THE SOL SOURCE

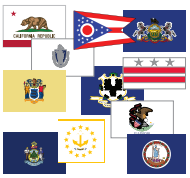
Reimagining REC Markets

Integrating Additionality and Emissionality into a New Carbon-Free Paradigm -By Yuri Horwitz, See p7

SOLSYSTEMS

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.



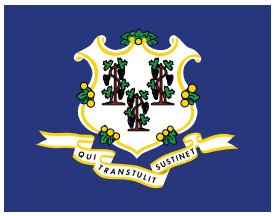
STATE MARKETS

California

Property tax exclusion extended to 2026 and new load management standards

On September 18, 2022, SB 1340, a bill to extend the property tax exclusion for solar to 2026, was signed by the Governor. California has seen several reversals of long-planned energy policy decisions this year, including efforts to keep its last nuclear plant open while shelving (for now) plans to recalculate net-energy metering ("NEM"). The California Public Utilities Commission ("CPUC") issued a proposed decision that would delay a NEM 3.0 program to August 27, 2023.

On October 12, 2022, the California Energy Commission ("CEC") adopted new load management standards to increase demand flexibility across the state. The new standards, which include requiring utilities to develop and offer retail electric rates that "change at least hourly", will go into effect in April 2023. The changes are expected to reduce peak energy use and save customers $267 million over 15 years.



Connecticut

Non-Residential Renewable Energy Solutions draft decision released

On October 19, 2022, the Connecticut Public Utilities Regulatory Authority ("PURA") released a draft decision on the Year 2 Non-Residential Renewable Energy Solutions ("NRES") program (Docket 22-08-03). If adopted, the program's overall capacity would be expanded from 60 MW to 110 MW and remove size-to-load provisions for commercial rooftop projects. A final decision is expected on November 9, 2022.

District of Columbia

RPS increase legislation introduced

The recently introduced Local Solar Expansion Amendment Act of 2022, which would maintain the Solar Alternative Compliance Payment ("SACP") at $500/MWh and raise the solar carve-out from 10 percent to 15 percent by 2041, was heard on October 3, 2022. Multiple stakeholders provided testimony, voicing both support and concerns for the Act. Changes to the bill language are expected to address concerns arounds costs and feasibility.

There remains no official word on nominees for the DC Public Service Commission vacancy.

Illinois

Illinois Commerce Commission kicks off the Fall 2022 indexed REC procurement

Block 6 of the Adjustable Block Program ("ABP") officially opened on September 1, 2022. At the same time, the Illinois Power Authority ("IPA") circulated an updated program guidebook which can be found here.

The Procurement Administrator published the final indexed REC contract and RFP documents for the Fall 2022 indexed REC procurement. The RFP is for new utility-scale wind and solar projects over 5 MW along with any-size brownfield-sited photovoltaic projects.

On the regulatory side, the industry continues to engage in ongoing proceedings related to the DG rebate and net-metering tariffs with Ameren and ComEd.

STATE MARKETS

Maine

New England Clean Energy Connect on hold until next year

The Governor's Energy Office has reconvened the distributed generation stakeholder group now that Maine's legislative session has ended. The next meeting will take place on November 17, 2022. We expect a straw proposal later this fall to contain more successor program design details in advance of a final report due January 2023.

The New England Clean Energy Connect (NECEC) transmission project, which was the subject of a ballot measure approved by state voters in November, has been put on hold until April of next year when the case goes to trial. The NECEC project planned to carry electricity from Canadian hydropower through Maine and into Massachusetts.

Massachusetts

Finalized Clean Energy Standard amendments published

On August 11, 2022, Governor Baker signed omnibus energy legislation into law (HB 5060). Among other things, the law maintains an offshore wind procurement target of 5,600 MW by 2027 and creates an offshore wind tax credit. The law also addresses grid modernization and directs the Massachusetts Department of Energy Resources ("DOER") to study a variety of energy storage programs. Furthermore, it requires that DOER include a pollinator-friendly solar incentive in the Solar Massachusetts Renewable Target ("SMART") program or successor program, bans biomass from qualifying for the RPS after January 1, 2022, as an eligible RPS Class I or II technology, relaxes the net-metering cap, and mandates that all new vehicle sales in the state be zero-emission beginning in 2035.

On October 14, 2022, the Massachusetts Department of Environmental Protection ("MassDEP") finalized amendments to the states Clean Energy Standard ("CES") which include:

- Raising the rate of increase of the CES standard to 6 percent each year from 2026-2030 and lowering the rate of increase from 2031-2050 to 1 percent each year, reaching 80 percent in 2050.
- Increasing the CES-E stringency from 20 percent to 25 percent of 2018 retail sales starting in 2023.
- Setting the CES alternative compliance payment ("ACP") rate at $35/MWh and the CES-E ACP rate at $10/MWh in 2022 through 2050.

These changes were made to align the CES with the 2030 Interim Clean Energy and Climate Plan ("Interim CECP") and the Massachusetts 2050 Decarbonization Roadmap Report ("2050 Decarbonization Roadmap") to accelerate the state towards fully decarbonized electricity.

