renewable energy asset and then distribute that power to customers in a manner that is familiar to them. Retail suppliers can absorb the risks from policy and regulations, utility interconnection, and development—all in the context of a customer’s relationship with its regular energy supplier.

If structured properly, renewable energy can be integrated into a customer’s current supply arrangement using a contract vehicle similar to the one they are accustomed to using. Customers in deregulated markets have already approved retail supply contracts and can use them to access the economic and sustainability benefits available from renewable energy.

The associated details of term length and retail contract timing are far easier to address than introducing a client to an entirely new contract vehicle, hiring consultants and tracking down fellow energy users to team up for an energy project at larger scale.

A third and final trend can be seen in how organizations are looking to extend their renewable energy commitments to a more systemic, sustainable approach – tying the purchase of “green electrons” to capacity building for the clean energy economy at the community level. The most advanced organizations are truly leading the way to a clean energy future by pairing their off-site renewable energy investment with the deployment of programs that bring added social benefit to the communities they serve.



WGL Energy has partnered with the nonprofit program CE: Clean Energy. Bright Futures to take our innovative solar solutions one step further. CE delivers customized teacher trainings and leadership institutes and provides innovative science materials to augment STEM and Career Technical Education (CTE) programs, build practical skills in students and bring renewable energy topics to life in the classroom. As illustration, aggregated customers on a newly developed 25 MW solar project will contribute to the support of a regional CE program impacting over 50,000 K-12 students.

Whether an organization operates within a state or states with regulated or deregulated electricity markets, WGL Energy can help to incorporate renewable energy procurement into a company's energy and sustainability strategy, in ways that reduce costs, hedge against volatility, and reduce greenhouse gas emissions, and even help ensure the next generation is creative and prepared with the skills to lead the new clean energy economy.

This is a fast-moving space. Later this year, WGL Energy expects to announce additional projects like Baker Point and the earlier Kingsville, Maryland project for MOM's Organic Market.¹⁵ Please watch for further developments.

ABOUT THE AUTHOR

Rich leads business development activities at WGL Energy (NYSE: WGL) related to renewable energy. These responsibilities include acquisitions of assets, structuring and origination of renewable energy supply and new market analysis.

To date, WGL Energy's portfolio includes distributed generation projects in 23 states totaling close to 300 MW and over \$700mm invested with a diverse client base that ranges from federal government, top colleges and universities, professional sports teams and the Fortune 500 companies. Richard was recently honored as one of the 2017 "Forbes 30 Under 30" in Energy, he was selected as one of the World Energy Council's Global Future Energy Leaders 100 Programme, previously served on the board of Young Professionals in Energy NYC Chapter, and is a member of the steering committee for the American Council on Renewable Energy's Partnership for Renewable Energy Finance (ACORE PREF). Rich grew up in Alabama and stayed in the South for college. He graduated from Samford University, where he studied Finance and Spanish and was captain of the men's tennis team. In his spare time, Rich enjoys playing tennis, golf, snow skiing and traveling. He currently resides in New York City with his wife.

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FOOTNOTES

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