THE SOL SOURCE

Renewables Will Be An Engine **NOW LET'S DO THIS RIGHT**

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SOLSYSTEMS

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WELCOME

THE SOL SOURCE is a journal that our team distributes to our network of clients and solar stakeholders. Our newsletter contains energy statistics from current real-life renewables projects, trends, and observations gained through interviews with our team, and it incorporates news from a variety of industry resources.



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STATE MARKETS



California

Net energy metering (NEM) enables solar energy owners to net the solar energy they produce against their retail rate

and is the backbone for distributed generation. Each state has a slightly different variation, and California's approach has always been complex, but largely favorable for solar. he search for California's net metering successor program, NEM 3.0, officially began late last year and the California Public Utilities Commission ("CPUC") is currently evaluating all NEM 3.0 proposals that were submitted by March 2021. Several pieces of legislation are now introduced that would revise California's renewable portfolio standard, further electrify the transportation sector and clarify tax exemptions for solar and other renewable projects. As always, we continue to see many moving parts from the country's clean energy leader, but we expect to see more clarity in the coming months, with a ruling on NEM 3.0 expected by Q4.



Delaware

The State of Delaware has had a challenging history with scaling renewable energy in the state and actually

fulfilling (or implementing) its renewable portfolio standard (RPS). That is about to change. Governor Carney signed Senate Bill No. 33 ("SB 33") on February 10, extending and expanding Delaware's RPS. The bill made clarifying alterations to the RPS freeze requirements included in the previous statute, which historically caused controversy at the Public Service Commission ("PSC"). To read more about the bill and what it means for the state, check out our write up on it in the blogs section of SOURCE. In addition to Senate Bill No. 33, Senate Bill No. 2 - which would bring community solar to Delaware - recently passed the Senate, and the industry is watching to see what happens in the House. It's shaping up to be a big year for solar in Delaware.



Illinois

The Prairie State is expanding on its historic commitment to solar. Toward the end of 2020.

the Illinois Commerce Commission ("ICC") issued a decision altering the calculation Ameren used to determine NEM penetration. This decision put Ameren below 3%, which is the threshold for reevaluating the NEM compensation and the DG rebate rates. The ICC's decision gives the industry more time to prepare for a future transition to a new NEM compensation rate. Yet, pending legislation in Springfield is expected to positively amend critical language regarding this proceeding. Specifically, Governor Pritzker and other state leaders are in negotiations regarding what will hopefully be an omnibus energy bill that among other things would refund the Adjustable Block Program ("ABP") and increase the goals and funding. Without legislative action, the ABP will effectively come to a halt and new DG solar opportunities will disappear. As we understand it, the omnibus bill could change the 3% and 5% thresholds that trigger alterations to the NEM and DG rebate rates, the same triggers that are at issue in the Ameren proceeding. Overall, the package would provide necessary clarity to the industry on the potential to finance and develop future solar projects in Illinois and would send the message that Illinois is reopen for business. Negotiations on the bill are in the final stages, with some politicos predicting a vote within the next month which would mean Illinois could reopen the ABP before the end of the year.

STATE MARKETS



Maine

You can't get there from here...or maybe you can. As with any state's first renewable incentive program, Maine is

working out the kinks of its Net Energy Billing ("NEB") framework with positive momentum. The state legislature has introduced several bills focusing on NEB reforms and working groups consisting of legislators, industry stakeholders, and members of Governor Mills' office have begun forming. Chairman Lawrence and Representative Grohski recently introduced amendments to L.D. 936 which would require Governor Mills' Energy Office to submit an interim report on NEB alterations and impacts by January 2022. Notably, the language directs the Governor's Energy Office to prioritize distributed generation that is sited on previously developed land (such as brownfields), within a low-to-moderate income community, or directly serving customer load. Separately, working groups are beginning to work out how to deal with the high cost of projected interconnection upgrades and other issues that will come from legislative action.



Maryland

In 2019 the Maryland legislature passed the Clean Energy Jobs Act ("CEJA"), which included a solar carve-out of

14.5% by 2030. Unfortunately, as a result of Covid-19-related construction delays and price increases due to Federal tariffs, the industry has fallen short of meeting the incremental targets set out in the initial legislation. To ensure that the slow-down in development didn't result in the payment of excessive solar alternative compliance payments ("SACP") and a higher corresponding ratepayer impact, the industry rallied around reducing the solar carve-out to help reduce the number of SRECs needed, and therefore, the number of SACPs paid for a shortfall. With the extra head-room created by reducing the solar carveout, the industry was able to advocate for an increased SACP. The hopeful theory is that with a higher SACP and corresponding increased SREC pricing, the industry will overcome the shortfall and be able to ramp up new in-state solar development.



Massachusetts

There is often an air of impending change in Massachusetts when it comes to clean energy

and the laws that govern it. One of the most recent changes in Massachusetts is the passage of Senate bill 9 ("SB9"), which alters the RPS and modifies the Massachusetts climate roadmap. SB9 became law in March after a previous version of the bill failed at the end of last session. Notable provisions include a goal to hit net-zero GHG emissions by 2050, a 40% Class I RPS increase by 2030, an expansion of net metering, and the inclusion of property tax exemptions for certain renewable energy projects. At best, SB9 will provide long-term stability together with a greater focus on community impact. In addition to RPS alterations under SB 9, the state Department of Energy Resources ("DOER") recently altered the regulations governing the RPS, which includes, among other things, shortening the life of SREC I systems retroactively to ten years and also reducing the Class I ACP. Finally, on the SMART-front, the industry continues to await proposed alterations to the program, which has undergone a rigorous review process.