STATE MARKETS

New Jersey

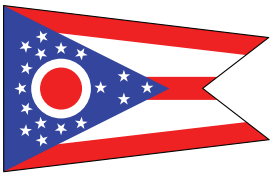
Senator Smith introduces RPS revision bill

On April 26, 2022, BPU issued a Straw Proposal for the Competitive Solar Incentive ("CSI"). While there have been delays, the CSI program is still expected to launch later this year. The BPU is also expected to review ADI incentive levels as part of the one-year review. Legislation related to interconnection (S431), energy storage incentives (S2185), remote net metering (S2848), and the legacy SREC program (S439) moved through the Senate. On October 17, 2022, S2848 was reported out of Assembly Telecommunications and Utilities Committee and referred to the Assembly Environment and Solid Waste Committee. We expect all these bills to be heard in the fall.

Senator Bob Smith (D-17) introduced S2978 on August 8, 2022. As currently written, the bill would:

- Revise the RPS in New Jersey by applying the Class I standard to electricity sold in the State after subtracting electricity generated by existing nuclear and other zero-carbon sources.
- Require that at least 50 percent of RECs used to comply with the RPS be in New Jersey.
- Mandate that 100 percent of retail electricity delivered to New Jersey be from Class I sources by 2045.

The bill was scheduled for hearing on September 30, 2022, by the Senate Environment and Energy Committee but was pulled from consideration. We expect to see bill amendments from Senator Smith later this year.



Ohio

Public Siting Board proposes procedure revisions

On June 16, 2022, the Ohio Public Siting Board proposed procedure revisions, including one that would require solar setbacks of 150 feet from roads and unaffiliated properties and 300 feet from unaffiliated residences. Other proposals including public disclosure requirements for new facilities, codifying decommissioning requirements included in SB 52, and fencing requirements for solar sites. Initial comments were due on August 12, 2022, and reply comments were due on September 2, 2022.

Pennsylvania

Legislature approves hydrogen and natural gas tax credit bill

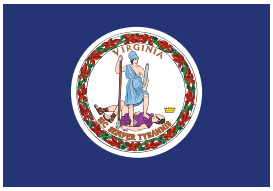
On October 26, 2022, HB 1059 passed both the Senate and General Assembly. The bill primarily focuses on state tax credits for hydrogen and natural gas, including $50 million annually for a federally designated regional clean hydrogen hub and $20 million in tax credits for to semiconductor manufacturing. The tax credit for using natural gas to make petrochemicals or fertilizer would also be increased by $30 million annually. Governor Wolf has until November 6, 2022 to sign or veto the bill.

STATE MARKETS

Rhode Island

Department of Environmental Management changing REC accounting methodology

Earlier this month, the Rhode Island Department of Environmental Management ("RIDEM") published a press release indicating the Department is looking at changing their renewable energy credit ("REC") accounting methodology, specifically to account for greenhouse gas emissions. The current methodology used by RIDEM was developed from MassDEP. They are now looking to transition towards the model used by the Connecticut Department of Energy and Environmental Protection ("CTDEEP") to ensure all RECs settled in Rhode Island are correctly counted towards the state's electric sector.



Virginia

SCC requests additional comments related to the revenue-grade meter requirement

In March 2022, DEQ announced that it would define solar panels as impervious surface areas. On April 14, 2022, DEQ released additional guidance that pushed implementation out to January 1, 2025, for all projects that have not received interconnection approval. In July, DEQ released two additional stormwater guidance documents focused on stormwater management and erosion and sediment control. Comments were due August 31, 2022.

On October 3, 2022, Governor Youngkin unveiled his 2022 Virginia Energy Plan. Among other things, the plan calls for the Virginia Clean Economy Act ("VCEA") to be reevaluated in 2023, and every five years thereafter. It also calls for the repeal of Virginia's Clean Car Standard and for the state to exit the Regional Greenhouse Gas Initiative ("RGGI").

On April 14, 2022, the Virginia State Corporation Commission ("SCC") opened a docket to establish a self-certification process for small distributed generation systems seeking to qualify as low-income projects and consider additional GATS-related questions. On July 26, 2022, the SCC issued an order for additional comments in the docket. Staff issued their report on September 22, 2022. All stakeholder comments were due on October 20, 2022.

Reimagining REC Markets

Integrating Additionality and Emissionality into a New Carbon-Free Paradigm

By Yuri Horwitz

With the recent passage of the Inflation Reduction Act, the federal government has taken a bold step towards a carbon-free future for America. There remain critical obstacles; including rising interest rates, supply-chain issues, tariffs, and module costs. But we have embarked.

States looking to follow the federal government's lead on climate - a refreshing change - have a powerful framework to leverage and replicate: renewable portfolio standards (RPS) and corresponding renewable energy certificate (REC) markets. Corporations looking to offset their carbon footprint, specifically Scope 2, but indirectly also 3 emissions that represent the Scope 2 emissions of their supply chain, can (and should) engage in updating these markets to ensure the markets are designed to achieve their carbon-free goals.

This article takes a fresh look at RECs, why they're important, how they can drive additionality and emissionality, and how RECs can be an integral part of customers' carbon-free goals.

PART I: What Is a REC?

