Webinar: How Western States Can Achieve Grid Decarbonization
Featuring Singularity Energy, EnergyTag, and CleanCounts
August 13, 2025

Opening Remarks

Rob Davis (Chief Growth Officer, CleanCounts):
Good morning and welcome, everyone.

It's great to have you here today for this conversation and webinar.

Welcome to *How Western States Can Achieve Grid Decarbonization with Singularity Energy, EnergyTag, and CleanCounts.*

I'm Rob Davis, Chief Growth Officer for CleanCounts, and I'm delighted to pass the microphone to Brian Rounds, our Board Vice Chair and a consultant with ASELC Consulting. Brian joined the organization in 2016 after spending nine years as a utility analyst for the South Dakota Public Utilities Commission, including being appointed by the Governor of South Dakota to serve on the Western Interconnection Regional Advisory Body, which advises WECC, NERC, and FERC on reliability standards.

Brian, over to you.

Introductions

Brian Rounds (Vice Chair, CleanCounts):
Thanks, Rob.

Good morning.

As Rob mentioned, my name's Brian Rounds. I've spent most of the last two decades working in energy policy. I'm based in South Dakota, so I've been fortunate to be involved in market formation in both the East and the West.

I was on the initial committee of state regulators that created the Midwest Renewable Energy Tracking System, or M-RETS, as we used to call it. We now call it CleanCounts, which is a much better name.

Today, I spend most of my time helping clients on state regulatory and regional market issues, with a specific focus on the Southwest Power Pool, or SPP. For this webinar, our focus is on the West and how states can achieve their energy decarbonization goals in this new era.

Having worked on both sides of the interconnection, it's clear to me that the cultures are very different. The West has always been at the forefront of clean energy policymaking. However, there's nuance in how we track what energy is generated and what is consumed.

Market developments in the West are highlighting some of the shortcomings of the tools we've used so far. As we move toward higher decarbonization goals, we'll need more complex tools offering higher resolution and granularity.

TVs are a good analogy: as we moved from CRT to LCD to 1080p to 4K to 8K, the picture has become much clearer. Rob likes to suggest that right now we're still working with an abacus, when we need to be using an iPhone.

So today, we're going to talk about:

- what tools currently exist,
- what new solutions are out there, and
- what more is needed to align tools and systems with the decarbonization leadership being pursued by states and voluntary markets in the West.

Before jumping into questions, I'll go down the line and ask each of our speakers to introduce themselves and the solutions they're working on. And I want to make sure this isn't just a sales pitch — so I'll ask each of you to also tell us how you're driven by service.

Wenbo, I'll start with you.

Wenbo Shi (Founder & CEO, Singularity Energy):
Thank you, Brian, and thank you, Rob, for inviting us to this webinar.

My name is Wenbo Shi. I'm the founder and CEO of Singularity Energy. We are a technology provider that works with utilities and grid operators to help them track emissions and also provide services on top of the data.

Some of our customers include MISO, where we provide Emissions Dashboards so everyone can get access to highly granular emissions data directly from the system. We also work with Southern Company on the utility side to help manage green tariffs and give their customers access to highly granular, transparent emissions data.

This is not a sales pitch because at Singularity we're all energy nerds. We're very data-driven. We debate technologies, philosophies, and methodologies. We're not driven by selling software; we're driven by getting to ground-source data so that we can unlock new use cases that drive grid decarbonization. That's our mission.

I'll stop here and hand it back to Brian.

Brian Rounds:
Thanks, Wenbo.

Alex, please introduce yourself.

Alex Piper (Head of U.S. Policy & Markets, EnergyTag):
Hello, I'm Alex Piper, Head of U.S. Policy and Markets for EnergyTag.

EnergyTag is a global nonprofit. We advocate for and develop standards to guide the transition toward granular certificate issuance and usage.

In practice, that means we do three things:

1. **Standards Development** – We develop open-source standards for granular certificate issuance. A granular certificate is an hourly, time-stamped energy attribute certificate that enables more accurate temporal and locational matching.
2. **Policy Advocacy** – We work with policymakers on frameworks like the U.S. 45V clean hydrogen tax credit, state CES and RPS reform, power source disclosure, and more. Internationally, we're engaged in updates to the GHG Protocol, the Science-Based Targets Initiative, and ISO standards.
3. **Market Engagement** – We support registries and corporates in adopting granular procurement strategies, such as 24/7 matching.