STATE MARKETS



New Hampshire

Legislators in the Granite State continue to attempt revisions to the existing RPS framework, most recently proposed under

House Bill 213. This anti-clean energy bill would reduce the states RPS requirements for Class I, Class II, and Class III resources. In addition, the legislature circumvented a direct attack on the Community Power Law by amending House Bill 315 to protect competitive markets.



Pennsylvania

Solar energy is a hot topic in Harrisburg with several bills on the table to defend and increase the existing alternative energy portfolio

standard (AEPS), legalize community solar, and reform grid scale solar procurement. Pennsylvania is a diverse energy production and generation state and therefore, lawmakers have many energy policy decisions to consider when deciding how best to maintain the State's ability to remain a net energy exporter, but solar and natural gas are the biggest drivers of new installed electric generation capacity and therefore long-term policy certainty for solar is likely. However, the timing is still too early to predict, but it is clear that momentum is mounting.



New Jersey

After months of stakeholder processes and input, in April, the Board of Public Utilities ("BPU") released a straw

proposal for the new SREC successor program and has actively sought feedback through stakeholder sessions which concluded in May. The industry is now waiting on the BPU to issue the next iteration of the successor program and is hopeful that stakeholder feedback will be incorporated. The timing of the release of future BPU successor program iterations is unclear, but we know the BPU is working to provide clarity as quickly as possible.



New York

Earlier this year, NYSEIA filed a joint petition asking the New York Public Utility Commission ("PUC') to

replenish the Community Credit Program, which suffered an unexpected reduction in capacity (180MW) when several natural gas-powered fuel cells where allowed to qualify for the credit. The industry urged the PUC to replenish the program through direct testimony and supportive comments and now awaits final decision from the PUC.



Virginia

State regulators continue to advance the ball to implement the Virginia Clean Economy Act ("VCEA"). On

Friday, April 30, the Virginia State Corporation Commission ("SCC") released their orders in the Dominion and ApCo proceedings regarding the renewable portfolio standard ("RPS") established under the VCEA. In its orders, the SCC showed deference to Dominion and ApCo by approving almost every aspect of their plans. However, while their plans and projects were approved, the SCC clarified that for future plan filings the utilities will need to factor in REC-only options for RPS compliance which will provide more opportunity for third party developers.

Renewables Will Be An Engine – Now Let's Do This Right

By Yuri Horwitz

Introduction

When we started Sol in 2008 most people questioned whether the renewable energy industry would ever be cost competitive, or scale, or be financeable. Solar was unrealistic, cute, or at best, quixotic. Time has been the great arbiter.

Solar is now the single least expensive form of electricity in over 75% of the globe and the single largest source of new energy generation in the United States. As we noted a few years ago, <u>solar is poised to dominate</u> the US electricity markets over the next decade. And yet we've just begun the journey. By combining renewables with storage, solar and wind will power upwards of 50% of our electricity within a decade, scaling 100-fold.

And with that realization must come another. Renewable energy will be an economic growth engine for the United States and the globe. And those of us that are building the industry have a tremendous opportunity (and responsibility) to ensure that this engine benefits all communities, including those that have been left behind during previous economic expansions.

Each year we write a letter to our partners, our clients, and the industry to reflect on the changes in the renewable energy industry and the opportunities and challenges ahead. This year, we focus on technology, policy, and our collective responsibility to build a more impactful industry.



Technology

The U.S. installed <u>19.2 GWdc of solar PV</u> capacity in 2020 to reach 97.7 GWdc of total installed capacity, enough to power 17.7 million American homes. Solar accounted for 43% of all new electricity-generating capacity added in the U.S. in 2020, representing the solar industry's largest ever share of new generating capacity and ranking first among all technologies for the second year in a row. Solar is the single largest source of new electricity generation.

Looking ahead, the <u>U.S. solar market will install</u> over 160 gigawatts (GWdc) from 2021-2025, a 42% increase over the last half a decade. Solar energy is driving energy procurement and reform in almost every segment of the U.S. economy, especially for corporations, large investors, and municipalities. In 2020 alone, corporates inked 20+ GWs in new solar energy Power Purchase Agreements (PPAs).

Much of this new build will include energy efficiency and storage so that solar can better meet the needs of each customers - whether municipal, corporate, residential or other. Most storage solutions utilize lithium-ion batteries, the same batteries powering Teslas,

the Ford Mustang, F-150 Lightnings, and the ever-elusive Rivian. Driving energy storage at a global scale will rapidly drive down costs, which are already expected to <u>fall by upwards</u> <u>of 50% over the next decade</u>. By 2025, onefifth of new utility-scale solar systems, onethird of new residential solar systems, and onequarter of new non-residential solar systems will be <u>paired with energy storage</u>.

Most (if not all) of our <u>new cars will be powered</u> by electricity by 2035. That is a massive change, even for a state like California where 8% of all vehicles are currently electric. This transition will dramatically <u>increase demand for</u> <u>electricity generation</u> and require infrastructure investment to upgrade the current electric grid to be more sophisticated. It will also significantly increase demand for batteries, further driving down costs.