A REC is an intangible certificate that represents the environmental benefits associated with a specific amount of electricity produced by a renewable energy resource, generally one megawatt-hour (MWh).[1] When renewable electricity is produced, it enters a

shared electricity grid and becomes indistinguishable from electricity generated by other sources – similar to water flowing into a network of pipes. Although individual electrons can't be tracked on the grid, RECs enable renewable energy to be independently measured, tracked, and traded like other commodities. REC markets also ensure integrity because the environmental benefit of a REC can only be counted once when a customer "retires" the REC to claim it.

Each REC can be tagged with information about the project that produced it, the project's location, technology type, and the time period when the electricity associated with the REC was generated. The electricity production is first recorded by a project's electric meter and is then communicated electronically to third-party environmental registries or regional transmission organizations (RTOs) who validate and award the REC.[2]

There are generally two types of RECs in the United States: **compliance RECs** and **voluntary RECs**.

Compliance RECs were first introduced in the 1980s as part of an incredibly successful state market-based mechanism, the Renewable Portfolio Standard (RPS), for driving the

[1] For scale, the average U.S. home uses around 7–10 MWh of electricity annually depending on size, location, and consumption.
[2] For example, PJM-GATS uses Energy Attribute Certificates to track the production of electricity by all generation types in 14 jurisdictions from Illinois to North Carolina.

expansion of renewable generation. In these RPS compliance markets, retail electricity suppliers and utilities are mandated to purchase a defined (usually increasing) percentage of their electricity supply from renewable sources.[3] These buyers are generally referred to as "compliance buyers," and they are required to either produce renewable electricity themselves, where allowed, or buy RECs in order to satisfy their RPS requirements. If these buyers do not meet the RPS requirement, they are required to pay an Alternative Compliance Payment (ACP), a non-compliance fee that acts as the price ceiling for RECs within a given compliance year.

Demand within a compliance market is set by the RPS and generally increases year over year. If demand is high and supply (renewable energy projects producing RECs) is low, REC prices will rise towards the ACP. As more renewable energy gets built within the market, REC supply will increase and REC prices will decline.

Renewable energy projects that do not sell RECs into compliance markets can still sell RECs to businesses, homeowners, governments, and non-profits who are interested in purchasing these RECs on a voluntary basis. These voluntary customers may purchase voluntary RECs to meet their renewable procurement goals, or to combine these RECs with "brown" electricity from coal and other fossil fuels and "green" their energy supply. If a family purchases green energy through their utility or retail energy supplier, this supplier is likely combining their preexisting brown electricity with voluntary RECs to offer renewable energy to customers.

Voluntary market pricing has been increasing over the past couple of years, largely driven by corporate appetite for RECs to meet Environmental, Social, and Governance (ESG) goals. Unlike the compliance markets, the pricing in a voluntary market is not tied to an ACP. It functions more similarly to a traditional market; as demand for renewable electricity goes up (relative to supply), prices follow until supply begins to meet that demand. Conversely, as demand for RECs goes down, so do prices. Increased corporate demand has helped incentivize the development of renewable energy projects in non-compliance markets, providing another revenue source for these projects.

The owner of a renewable energy project can either sell the electricity and the RECs produced by the project together (called a "bundled" product) or sell the electricity and RECs separately. The value of a REC can vary depending on the type of renewable project that produced it, the duration of the contract to purchase it, whether the RECs are being sold into a compliance market or a voluntary market, and what the ACP – essentially the price ceiling in compliance markets – is set to.

For example, solar RECs are generally sold at a premium; longer duration contracts are usually signed at lower prices; and RECs generally trade at higher prices in compliance markets than in voluntary markets. Prices in compliance markets range from $3 per REC for some types of technologies, to hundreds of dollars for solar RECs in some compliance markets. Compliance RECs compose anywhere from 25-80 percent of a project's depending on the market. Voluntary RECs typically compose 10-20 percent of a project's revenue.

The additional revenue earned by renewable generators through REC sales is essential for enabling renewable projects to compete with heavily subsidized fossil-fuel generators. The REC markets in the United States are some of the most sophisticated environmental markets in the world.[4]

[3] *30 states and the District of Columbia currently have compliance legislation in place. Several other states have enacted voluntary programs.*

[4] *The combined market for compliance and voluntary RECs in the United States is valued at $5–10 billion annually.14 jurisdictions from Illinois to North Carolina.*

They are particularly important because of their integrity and their "traceability"—their ability to trace the production of renewable energy across multiple states, a variety of technologies, and across multiple jurisdictions, and millions of owners.

The REC markets also enable governments, businesses, and the public to directly participate in valuing renewable energy and assigning long-term value to renewable energy assets – driving the energy transition. While large organizations often negotiate complex virtual power purchase agreements (PPAs) to procure large volumes of renewable electricity and RECs bundled together, unbundled REC markets enable individuals and smaller organizations, like churches and schools, to also participate in the renewable energy market and purchase their electricity from clean sources even if they can't procure electricity directly from onsite or offsite generation.

Part II: REC Markets and Additionality

How REC Markets Drive Additionality

The economic concept of additionality is a bit like the "but for" test in tort law: but for a specific action or intervention, a certain outcome would not take place. In the renewable energy industry, additionality generally means that but for a specific agreement to buy energy from a specific facility, that facility would not be built.[5] Many customers look to buy electricity from new renewable energy projects to create additionality.[6] Some have raised concerns that current REC markets do not effectively drive additionality or the development of new renewable generation. We disagree.