As a nonprofit, we don't sell products. Our mission is to support effective and rapid grid decarbonization by realigning clean energy markets with the physical realities of the grid.

Significant research shows that hourly, locational matching of electricity procurement drives investment in storage and clean firm technologies. That reduces reliance on thermal generators and lowers costs for all ratepayers. By contrast, today's rules allow mismatches like claiming solar at night or wind from Texas in Maine. This misaligns incentives and raises costs.

So a granular accounting structure, where load is matched to clean supply on an hourly locational basis, sends the right signals for investment in storage and firm clean technologies.

We describe this as an efficient and effective decarbonization strategy.

Thanks for having me. I'm looking forward to the discussion.

Brian Rounds:
Thanks, Alex.

Our last speaker is James Critchfield. We're thrilled at CleanCounts to have been able to bring him on after a wonderful career at EPA. James, go ahead.

James Critchfield (Head of Registry & Market Integrity, CleanCounts):
Thanks, Brian, and hello, everyone.

As mentioned, I recently joined CleanCounts as Head of Registry and Market Integrity. CleanCounts is a 501(c)(4) nonprofit and the market leader in energy attribute tracking in North America, representing about 40% of certificates issued.

Our mission is to track power generation and delivery across U.S. energy grids. The electrons we consume don't reveal their origin, so certificates provide credibility and transparency. We also track other renewable fuels such as biogas.

In my role, I oversee the development and governance of our high-fidelity registry. Our approach is climate-aligned, technology-forward, and customer-focused.

Before joining CleanCounts, I spent about 20 years at the U.S. EPA, where I led the Green Power Partnership, which worked with organizations to voluntarily choose how their power is generated. These efforts relied on tracking systems like CleanCounts to validate transactions. I also advised RE100, served on the Green-e Standards Board, contributed to GHG Protocol updates, and worked for a solar developer earlier in my career.

I'm excited to continue this work at CleanCounts.

Brian Rounds:
Thanks, James. That's a great foundation.

Now, let's use that as a jumping-off point. James, I'd like to ask you the first substantive question to help us set the stage.

As we consider this new era of energy and emissions leadership, could you talk a bit about where we've come from, so the audience has some grounding in the history and the context of where we currently stand?

James Critchfield:
Sure, Brian. The history here is several decades long, but I'll focus on a few areas that really help define the past in terms of energy and emissions leadership — and what trends have led us to where we are today…

The first area is the **regulatory and voluntary market context.**

As many of you know, 28 states plus the District of Columbia have adopted renewable portfolio standards — RPS mandates. These require electricity suppliers to meet minimum percentages of renewable resources as part of their standard service. RPS policies provide a floor. If you, as a customer, did nothing, you'd still be served whatever percentage of renewables that RPS guarantees. And in many states, those percentages ratchet up over time.

Voluntary markets, in contrast, are made up of buyers who go beyond that minimum. These are corporate purchasers, higher-ed institutions, nonprofits, small businesses, even individual households, choosing to invest in clean energy beyond what's required. That idea of *additionality* has been powerful. The voluntary market has created demand for renewables above and beyond regulation, and, in fact, has delivered more installed renewable capacity to date than regulation alone.

The second area is the **role of tracking systems.** Tracking systems make sure we know what sources are generating renewable energy, and that those attributes aren't counted twice. They give consumers confidence: if you make a voluntary purchase, you know exactly what you're getting and what you can credibly claim. That credibility is essential for both regulatory compliance and voluntary programs.

Third, let me share a **historical perspective with some numbers.** Around the year 2000, non-hydroelectric renewables made up just 2 to 3 percent of total U.S. retail electricity sales. If you added conventional hydropower, that contributed another 6 percent. So together, renewables were in the 7 to 8 percent range. Fast forward 25 years: hydropower is still hovering around 6 percent, but non-hydro renewables have grown to about 19 percent. So today, roughly one-quarter of all U.S. retail electricity sales come from renewable sources.

The fourth area is **policy interactions.** Many states, in addition to RPS requirements, have layered on emissions policies. Think of the Regional Greenhouse Gas Initiative in the Northeast, or California's cap-and-trade and other climate programs. These emissions policies interact with energy policies in ways that can be complicated. If they aren't carefully designed, they can undermine voluntary market claims — for example, when a voluntary buyer believes they're reducing emissions through their investment, but the same reduction is also being counted toward state compliance. That creates tension and confusion.