With a focused investment on distribution and smart-charging technology, utilities will utilize demand from electric vehicles to optimize grid efficiency and reduce congestion and interconnection timelines. This is why federal, state, and utility incentives that reward the colocation of charging stations with distributed solar projects where people live or work is so important. In the long-term, lithium-ion batteries will not provide sufficient storage capacity for load shifting, which is absolutely imperative for 24/7 renewable energy, an effort that Google is thoughtfully leading on. To enable this future we will need create, refine and deploy multiple storage technologies like pumped water storage and hydroelectric generation and other technologies. This is where we must innovate.

The historic expansion of solar and storage will exponentially increase the demand for raw materials and finished product in an inflationary period where commodities are already in short supply. We expect an effort to "on-shore" much of this work in the United States, with a focused rampup of domestic manufacturing for both solar and storage. In just one example, <u>First Solar recently</u> <u>announced a plan</u> to increase U.S. module manufacturing by over 3 GW in Ohio alone.

We expect the Biden Administration to <u>incentivize</u> <u>the wholesale reorganization of supply lines</u> (lithium, cobalt, graphite, and other rare earth materials) within the battery market and fund new research and development into battery and alternative energy technology. This will mean more mining in the United States, but also more processing, almost all of which is currently done in China. Building these networks is complex and will be a minimum of a <u>four- to five-year process</u> as indicative of the timeline for infrastructure buildout in Europe.

Policy

The Biden Administration has pledged to reduce United States greenhouse gas emissions by at least 50% by 2030, which is one of the initial steps in their commitment to reach a net zero emissions economy-wide by 2050. We fully embrace these goals and are working on solutions to support President Biden's plan. But these goals are as ambitious as they are laudable. Given the importance of bipartisan leadership, three priorities will prove instrumental to success.

First, we must immediately reduce tariffs that do little to end a trade war with China. This would improve the United States' ability to compete within the global solar energy market. Since 2018, over 60,000 renewable energy jobs and nearly \$20 billion have been lost due to solar import tariffs. Cutting solar import tariffs would reduce the costs of solar modules by at least 20%, driving significant clean energy investment and jobs growth throughout the U.S. If we want to

incentivize domestic production, we should do so through tax cuts or low interest loans.

Second, one of the biggest hurdles to scaling renewable energy is the existence of old and aging electricity infrastructure. Utilities, the federal government, and the industry must work together to take a coordinated approach to investing in and rebuilding our aging transmission and distribution infrastructure. The same utilities that will benefit from an increase in load from electric cars are economically aligned with the renewable energy industry in retrofitting and rebuilding our grid in a more efficient, equitable and sustainable way. While the renewable industry may not be aligned with utilities on all policies, we should be aligned here.

Third, as noted recently by Energy Innovation, the single most important policy framework to facilitate the transition to a clean energy economy is through the implementation of a national market-based renewable portfolio standard (RPS) or a clean energy standard (CES). Today, 37 states have an RPS and a national RPS has growing bipartisan support within Congress, too. A RPS is already a wellknown framework for major banking and financial institutions and would set a blueprint with incremental goals to meet 100 percent clean energy. As Congress and the new Administration begin to transition to a clean energy economy, accuracy, credibility, and tested solutions will be critical to the success of our national energy goals.

Impact

As America shifts to a clean energy economy, there must be a proportionate commitment to do so in a more thoughtful and impactful way. Renewable energy development and operations create a generational opportunity to drive real long-term investment and jobs in communities that have historically been left behind, as well as those communities that will be impacted by the transition to renewable and clean energy. We think this can be accomplished in a few ways.

First, our industry has a very real opportunity to better attract, retain and promote both minorities and women. Current industry leaders can do that work by collaborating on best practices, mentoring, and focusing on community impact and investment – which are the core priorities for the executives working on the <u>Renewables</u> <u>Forward Initiative</u>. There are few things we can do as human beings that have more of an impact than what we do every day at work. Lean in, spend the time, and spend the money within your organization (or advocate for others to do the same) so that we can continue to build the world that we all deserve.

Second, many of the largest customers and investors in the world are focused on developing and implementing structures and strategies within their own businesses that benefit under-resourced communities, communities of color, and those communities that have been disproportionately impacted by climate change or otherwise left behind. Solar

developers and operators have a responsibility (and frankly an opportunity) to lean in with these customers and investors to develop renewable energy assets more thoughtfully. Sol recently worked with the University of Illinois on a zero-waste project, we've done work in and around DC, we've designed a groundbreaking <u>Power Purchase and Community</u> <u>Investment Agreement with Microsoft</u>, and we're undertaking a number of other initiatives with our other partners and clients. We are also working with several industry associations to help customers innovate on similar models, and we urge others to do the same.

Third, our industry must work with adjacent organizations focused on these priorities. Driving diversity into the renewable and clean energy industry requires an integrated approach that creates temporal pathways for support and success. These pathways must begin early with high school students, then college students, then within our own industry and in parallel industries. This is why we support the Urban Alliance in their work with urban high-school students; as well as CELI's EDICT initiative, a program that pairs BIPOC college students with opportunities in the renewable and clean energy industry. This is why we urge our industry to explore collaborating with organizations like the Black Oak Collective, BOSS, and AABE.

Conclusion

The path ahead for renewable energy has never been so clear or so promising. The industry will continue to scale, with an increased focus on the locational value of assets, load shifting, the development of new and innovative storage, and a very close focus on customers and their expanding needs.