RECs and REC markets play a key role in driving new renewable energy deployment and projects by guaranteeing an income stream for new projects. Project owners earn a significant portion of their revenue by selling their project's RECs, either to its electricity off-taker in a bundled sale or independently to third parties. In either case, revenues from REC sales often provide the critical cash flows that enable a project to move forward.

Large corporate customers drive around 25 percent of all large-scale solar build in the United States. Most of these customers procure their electricity through a financial instrument called a "virtual PPA." Under a virtual PPA, a customer commits to purchase electricity from a specific project at a fixed price, and instead of delivering electricity directly to the customer, the project delivers its electricity onto the grid at a floating market price. The customer then pays the project owner the difference between the fixed and floating prices, guaranteeing a fixed revenue stream for the project,[7] making it financeable and hence enabling the project to be built.

Even when these customers buy a bundled product (the purchase of both RECs and electricity) through a virtual PPA, they're still purchasing RECs. When the renewable project delivers electricity onto the grid, that electricity is sold through the RTO or to the local utility, and the corporate customer (buyer) is really transacting on a financial swap. The project then keeps the green attributes associated with generation in the form of the RECs and those RECs are sold to the customer for retirement.

[5] Additionality is a determination of whether an intervention has an effect when compared to a baseline. Interventions can take a variety of forms but often include economic incentives. The concept was initially used in carbon offset markets.

[6] Actually measuring the environmental impact of displacing this electricity in a certain location and at a certain time is a bit more complicated, and new "additional" build in an electricity market that has no carbon footprint does not provide environmental benefits

[7] There are situations where this can be reversed

Corporate buyers can (and should) still claim additionality (if that is their critical metric) if the virtual PPA enables new generation. However, these buyers should recognize that this approach is really a combination of a financial instrument plus a REC procurement; and should also recognize that other financial instruments may enable new renewable energy projects just as meaningfully. For example, if a customer's goal is to provide a financeable income stream for a project to drive new renewable energy capacity (additionality), they could alternatively purchase RECs from the project over a long period of time or finance the project with critical tax equity – or both.

Consider the following example: a project in the Southwest Power Pool (SPP) may have the opportunity to sell its RECs unbundled from the associated electricity. A project owner in the SPP might find that the voluntary REC market provides a better premium for its renewable energy than the utility - which drives healthy competition in regulated territories. A corporate customer hoping to procure renewable energy and drive new capacity could contract to purchase 10–15 years of RECs from the project, providing a financeable revenue stream and creating additionality similarly to a PPA. Further, enabling projects in SPP through such a REC strip may have a more profound impact on reducing carbon emission than transacting on a virtual PPA in the California Independent System Operator (CAISO) given the higher carbon intensity of the SPP grid. More on that in a moment.

In short, by purchasing RECs, customers can provide critical cash flows to projects that would not have been financially viable otherwise. Over the last decade, Sol Systems has worked with over 20,000 customers to provide long-term REC financing, and by doing so has facilitated the development of tens of thousands of new projects – that is additionality.

RECs are Critical Regardless of Additionality

Of course, RECs can also be purchased from preexisting renewable energy projects. Although revenue generated by REC sales can be critical to an existing project's continued operation, these purchases do not drive new construction and therefore generally aren't associated with additionality. While we understand (and support) the preference for new build, preexisting RECs are also critical to the industry for a couple of reasons.

First, RECs enable project owners and customers to track and transact renewable energy in a market in which electrons are liquid and impossible to track. Second, investors rely upon merchant unbundled RECs (sometimes from the beginning and sometimes after a PPA term) in their underwriting to finance renewable energy projects just as they rely upon merchant electricity. The opportunity to eventually sell these "merchant" RECs is an essential basis for an owner's initial investment in a new project. Although the decision today to purchase RECs from an operational renewable energy facility does not lead to new build (because the project has already been built) the current market for unbundled RECs was a core part of the initial underwriting and financing of the project when it was developed years ago.

Customers that purchase and retire RECs from preexisting renewable energy assets can still claim renewable energy use by offsetting non-renewable or brown electricity with merchant RECs. They should just be clear about what type of RECs they have purchased,[8] and about the fact that the REC purchase did not drive new or additional solar projects. Moving forward, customers should also begin to disclose the carbon "benefit" of these RECs and compare that to the carbon footprint of their current electricity needs. A concept often referred to as emissionality or locational marginal emissions.

[8] For example, "We have offset all of our electricity for this facility with renewable energy from an operating wind farms located in our utility territory."