And lastly, there's the matter of **infrastructure.** Today we have about nine tracking systems across the U.S., each playing a critical role in keeping all of this credible — preventing double counting, serving both compliance and voluntary purposes, and giving everyone a clear and detailed picture. Having robust, comprehensive tracking infrastructure is absolutely foundational to everything else.

So, when you put those pieces together — the regulatory floor, the voluntary markets building on top, the numbers showing how far we've come, the interactions between policies, and the infrastructure that holds it all together — you get a sense of how we arrived at the present moment.

So that's where we've come from.

Brian Rounds:
Thanks, James.

<mark>Alex, I'd like you to elaborate on some of the things James just touched on. I know EnergyTag is especially focused on avoiding double counting, and on the way energy and emissions accounting rules interact. Do you want to expand on that?</mark>

Alex Piper (Head of U.S. Policy & Markets, EnergyTag):
Yes, absolutely. Picking up right where James left off: the tracking systems that exist in the U.S. — and globally — are the foundation. They make it possible to implement evolving policies, regulations, and voluntary standards.

EnergyTag's standard for granular certificate issuance describes a pathway forward for these tracking systems: what elements are needed, what software pieces, and what types of data must be included so certificates can be used for different purposes.

That might mean certifying electricity used for hydrogen production under the 45V tax credit. Or it might mean voluntary buyers wanting to match their hourly load with clean supply. But the foundation is the same: reliable, granular data, tracked credibly.

There's another piece here — alignment between **regulatory and voluntary markets.**

Right now, regulatory frameworks (like state RPS/CES) often allow broad annual or regional matching. Voluntary frameworks, like the Greenhouse Gas Protocol, are moving toward more granular matching. If those two systems aren't aligned, we risk undermining integrity and impact.

For example, the GHG Protocol's scope 2 update process is underway right now. The indication is that it will move toward temporal and locational matching standards. A public comment period is expected soon.

If state RPS programs don't modernize in a similar direction, we'll miss an opportunity. We'll end up with rules that say you can procure renewables across the country, across the year, and still claim compliance — but that's in tension with the way we want to incentivize real decarbonization.

So what we need is alignment. The incentives and accounting rules should reflect how electricity really flows and how the grid really operates. That's what drives the right investments in storage, clean firm resources, and flexible load.

So: tracking systems provide the infrastructure. Standards like ours describe the rules. And policymakers can then align their frameworks with that infrastructure to maximize impact.

Brian Rounds:
Thanks, Alex.

<mark>Wenbo, I'd like to bring you back in. Let's talk about new solutions. How would you describe the trajectory of the future, based on where we've come from? Feel free to make it specific to the West.</mark>

Wenbo Shi (Founder & CEO, Singularity Energy):
Sure, thanks Brian.

I think there are three big trends to highlight.

First: granularity.
We're moving from annual or monthly tracking to hourly — and even sub-hourly in some cases. That's time granularity. And we're also seeing greater location granularity: not just tracking where power is generated, but also where it's consumed. That consumption perspective has historically been missing.

Second: shifting from supply-only to consumption-based tracking.
Most existing systems were designed for compliance, so they track generation only. But if you're a company or individual asking, "Where does my electricity come from?" — the systems can't answer that directly. That's why we're seeing growing demand for consumption data matched to generation, based on physics or on contractual relationships.

Third: procurement strategies and policy design.
Once you have granular data, you can go beyond tracking and start using it to drive decisions. Procurement strategies can be reshaped, policies like next-generation RPS or CES can be designed with more precision, and market mechanisms can be built to incentivize the right behaviors.

And this is very relevant in the West. For example, CAISO and SPP are already exploring how to use wholesale market data to support these next-generation policies. States may want to incentivize in-state generation, or target emissions outcomes, and granular data makes those policies credible.

So the message I'd emphasize is: the technology already exists. We've piloted it with MISO, with Southern Company, and with others we'll announce soon. The challenge now is using that infrastructure to design markets and policies that achieve each state's objectives.

And importantly, we need stakeholders — policymakers, registries, market operators, utilities — to align on common groundwork, so that we're not fragmented. That's how we'll decarbonize the grid effectively.