However, restructuring our electricity infrastructure invariably has political dimensions and ramifications; and we must also be thoughtful about what we advocate on the federal and state level so that policy remains stable. These tools must be both pragmatic and impactful. Equally important, we must be thoughtful about how we invest in the communities we are working in so that the industry we continue to build mirrors the society we all hope to build. It's the right thing to do, and it's the smart thing to do.

Read pv magazine's write-up on the letter

How We've Committed to Ensuring No Forced Labor Ever Touches our Projects

By Dan Diamond

At Sol Systems, we are committed to a just equitable energy transition and to ensuring this commitment flows through our entire business. In the past year, the production of polysilicon has been linked in many ways to forced labor in the Xinjiang region of China. Sol Systems is taking steps to ensure our solar projects are free of products produced with forced labor and we have signed onto industry-wide commitments to ensure we all work towards and commit to this goal together.

Companies like Sol Systems, that acquire, develop, finance, build, own and operate PV projects, and that both procure modules and contract with companies that procure modules, have a responsibility to their customers to ensure that the procurement and installation of solar modules is done responsibly and without unintended negative consequences. This means that we must tackle this issue systemically and through policies and procedures that ensure we are not contributing to the human rights abuses occurring in the Xinjiang region or any other region.

The American solar industry is strongly united in this mission, and Sol Systems was proud to help develop the Solar Energy Industries Association ("SEIA") Solar Industry Forced Labor Prevention Pledge, of which it was a founding signatory. Along with the Pledge, Sol Systems developed and implemented a procurement strategy for modules for both direct procurement for issuance to EPC Contractors for utility-scale projects, and indirect procurement for distributed generation (DG) projects through EPC Contractors.



In development of our procurement strategy, we surveyed the leading module manufacturers to ensure we understand the market supply, dynamics, and constraints. We learned about the module manufacturers' allied approach to ensure the commitment to avoid all exposure to products that are in any way sourced from the Xinjiang region, due to forced labor concerns. Manufacturers supplying the US market are tracking the complete supply chain from polysilicon production, to ingots, wafers, cells, and modules.

The module manufacturers supplying the US and EU markets are all aware of and actively reacting to the market demands for forced-labor free products, and they all have implemented supply chain execution plans to address this. To proactively facilitate these manufacturers' commitments, Sol is working with SEIA to apply the recently issued Traceability Protocol and Buyer's Guide that establishes guidelines for traceability protocols and documentation, supply chain security, enforcement, and auditing. We also intend to incorporate specific provisions in our Module Supply Agreements (MSA) that contractually prohibits any part of the supply chain from being sourced from the Xinjiang region. These restrictions include products from specific suppliers, the Xinjiang region generally, and any other country or region known or supposed to use forced labor. This restriction is passed through to their suppliers, and they are required to declare their supply chain origins.

These measures will help us ensure our work in the solar industry reflects the collective goal of the solar industry to catalyze positive change and fight climate inequities.

SOLAR CHATTER

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President Biden released his Infrastructure Plan which includes a ten-year extension and phase down of an expanded investment tax credit and production tax credit for clean energy generation and storage. The plan aims to move the country toward 100 percent carbonpollution-free power by 2035.

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Senator Ron Wyden of Oregon, Chair of the Senate Finance Committee, introduced a new bill that would eliminate tax breaks for fossil fuels and <u>extend tax credits at 30 percent</u> for any resource that allows the grid to become even cleaner, including solar, wind, and new credits for electric vehicles. This bill could have major implications on solar project financing, and represents a necessary step towards a robust, job-creating green economy needed to achieve Biden's climate goals. The Solar Energy Industries Association (SEIA) released their US Solar Market Insight and according to the report, solar accounted for <u>43%of</u> new energy generating capacity in 2020, which is the largest share of new generation among all electricity technology. Utility-scale solar had its largest year ever with 6.3 GW installed and will likely grow at an exponential rate with states, the federal government, utilities, and large corporates focused on achieving net zero carbon emissions.

The US Power Sector is halfway to zero carbon emissions due to aggressive clean electricity policies and technological advancements by states and utilities, setting goals to reach <u>100% clean energy by 2050 or sooner</u>. According to NREL, solar and wind exceeded performance, delivering over <u>13</u> times more generation than projected.

Sol Systems is currently acquiring early to late-stage utility-scale solar assets, working with developer partners to source and place tax equity on behalf of our clients and investors, and structuring unique REC and other environmental commodity options for thousands of customers and developers. Reach out to finance@solsystems.com to learn more.

Solar Energy Gives New Light to Wastewater Facilities

By William Graves and Anna Noucas

Onsite solar energy is poised to substantially increase the economic and environmental value of wastewater treatment facilities. Since wastewater treatment facilities require a substantial amount of energy and are often faced with having to budget for high energy bills, installing onsite solar allows wastewater treatment facilities to offset electricity costs while generating onsite clean energy. By procuring solar energy through a Power Purchase Agreement with a company like Sol Systems, wastewater treatment facilities can avoid the upfront construction and ongoing maintenance costs of a solar system. Sol Systems works with wastewater treatment facilities across the US to finance, build, and operate solar systems that maximize energy savings and ensure long-term profitability. Let's dig into the details of why these partnerships have been so successful.

Low Cost of Solar Energy Combats the High Cost of Powering Water Treatment Facilities

One of the largest costs of wastewater treatment is electricity. Wastewater facilities function 24 hours a day, seven days a week, resulting in the accumulation of large energy costs. For example, US wastewater treatment facilities use approximately 30 terrawatt hours of electricity per year, or enough electricity to power 6 million homes. That roughly equates to an electricity cost of \$2 billion annually. Electricity costs alone can account for 25% to 40% of a wastewater facility's yearly operating costs.