Part III: REC Markets and Emissionality

One criticism of REC markets is that they were designed to drive renewable energy, and have succeeded, but they are not calibrated to necessarily incentivize the outcome we are all trying to achieve – a net-zero economy. This is a fair criticism, and one that becomes more cogent and important as we build more renewable energy. We should not be incentivizing new renewable energy build in a market that is already saturated with renewable energy the same way we incentivize renewable energy build in a market that relies upon coal. REC markets have been critical to supporting and catalyzing new renewable energy capacity. Moving forward, they must better capture, reflect and value the carbon emissions that this new renewable energy capacity is displacing - also referred to as "avoided emissions",

The implicit environmental value of renewable electricity corresponds to the carbon and other pollutants associated with the non-renewable electricity it displaces, usually measured in CO2e.[9] The carbon intensity of a grid changes throughout the day and is a function of the fuel sources (coal, natural gas, bunker fuel) used by generation facilities on the grid at a specific time. Each fuel source has a CO2e impact, and the carbon footprint of each utility territory or RTO at a given moment is an amalgamation of these different generation facilities that are producing. Companies like Watt-Time are endeavoring to measure this impact in real-time.

REC markets are critical tools for this endeavor. These markets could (and should) tag each REC with the corresponding carbon intensity of the grid at the time and location of their production to provide customers with both the traditional MWh displaced metric, and also a CO2e metric measured in tons.[10] This is exactly the information customers need to measure, trace, and ultimately price the specific environmental impact of RECs with an aim to fully displace carbon on the grid. This approach to valuing renewable energy based on actual displaced emissions is often referred to as “emissionality,” and several large corporations are working to develop better methods of accounting for this metric.

While these changes would add complexity to existing REC markets, the benefits would be substantial.

First, utilities, retail energy suppliers, corporations, and other consumers could better understand the actual carbon reduction associated with each REC, and value RECs based on the corresponding CO2e value. This would incentivize renewable energy development in utility and RTO geographies with a higher carbon footprint, accelerating the transition to carbon-free electricity. This would also enable states to transition RPS programs into carbon-free programs by linking the language and metrics of carbon (tons offset) with the language and metrics of RPS markets (MWh produced and offset).

Second, the changes would help large corporations, academics, and the SEC, who are

[9] Currently the environmental impact of electricity production and other human activities is measured in CO2e. This measures the impact of a given activity on global warming (the global warming potential) over a century and compares it to the same impact of one ton of carbon dioxide over the same period of time. This is an attempt to standardize and measure the impact of human activities on climate. Environmental markets must improve tracking and valuation of other pollutants, e.g., mercury, nitrogen oxides, and particulate matter. CO2e is a good start.

[10] Carbon intensity of the grid could be measured at the RTO level, at the utility level, or at the actual nodal level. The greater the specificity the more precise the market can be in incentivizing localized environmental benefits, but the more complex the market tracking and systems need to be. We would suggest utilizing a RTO average as a start.

struggling with how to integrate RECs into Scope 2 requirements because RECs measure MWhs of renewable energy, and Scope 2 requirements focus on carbon displaced. Customers can currently offset the electricity they consume with RECs without an understanding of the carbon intensity of the grid in which they operate, or the emissionality of the RECs that they procure. They may be procuring too many RECs; or procuring too few.[11]

Tagging RECs with a carbon intensity (in tons of CO2e) would enable these customers to precisely match their REC procurement and carbon credit procurement under one framework to achieve verifiable carbon neutrality. Creating a 7-year transition period for customers and markets to integrate RECs based on their emissionality into their Scope 2 plans would enable both the market to evolve, and customers to better measure and plan for their carbon-free future.