Brian Rounds:
Thank you, Wenbo.

And I'll add a quick note from what I'm seeing in the West right now.

For example, SPP is building out its day-ahead market. At the same time, the state of Washington has a carbon pricing program. SPP is moving to five-minute dispatch, which allows highly granular tracking of generation. Washington, meanwhile, needs its rules to be aligned with that market design.

It's almost a chicken-and-egg problem: policy and market design have to evolve together. If they don't, you risk double counting or rules that don't fit the market reality. That interplay is one of the most interesting dynamics to watch in the West right now.

Alex, let me throw the question back to you. Same as Wenbo — how would you describe the trajectory of the future, based on where we've come from?

Alex Piper (Head of U.S. Policy & Markets, EnergyTag):
Thanks, Brian. I liked Wenbo's framing — start with the policy objective, then work backwards. Whatever the goal is, achieving it in this phase of the energy transition requires more granularity, more physical realism, and more accuracy in accounting.

Let me give two Western examples.

First, California.
Earlier this year, California updated its power source disclosure rules. Load-serving entities will now need to report supply on an **hourly basis.** That's a big step for transparency, and it creates opportunities for voluntary buyers to demand cleaner supply. The law doesn't yet require hourly certificates — but having them would make that reporting far more consistent and credible, and it could eventually connect with RPS reform.

Second, Oregon.
The state passed the **Power Act,** which addresses the impacts of load growth — especially large new loads like data centers — on ratepayers. Utilities will need to design tariffs that reduce or remove those impacts. One way to implement that is requiring large loads to procure clean electricity on an hourly basis. Aligning consumption and clean supply reduces system stress and protects ratepayers.

These are just two examples of ambitious Western policies. The point is that different policies have different goals, but all of them need granularity to work effectively. Hourly certificates, with location attributes, can provide that.

We've moved beyond the stage of just building renewables. In the West especially, we're now in the stage of **integration** — figuring out how to decarbonize efficiently, without unfairly raising costs on ratepayers. That means incentives for storage, for clean firm resources, for demand flexibility — and those incentives depend on granular tracking.

That's the message: the ambition is good, but achieving it requires the infrastructure being built today.

Brian Rounds:
Thanks, Alex.

James, let's turn to you. What challenges do you see ahead as the market continues to grow and pursue decarbonization?

James Critchfield (Head of Registry & Market Integrity, CleanCounts):
Yes, thanks, Brian.

There are a few big challenges coming into focus.

First, state policy complexity.
The Western Interconnection is made up of many states, each with different approaches. Some have emissions policies — cap-and-trade programs, clean energy standards, carbon-free requirements — that interact with RPS programs. Regulators are bound by their state's legislative intent, and their jurisdiction usually stops at the state border. That can create mismatches with regional markets.

When emissions policies aren't backed by market instruments, you risk double counting. A voluntary buyer might think they're claiming renewable generation, while at the same time a state program is also counting it toward compliance. That undermines both.

Second, voluntary market integrity.
Voluntary buyers need to know that their investments are credible and not being claimed elsewhere. If that confidence is shaken, voluntary demand could weaken — and that demand has been a huge driver of renewable growth.

Third, infrastructure.
The systems to support all this already exist. For example, CleanCounts has piloted and implemented hourly tracking. We've proven it works, with both front-end and back-end

infrastructure. The challenge is for policymakers and stakeholders to build on what's working, rather than reinvent the wheel.

So the challenges are: aligning state policies, protecting voluntary claims, and making sure infrastructure is credible and continuous.

Brian Rounds:
Thank you, James. And I see we've got a question in the chat. Let's go to that.

Surabhi from the Low Impact Hydropower Institute — I'll unmute you. Go ahead.

Surabhi Karambelkar (Low Impact Hydropower Institute):
Thanks, Brian, and thank you all for this discussion. At the Low Impact Hydropower Institute, we're focused on reducing the environmental impacts of hydropower.

One issue we've been looking at is reservoir emissions. In the Pacific Northwest — and the West more broadly — a lot of power comes from hydro. Some reservoirs are very large, and their operations can release greenhouse gases. We published a paper on this.

The Greenhouse Gas Protocol is expected to start requiring reservoir emissions reporting later this year. As states move to CES paradigms, it's important that any assumptions about hydropower's "clean" status are backed up by tracking.