To keep electricity costs down, maximum operational efficiency is essential during the late morning and early evening periods of peak flow. Simply analyzing a wastewater treatment plant's energy budget and managing that budget to prioritize off peak electricity consumption can have a major impact. Depending on the total electricity and other operating costs associated with an individual wastewater plant, greater cost savings might be achieved through increased software, computer monitoring, or other technologies.

The zero-upfront-cost benefit of solar power purchase agreements (PPAs) immediately reduce energy costs. The agreement allows a developer like Sol Systems to finance and build the array, taking on the upfront risk and cost associated with constructing a commercial- scale solar energy system. The wastewater treatment plant then purchases the energy produced by the solar systems under a PPA at a fixed rate (\$/kWh) for a set period of time (often 15-25 years). In states with strong renewable energy programs, PPA rates are often lower, sometimes significantly, than the retail electricity options. PPAs offer wastewater treatment plants cost savings from the first day of system operation without any upfront cost, and at a fixed price that provides budget certainty and the ability to plan long-term.



Adoption of UV Technology

One factor that is pushing wastewater facilities' electricity usage even higher is the growing adoption of ultraviolet (UV) disinfecting systems. The process utilizes UV light to quickly neutralize microorganisms as they pass by ultraviolet light sources. The increased amount of electricity used in this process is responsible for the largest portion of the increased costs. As a result, in some cases UV disinfection can account for anywhere between 10-25% of electrical usage at a wastewater facility. As a result of the increased electricity usage associated with adopting UV disinfection, wastewater treatment facilities are uniquely positioned to consider installing both new UV disinfection at the same time as opting to install or partner to install solar energy to help offset that increased electricity usage. Solar energy together with new and more efficient UV wastewater treatment allows plant managers the ability to sell a more efficient, safer, cost effect, and cleaner solution to facility decision makers.

The Combination of Land and Load

A key question is that if organizations have the option to purchase cheaper energy through PPAs, why isn't everyone jumping at the opportunity to go solar? The answer is that in many cases businesses are choosing to go solar where the economics make sense. One of the variables to a viability solar installation is whether a facility or plant has enough free space or flat roof space to install a large enough solar system to offset enough electricity to be cost effective. Wastewater treatment plants normally have enough land to make solar installations feasible. Sol Systems has seen that solar systems are feasible on parcels of land that are 5 acres or larger.

Reduced Price Volatility

Solar energy can help reduce energy costs for wastewater treatment facilities by generating energy at a lower cost than retail energy rates, but an often-understated benefit is the long-term cost certainty it provides. With this and the added value of feasible land space, the marriage of solar and wastewater treatment facilities provides maximize energy savings and reliable profitability over the project's lifetime.



Case Study: American Bottoms

Sol Systems recently developed a 1.8 MW DC solar array for the Sauget Sanitary Development and Research Association's (SSDRA) wastewater facility. The 7-acre solar project was built on the facility's property. The goal of the project is to save on electricity and lock in energy rates through a 25-year PPA. One solution to significantly reducing electricity costs and energy load was working with a solar developer to build on-site solar. After being awarded the project, Sol Systems successfully completed the installation with no upfront cost to American Bottoms. The project now powers the facility at a guaranteed rate of electricity for the next 25 years.

This unique project incorporates single axis, bifacial tracking which tracks the sun's movement to optimize per- panel energy production with durable technology. The project also will incorporate pollinator habitat consisting of native vegetation to make the space greener and more environmentally conscious. The SSDRA project utilizes the benefits of solar energy and wastewater facilities by using buffer land and a PPA to procure clean energy and reduce electricity costs, proving that wastewater and solar make the perfect match.

American Bottoms now has solar installed on buffer land to help power their facility with clean energy.

Conclusion

Solar and wastewater treatment facilities serve as the perfect pair. With enough space and energy usage, wastewater treatment facilities are wellpositioned to achieve energy savings through an onsite solar power purchase agreement, all while lowering their carbon footprint, and driving a greater amount of safety and sustainability.

Along with wastewater facilities, Sol Systems delivers impact and sustainable infrastructure solutions to customers and clients through a unique approach that integrates environmental commodity trading, fund management, asset management, together with distributed and utilityscale solar development.



Delaware Looks Further Ahead on its RPS

By Elizabeth Campbell

After its swift progress through the state's legislature, Governor Carney signed Senate Bill No. 33 ("SB 33") on February 10. The bill extends and expands Delaware's Renewable Portfolio Standard ("RPS") and alters the previous statute's RPS freeze requirements, which has long caused controversy at the Public Service Commission ("PSC"). While it encourages more renewables like solar in the future, <u>some think</u> it's still not enough to catch up to Delaware's East Coast neighboring states.

The bill, sponsored by State Senator Stephanie Hansen, extends the schedule under Title 26 of the Delaware Code which mandates that an increasing percentage of electrical energy sales must come from renewable energy sources each year. Prior to this bill, this percentage increased incrementally until 2025, plateauing at a goal of 25% renewable energy. SB 33 sets a goal of 40% renewable energy by 2035, increasing both the goal and the timeline.