Our Conclusion: A New Architecture for the Future

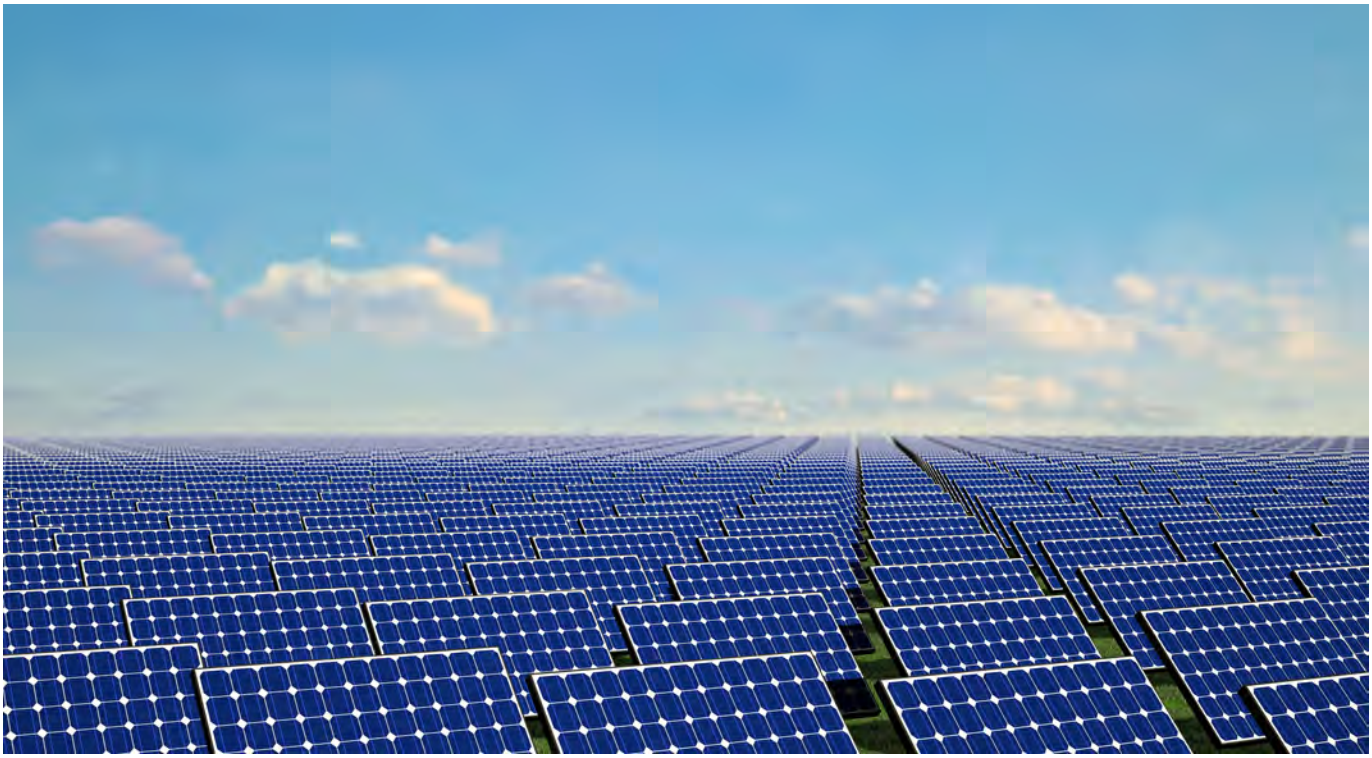
Over the past 14 years, Sol Systems has helped develop or finance tens of thousands of renewable energy projects throughout the United States. In our experience, REC markets provide a proven and effective framework for valuing, incentivizing, and transacting with renewable resources. It is critical for customers, utilities, policy-makers and other stakeholders to understand the significant potential of these markets and also possible areas of improvement. We urge academics and policy-makers, especially those who may not actually be actively involved in the renewable energy industry to listen to and engage with the practitioners and participants currently building the industry.

We recommend three primary adaptations for our industry:

1. **Redefine & Broaden the Concept of Additionality:** Additionality is a core principle for many large corporations seeking to catalyze the development of new renewable energy capacity. Additionality is not the same as emissionality, but it does drive the displacement of carbon-intensive fuel sources on the grid. We'd urge corporations to rethink how they define additionality with respect to renewable energy procurement and adopt a more flexible and broader approach that could incorporate long-term REC procurement and/or financing. From our perspective, additionality should mean providing critical additional financial certainty for a project that enables that project to move forward; and can be achieved through multiple strategies.
2. **Integrate Emissionality into REC Markets:** RTOs should move quickly to integrate emissionality into REC tagging and tracking so that market participants can better integrate carbon intensity and emissionality into their REC procurement. These RTOs should meet to discuss an appropriate and uniform application of the concept. Market participants, including NGOs and interested corporations, can help fund these efforts if needed. This effort should begin in the United States, but should be leveraged and replicated in other countries, beginning with those that are most critical to decarbonization. Emissionality gives us the tools and the language to talk constructively about renewable electricity production, RECs and carbon intensity interchangeably.

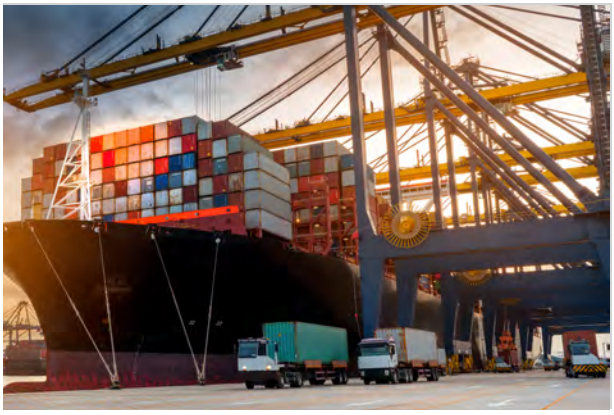
[11] Offsetting electricity consumption with RECs is a critical first step but doesn't entirely reflect the carbon intensity of the renewable energy or the carbon intensity of the electricity consumed. Customers could be over-purchasing RECs because the grid they're operating in is has a low carbon intensity compared to where they are purchasing RECs from; or under-purchasing RECs because the grid that they are purchasing from has a low carbon intensity compared to where they are operating.

3. **Integrate REC Emissionality Into Scope 2 Requirements:** We urge academics and policymakers to leverage and adapt preexisting REC markets to architect and achieve the carbon-free future we are all focused on creating. Current REC markets are efficient and transparent platforms to transact both RECs and related CO2e reduction. Rather than carving out REC procurements from Scope 2 compliance, as some have suggested, REC markets should be a key tool and instrument for implementation. Corporations currently offset their electricity and related carbon footprint with REC procurement. We recommend a 7-year ramp towards a framework where corporations reach their Scope 2 requirements through the CO2e of their REC procurement, a more precise methodology that bridges RECs (measured in MWh) and carbon (measured in CO2e). This enables the appropriate development of this market architecture.