As passed, solar energy accounts for a quarter of the total 2035 RPS' solar carve-out, the solar energy specific portion of the renewable energy mandate, or 10%, reinforcing the need for a solar renewable energy certificate ("SREC") program. Under the RPS, utilities must procure SRECs, which each represent 1 MWh of renewable energy generation, to comply with the solar carve-out requirement and avoid paying an Alternative Compliance Payment ("ACP"). SRECs are generated by registered residential and commercial solar energy systems in the state.

At this point, only Delmarva Power, the only state regulated utility with compliance obligations under the RPS, is required to purchase DE SRECs. SB 33 does not alter



this. Although municipal utilities and rural cooperatives are encouraged to meet the renewable energy goals, they can elect to exempt themselves from the requirements by detailing an alternative approach to achieving a level of renewable energy penetration in their service area. Instead of paying the ACP, they will either contribute to the state's Green Energy Fund or an independent fund.

Since SB 33 did not alter Delmarva's position as the sole complier, it is unlikely that the legislation will result in alterations to their SREC procurement structure, which relies on the annual SREC Delaware competitive solicitation for SRECs.

However, this annual solicitation did not occur in 2020. This is due to conflict over the previous RPS statute's freeze provision at the PSC, which led Delmarva to hold off on a 2020 solicitation. SB 33 fixes the freeze language. Under the new law, an RPS freeze will go into place if more than 15% of the carve-out is met by ACPs rather than through the purchase of SRECs. With this alteration, the legislature added a layer of certainty and it is our hope that the alterations reduce the likelihood of another missed year of the SREC solicitation in Delaware.

We are thankful for SB 33 and its sponsors like State Senate Environmental & Energy Committee Chair Stephanie Hansen. We look forward to Delaware's bright renewable future.

Sol Systems Announces Groundbreaking Solar Power Community Investment Agreement with Microsoft

Initiative to combine one of the largest renewable energy procurements with \$50 million+ of investment in surrounding communities

July 21, 2020

WASHINGTON, DC – Sol Systems, a national solar energy finance and development firm, today announced a groundbreaking initiative with Microsoft, Corp. that creates the first community investment fund and the company's single largest renewable energy portfolio energy purchase agreement. Sol Systems and Microsoft designed the portfolio to maximize its positive environmental, community and societal impact. The strategic initiative will help Microsoft meet its goal of shifting to 100 percent renewable energy by 2025.

Sol Systems will finance, develop and operate a portfolio of over 500 megawatts (MW) of solar projects in the U.S. and will sell energy from those projects to Microsoft. In parallel, working with local leaders in nearby communities and those disproportionately impacted by climate change, Sol Systems and Microsoft will invest at least \$50 million in community-led grants and investments that support educational programs, job and career training, habitat restoration, and programs that support access to clean energy and energy efficiency

"This marks a groundbreaking commitment by Microsoft, Sol Systems, and our employees to invest in our communities and drive economic recovery," said Sol Systems CEO and cofounder, Yuri Horwitz. "This is a unique approach to couple clean energy with community development and investment," he added.



"We recognize that climate and environmental issues don't impact every community the same way and we need to address environmental equity as a broader issue," said Lucas Joppa, Chief Environmental Officer, Microsoft. "Our work with Sol Systems is a first-of-its-kind initiative tying the purchasing of renewable energy to environmental justice and equity in under-resourced communities. What makes this partnership unique is that we will be working with local leaders, prioritizing minority and women-owned businesses and making community-lead grants and investments."

Delivery of the portfolio will be phased in over the next several years.

Learn more about Microsoft's carbon goals at Microsoft on the Issues.



TNC Announces Innovative Collaboration for Solar Development in Central Appalachia

The Nature Conservancy, Sun Tribe, and Sol Systems will pursue the development of some of the first utility-scale solar projects on former coal mines in the region.

May 11, 2021, Via: The Nature Conservancy

The Nature Conservancy today announced an innovative collaboration with two renewable energy companies who will pursue the development of some of the first utility-scale solar projects in the Central Appalachian coalfields. The two companies include Charlottesville, Virginia-based <u>Sun Tribe</u>, and Washington, D.C.-based <u>Sol Systems</u>.

The solar systems will be built on former coal mines located within the <u>Cumberland</u> <u>Forest Project</u>—nearly 253,000 acres of land in Southwest Virginia, Eastern Tennessee, and Eastern Kentucky managed by TNC and owned by its Cumberland Forest, LP impact investment fund. The Cumberland Forest Project is aimed at protecting and restoring globally important Appalachian forests, which are some of the most <u>important areas for</u> <u>climate resiliency</u> in North America.

Sun Tribe and Sol Systems—chosen in part because of their shared and demonstrated commitment to community-focused impact and results—will develop the projects with the aim of continuing TNC's goal of supporting local economies through conservation, investment and engagement.

"Southwest Virginia and the wider Central Appalachian coalfield region is uniquely positioned to support the expansion of renewable energy development with hundreds of reclaimed former surface mines potentially capable of being converted to new solar projects," says <u>Brad Kreps</u>, Director of TNC's <u>Clinch Valley Program</u>. "At this point, the region's former mined lands are nearly a blank canvas when it comes to building a new renewable energy economy, and with this partnership we hope to demonstrate how some of these former mining sites can be competitive for solar development in Virginia and throughout the Central Appalachian region."

The Cumberland Forest Project was developed to show that investments in nature can yield financial returns and critical conservation

results while returning value to local communities. This is especially important in the Central Appalachian region, which is undergoing a profound transition as the coal industry declines and the area seeks to develop a more diverse economy while building on its strength as an energy producer.

"We're a proud Virginia-based company, and we're looking forward to working with communities throughout this region to show that solar can provide real environmental, social, and economic benefits for those who call Central Appalachia home," says Danny Van Clief, CEO of Sun Tribe Development. "We are focused on an approach that combines a conservation focus, comprehensive scale, and an intense focus on local community investment. Turning this vision into reality will mean that these former coal mines, which have served these communities for generations as energy assets, can continue to serve them for generations to come in a bright future."

On the vast majority of the Cumberland Forest, TNC's aim is to protect and restore native forests, but there are several thousand acres of non-forested, former surface coal mines on the property that can potentially support new solar energy projects, create positive economic outcomes for local people, and provide clean energy from previously disturbed sites in a way that minimizes impact to the environment. The initial focus area for the collaboration with Sun Tribe and Sol Systems centers on Wise County in Southwest Virginia.

"This collaboration highlights Sol Systems' mission to pair new solar energy infrastructure investment with concrete and scalable community, sustainability, and environmental impact," says Yuri Horowitz, CEO and co-founder of Sol Systems. "We're excited to be working with The Nature Conservancy and its Cumberland Forest Project, along with Sun Tribe to create new long-term opportunities for communities and neighbors in Southwest Virginia."

Cumberland Forest Solar Siting and Developer Selection Process

In pursuing solar development on the Cumberland Forest property, TNC is taking a strategic approach to create positive outcomes for both nature and people. In early 2020, with assistance from the <u>Virginia Department of</u> <u>Mines, Minerals, and Energy</u>, TNC identified nonforested former mined lands on the Cumberland Forest property that are in proximity to existing utility lines and infrastructure, making them candidates for solar development.

TNC's scientists then conducted additional analyses of these potential solar sites to eliminate areas that possess important wildlife values, natural habitats, or other characteristics that make them incompatible with solar development. After that, TNC engaged the private sector, seeking proposals from a variety of solar developers interested in constructing solar projects on some of these identified sites. After a nine-month process, Sun Tribe was selected to be the Cumberland Forest LP's first project developer, with Sol Systems selected to finance, own, and operate the facilities once development is complete.

"Our competitive selection process focused not only on finding capable solar developers with a strong track record but was also geared towards finding developers with a demonstrated commitment to environmental stewardship and the creation of tangible benefits to local communities" says Tom Hodgman, Deputy Managing Director of Forest Investing of The Nature Conservancy's <u>NatureVest</u>. "Sun Tribe and Sol Systems have committed to ensuring that the projects also benefit the communities we are trying to support with them."

The Path Forward: Permitting and Community Engagement

Over the next two to three years, Sun Tribe will conduct additional field studies, pursue utility interconnection agreements, and submit local and state level permit applications on sites located within the Cumberland Forest property.

During this initial development period, Sun Tribe will also work with TNC, localities, the Southwest Virginia Solar Work Group, and other interested stakeholders to develop a Community and Environmental Benefits Plan that will target specific investments in local workforce development, economic development, and environmental stewardship. Current projections assume projects will move towards construction and operation in 2023-2024.

"This is a significant economic opportunity for the region, but developing solar at this scale is a complex process that requires a variety of studies and approvals related to land use, the electric grid, the environment, and the construction and operation of the solar farms themselves," says Van Clief. "We are eager to begin working closely with the community, along with the region's educational, business, and environmental leaders, to get these projects across the finish line."

Enabling Renewable Energy Policies In Virginia

Much of the optimism around this project is driven by enabling policies recently passed in Virginia that encourage the development of renewable energy, including solar. Over the past several years, Virginia lawmakers and private business interests have taken great strides towards becoming a leader in the clean energy space. A big driver of this shift is the Virginia Clean Economy Act, which was signed into law in 2020. It calls for Virginia's electric utilities to produce their electricity from 100 percent carbon-free sources by 2050. The legislation also declares 16,100 megawatts of solar and onshore wind generation facilities to be in the public interest.

Solar projects constructed on the Cumberland Forest will contribute towards these goals. In addition to the Virginia Clean Economy Act, other policies have been put in motion recently to specifically encourage the redevelopment of former mined lands and brownfields as sites for renewable energy projects. For example, Delegate Terry Kilgore sponsored legislation in the 2021 General Assembly Session that established the Virginia Brownfield and Coal Mine Renewable Energy Grant Fund and Program.

"As we pursue the expansion of renewable energy in Virginia, it's important to make sure that this exciting opportunity touches down across all parts of the Commonwealth," says Delegate Terry Kilgore. "This includes Southwest Virginia, which has a long history of being an energy leader. I'm pleased that we now have a policy in place that incentivizes the re-use of mined lands and brownfields for renewables, and I'm thrilled that The Nature Conservancy and its partners are pushing forward to demonstrate that we can develop solar in this part of Virginia."

Local Investment; National Impact

TNC's efforts to work with solar developers on the Cumberland Forest and in the Central Appalachians are part of a larger organizational effort focused on supporting the expansion of clean energy while simultaneously benefiting local communities and avoiding impacts to forests and other critical wildlife habitats. Part of that effort involves serving as a national leadershowing other conservation-focused organizations, communities, and renewable energy developers that there is a successful model for synergy between conservation and renewable energy development. Significant components of that work include siting renewable energy projects on former mined lands and brownfields and highlighting the importance of transitioning towards a

culture of generation that continues to honor the region's history as an energy center while diversifying how energy is produced.