Navigating the Uyghur Forced Labor Prevention Act

By Chris Accou



Solar importers need clearer guidelines from U.S. Customs and Border Protection (CBP) under the Uyghur Forced Labor Prevention Act (UFLPA). The UFLPA is the latest in a series of trade interventions with crucial implications for the deployment of solar technologies to take effect in the last year.

Specifically, the UFLPA prohibits imports into the United States of any goods mined or produced using forced labor from the Xinjiang Uyghur Autonomous Region of China. The CBP began enforcing the law on June 21, 2022. While the UFLPA targets a broad range of imports, solar panels have been a focus. CBP issued further guidance on June 13, 2022, citing manufacture of polysilicon—a critical component in solar panels—among the sectors with the highest risk of exposure to forced labor in Xinjiang. As of August, enforcement of the UFLPA has already resulted in more than three gigawatts' worth of module detentions by CBP. Given its influence on the global photovoltaic supply chain, and especially in light of concurrent federal investments made to scale up domestic solar manufacturing, the Act's enforcement remains critical.

The UFLPA's reinforcement of existing U.S. regulations against forced labor comes in response to the state-sponsored detainment of more than 1.8 million Uyghurs and other Muslim minority groups in a system of mass internment camps in Xinjiang, China. Having recently navigated a CBP-issued Withhold Release Order (WRO) of a similar nature, solar module suppliers and their consumers are committed to identifying and removing forced labor from their supply chains. The UFLPA, however, heightens the evidentiary standard imposed on U.S. importers by rebuttably presuming that all goods mined, produced, or manufactured "wholly or in part" in Xinjiang or by entities listed on the Department of Homeland Security's entity list are made using forced labor. Such goods are therefore denied entry into the U.S. unless an importer can "clearly and convincingly" prove that its imports are (i) outside the scope of the UFLPA, so that the presumption does not apply, or (ii) within scope but eligible for an exception. Rebutting the Act's presumption requires substantive supply-chain documentation that ties every component in a product to a source that is free of forced labor. To that end, importers have so far relied on affidavits from suppliers attesting to the origin of their products while also collecting bills of lading, production records, invoices, and other supporting evidence. CBP should streamline the process for importers providing such information and increase the number of solar panels and critical components that are allowed to pass across U.S. borders.

TRENDS & OBSERVATIONS

Raw materials from Xinjiang are found in dozens of supply chains across the agriculture, healthcare, manufacturing, and energy industries; but because nearly half of the global supply of polysilicon comes from Xinjiang, CBP's enforcement of the Act means that U.S. solar developers will continue to struggle until CBP provides transparent guidance on import requirements and documentation. Similarly to the Department of Commerce's ongoing circumvention investigation, whose mere initiation put 51 GW of solar capacity and $52 billion of utility-scale investment at risk, the UFLPA is set to prevent as much as 12 GW of solar modules from entering U.S. markets by the end of 2022. According to AnnMarie Highsmith, Chief of Trade for CBP, as of September the agency had yet to receive any applications from importers for what it calls admissibility reviews — requests to rebut the Act's presumption using documentation. Instead, Customs has processed several requests for applicability reviews—claims by importers that goods currently detained by CBP have no connection to Xinjiang or restricted entities.

The American solar industry is taking the fight against human-rights abuses seriously. Many companies have reoriented their supply chains and onboarded third-party audit procedures to avoid using polysilicon sourced from anywhere in the Xinjiang region, and with the support of the Biden Administration, the Solar Energy Industries Association (SEIA) has taken steps to turn an internal supply-chain traceability protocol into an industry standard. However, it is essential for CBP to provide clearer guidance and systematic procedures for solar imports.

Small Organization Tackles a Big Problem: Building Capacity to Strengthen Community Impact

By Adaora Ifebigh

A challenge often seen across grassroots community impact work is building capacity[12] within community organizations. As the clean energy transition grows, an immediate priority is ensuring that small community organizations, especially those serving low-income, coal-reliant, and BIPOC communities, as well as communities that have been affected by environmental challenges, can increase the capacity needed to continue serving their communities.

Over the past year, Sol Systems' impact team engaged with over 150 community impact organizations across the United States to introduce ourselves and learn about their work. We shared our Infrastructure + Impact™ mission with the organizations, building the trust that is key to working with low-income and historically marginalized communities.

The organizations we met varied in their size and scope - from workforce development, environmental conservation and remediation, energy efficiency and weatherization, to clean energy generation and resiliency hub development. Each of the organizations is doing its part to embed equity and inclusion in its work so that no individual or community is left behind in the transition to a clean energy economy. During our conversations, it became obvious that these organizations share a common challenge: raising the funding needed to grow their programs and widen the scope of their impact.

Case Study: Huneebee Project

Huneebee Project (Huneebee) is one organization meeting the capacity challenge head-on. Headquartered in New Haven, Connecticut, Huneebee is a nonprofit social enterprise that brings beehives to community gardens and equitable employment to local youth. Its founder and Executive Director, Sarah Taylor, is a licensed clinical social worker and beekeeper with a history of serving youth in New Haven. Drawing from her experience working with youth who would one day participate in her organization's programs, Sarah developed the idea that youth development and local environmental conservation are goals that complement each other. Founded on this belief, Huneebee teaches transferable job skills to young individuals to prepare them for work in other environments.

The training program also includes "wraparound" support for trainees such as resume building workshops and other activities designed to help them succeed in the workplace. Primarily, this program and the team at Huneebee provide stability and structure for young people that often miss it in their everyday lives. At the end of the training program, the trainees are invited to apply for jobs with Huneebee as garden site managers, operations assistants, bee apprentices, and junior bee instructors.

[12] *In this article, capacity focuses on an organization's ability to raise or obtain the funding needed to grow its programs and serve more members of the community.*

In the four years since inception, 25 trainees have graduated from the Beekeepers in Residence program, Huneebee's premier job skills training program, which has one cohort per year. When I asked Sarah why the program was limited to only one cohort of about six trainees per year, the response could be summarized into one word – capacity. Huneebee's supervisory staff and instructors are all volunteers, and all its funding is spent on the bees, the hives, stipends for the youth trainees, and decent wages for the youth employees. This is the first year that Sarah will not need a second job to support herself while she focuses on developing the organization's programming and raising funds to support its expansion. Like any other young organization, Huneebee has challenges to meet before it can scale its impact in the community. These needs range from hiring a full-time beekeeper to responsibly care for its hives, maximize honey production, host more hives, increase the bee-keeping workshops, and move into a permanent space. Most importantly, Huneebee knows that the best way to deepen their impact is to increase their cohort size. Huneebee recently secured two multi-year grants and completed a successful fundraiser which will allows them to increase the number of hours they can offer their youth trainees, run up to three cohorts next year, and deepen its impact. Recently, they have finally hired a full-time beekeeper!

Sarah Taylor is justifiably proud of the organization she founded, especially the youth who have come through its doors to date. For her, there is a sense of responsibility to support workforce pathways for young people in the community. Non-profit community impact organizations like Huneebee Project are important in their communities. Often these groups provide needed social services such as education and job skills training, which many of the residents depend on, that help enhance the welfare of the community. But the need for these services is usually much greater than the non-profit's capacity to provide them.

Building capacity does not happen instantly, but its benefits to non-profits and community organizations such as Huneebee Project cannot be overstated.

Other Organizations

For more information about community organizations embracing the challenges of capacity-building to deepen impact in their communities and how you can help, check out these other organizations in the Baltimore-Washington metropolitan area. These are a few of the organizations that we engaged with in the past year:

Computer CORE is a nonprofit organization whose mission is to prepare underserved adults in Virginia to achieve their career goals by teaching foundational digital and professional skills. Computer CORE has a long history of helping Virginians from over 100 countries to "build confidence in the computer skills needed to participate in today's economy."

South Baltimore Community Land Trust (SBCLT) is a community-led non-profit organization working to build affordable housing, ensure development without displacement, and zero waste. SBCLT was founded after years of research and action by high school students and residents in South Baltimore. SBCLT believes that "people directly impacted by environmental, economic and racial injustice must be in the lead to create development that regenerates our communities and our planet."

SOLAR CHATTER

In yet another example of renewable energy's incredible momentum, **a recent report by BloombergNEF found that solar and wind energy accounted for 10 percent of global electricity generation in 2021**. Just 10 years ago, the two sources combined for less than one percent of global generation. Who knows how far we'll be looking back at 10 percent a decade from now?

After Hurricane Ian battered the Caribbean and Florida, solar energy proved to be one of the most resilient and important sources of power for many residents in the aftermath of the storm. Particularly in Puerto Rico, where much of the electric infrastructure was brought offline, rooftop solar provided many residents with a lifeline to power.

Last week, **the U.S. Treasury began holding meetings with leaders in the clean energy industry in an effort to streamline new guidance on incentives included in the Inflation Reduction Act**. The meetings, which will consist of six roundtable discussions, are focused on expediting the development of guidance while ensuring it is "correct and strikes the right balance".

September saw the return of the industry's largest trade show, RE+ (formerly named Solar Power International), **which saw more than 27,000 attendees descend on Anaheim for the conference.** This was the first show to include all technologies in the clean energy space and the excitement around the Inflation Reduction Act from the industry at large was evident. For our analysis of the Inflation Reduction Act, read our lead article from the August edition of the Sol SOURCE.

DEVELOPMENT PARTNERSHIPS

Sol Systems is currently developing utility-scale projects across the U.S., and is working with developers to provide optimal financial solutions for their projects, leveraging our ability to structure unique financial vehicles for environmental commodities. See below a list of our projects under development, click the links on their name to learn more.

Project	Size	Location
Eldorado	150 MW	Saline County, IL
Tilden	150 MW	Randolph County, IL
Prairie Creek	37 MW	Morgan County, IL

Interested developers and financiers should reach out to finance@solsystems.com

VIRTUAL EVENT

SOLSYSTEMS

Impact Partner Engagement Series

Year-End Showcase

Building Partnerships to Address Community & Ecosystem Challenges:

December 1, 2022

Join Sol Systems and a group of our partners as we share insights on our Impact + Infrastructure approach, discuss the goals of our partnerships, and spotlight some examples of how investments from clean energy can help support the energy needs of low-income and under-served communities and foster partnerships that can help ensure that community and ecosystem investments are sustainable.

CONTACT US

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

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