The national impact of this work will be seen through the power of example and the creation of a new framework—a local engagement and education-focused collaboration that strives to meet the needs of local residents and places community engagement at the center of the development process. Both Sun Tribe and Sol Systems have histories of this kind of neighborhood-focused effort and will work closely with TNC to build strong solutions that bring new jobs, workforce development, increased tax revenue, and a host of other benefits to Central Appalachia. Sun Tribe will take the lead in the permitting, approval, and development process, while Sol Systems will finance, construct, own, and operate each project.



University of Illinois Urbana-Champaign Announces Final Stage of Ultra-Sustainable Solar Farm 2.0 Project

The Project Makes the U of I the Third-Largest Producer of Onsite Clean Power Among U.S. Universities

May 14, 2021

CHAMPAIGN, IL - May 13, 2021 - Today, the University of Illinois Urbana-Champaign, Facilities & Services (F&S) announces the final stage of completion for Solar Farm 2.0, totaling 12.3 megawatts (DC), with the planting phase of the farm's pollinator habitat commencing this month. The project is the second solar farm constructed at the U of I and achieves clean energy sustainability goals outlined in the university's Illinois Climate Action Plan (iCAP), nearly four years ahead of schedule. Clean energy production will now support approximately 12 percent of the school's annual electricity demand. The planting of the project's native pollinator habitat bookmarks the solar farm's unique array of state-of-the-art technological and sustainable features.

The site's 54 acres will serve as a major demonstration and research location for pollinator-friendly solar arrays. The University of Illinois Solar Farm 2.0 project exceeded the required 85 minimum points established by the State of Illinois' Pollinator Friendly Solar Site Act. With 134 points achieved on the pollinator scorecard, including the adjacent landscape buffer, the solar array officially "Provides Exceptional Habitat." The custom seed mix designed by Natural Resource Services, with more than 21 different plant types that are native to the area, will make the land between and around the panels more resilient and create a natural habitat for a variety of local



and migratory birds and beneficial insects. In total, the site will contain more than 6.5 million flowering plants and native grasses.

Solar Farm 2.0 was developed by national solar energy firm Sol Systems, which built the farm with innovative features such as bifacial solar panels, single-axis trackers, pollinator habitat, and zero waste construction practices. This project is among the most technologically advanced and sustainable solar projects in the U.S. Through the firm's development wing, Sol Customer Solutions, a joint venture between Sol Systems and Capital Dynamics, Capital Dynamics will serve as owners of the project with Sol Systems managing the asset throughout the 20-year term of the agreement.

F&S Executive Director Dr. Mohamed Attalla said, "In only four months, Solar Farm 2.0 has already become an integral part of the university's energy enterprise. There are days when the array is meeting almost 30 percent of the university's electrical demand for that day. It has been extraordinary to watch this site's renewable energy make an immediate impact to support learning and discovery across campus."

Since the array was energized on January 29, 2021, the installation has produced over 4,000 megawatt hours (MWh). On May 1, Solar Farm 2.0 provided its largest output of 102 MWh in a single day, enough to offset the consumption of more than 8,000 gallons of gasoline. This installation puts the university at the top of the list for onsite

clean energy production, according to the U.S. Environmental Protection Agency. In combination with other solar installations on campus, the Urbana campus is now generating approximately 27,000 MWh/year, ranking UIUC third amongst U.S. universities in onsite clean power production.

The University will purchase all energy produced by the array under a power purchase agreement (PPA) at a fixed price over a 20-year term. In addition to the long-term fixed rate, which hedges UIUC against future utility price uncertainty, the PPA allows the university to go solar with no upfront costs, providing an expected \$300,000 in savings in the first year alone.

"The use of innovative technology and land-use practices and strong, ongoing partnership between Sol Systems and the University of Illinois is what makes this project so remarkable," said William Graves, Director of Originations at Sol Systems. "Solar Farm 2.0 is a marquee project not only for the university but also for the state of Illinois."

Sol Systems partnered with South Bend, Indianabased Inovateus Solar, which constructed the solar arrays. Inovateus used reduced-waste construction practices that prevented as much as 45 tons of materials from reaching landfills. Specifically, Inovateus worked with F&S Waste Management to recycle nearly 94 percent of the project's construction packaging, plastics, wood pallets, and other refuse. "Inovateus Solar is truly excited to have partnered with Sol Systems and contributed our best practices for sustainable solar construction. We believe this solar farm will be the new role model for ultra-sustainable solar development," said T.J. Kanczuzewski, CEO of Inovateus Solar. "We're also proud to have assisted U of I in meeting an important sustainability goal for the campus. Helping to preserve the environment for current and future students and faculty directly reflects our company mission of 'building a brilliant tomorrow."

Academic collaboration is a major theme emphasized in the F&S Strategic Plan because using the campus as a living learning laboratory for students and researchers is essential to the success of the university. Sol Systems and Inovateus worked with students in the Institute for Sustainability, Energy, and Environment's campuswide sustainability minor to assess the carbon footprint of Solar Farm 2.0 from sourcing to installation. Sol Systems will use the reports, produced by the student groups as part of their Sustainability, Energy and Environment Fellows Program capstone, to assess potential sustainability improvements to all future projects.

The University hopes to offer onsite tours this fall, along with a celebratory ribbon-cutting for the project.

CONTACT US

If you have any questions about this information or wish to receive our newsletter via email, please contact our team. We would love to hear from you.

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