So my question is for Wenbo and Alex: how do you see hydropower emissions being factored into tracking systems?

Greg Miller (Research & Policy Lead, Singularity Energy):
Thanks, Surabhi. I'll jump in first. I'm Greg Miller, Research and Policy Lead at Singularity, and I also sit on the technical working group revising the GHG Protocol's scope 2 standard.

It's a great question.

Traditionally, we've tracked direct emissions — stack emissions from burning fuel, for example. Hydro has been treated as zero, because there aren't CO_2 emissions from turning a turbine. But we know that reservoirs can emit methane and CO_2, depending on conditions.

So the issue becomes: do we count those as direct emissions, or as upstream emissions? That's still being debated. For geothermal, for example, open-loop systems that release underground CO_2 are not considered zero-emitting. Hydro may evolve the same way, depending on the science.

As research progresses, tracking systems will need to reflect the updated guidance — whether that means tagging certain hydropower plants with emissions attributes, or differentiating between high- and low-impact hydro.

Alex Piper (EnergyTag):
Yes, and to build on Greg's point: the process usually works step by step.

First, GHG accounting frameworks — like the Protocol — decide how emissions from different technologies should be treated. Then registries and certificate issuers implement those rules by attaching attributes to certificates. Then markets adopt those instruments.

So, if hydro reservoir emissions are recognized, tracking systems will integrate that attribute, and certificates will reflect it. Buyers can then make procurement decisions based on it.

It's not subjective — it's about aligning the certificates with whatever the science and accounting frameworks require.

There's another aspect too: how voluntary markets treat existing clean resources like hydro. The GHG Protocol scope 2 update is grappling with that. Hydro is a balancing resource, but how do you value it fairly, while also incentivizing new, additional clean capacity? That's an ongoing debate.

James Critchfield (CleanCounts):
If I can add one thing here: CleanCounts already tracks hydro in our system. We use what's called an Alternative Energy Certificate (AEC), which is distinct from a Renewable Energy Certificate.

And this ties back to the point about pumped storage. Current GHG Protocol guidance suggests that if a zero-emission technology relies on upstream energy input, you can't just call it zero. Pumped hydro is a good example. It's essentially a form of storage, like a battery. If it charges using fossil generation, that matters.

So from a registry perspective, we need to make sure that storage — whether lithium-ion or pumped hydro — is treated consistently, with attributes following the charge and discharge. That way we don't incentivize "dirty" charging but call it zero.

Alex Piper (EnergyTag):
Exactly. And EnergyTag has been working on storage rules. Our standard treats storage as a consumer when it charges and as a producer when it discharges. Certificates flow through that chain, adjusted for efficiency losses.

We're finalizing updates to that part of the standard, and we'll put it out for public comment later this year.

So the work is underway to make sure storage — including pumped hydro — is tracked with integrity.

Brian Rounds:
Great discussion. Thanks, Surabhi, and thanks to Greg, Alex, and James for those insights.

<mark>We're coming up on time, so I'd like to ask one final closing question.</mark>

<mark>What's your vision for Western states' decarbonization? What should stakeholders — legislators, regulators, tracking systems, buyers — keep in mind as we navigate these early stages of the clean energy future?</mark>

Wenbo, let's start with you, then James, and then Alex.

Wenbo Shi (Founder & CEO, Singularity Energy):
Thanks, Brian.

I would encourage every stakeholder to start with **objectives first.** Forget about the limitations of existing systems for a moment. Think about what the North Star is — what we're actually trying to incentivize and achieve.

Then, design a system from the ground up to support that objective. Once that vision is clear, we can figure out how to connect it with existing systems.

The technology exists today. It's not going to be a technology problem that slows us down. The challenge is aligning around the vision and making sure implementation supports the right objectives.

That's my perspective.

Brian Rounds:
Thanks, Wenbo.

James, over to you.

James Critchfield (Head of Registry & Market Integrity, CleanCounts):
Thanks. From a tracking system perspective, I think continuity and credibility are critical.

As many of you know, WECC recently announced that it will separate WREGIS — the Western Renewable Energy Generation Information System — from WECC's direct control. They've also suggested looking at building a new system from the ground up.

That makes it especially important to ensure continuity for the market. CleanCounts currently supports WREGIS through a limited contract, delivering new features and capabilities. Those kinds of proven systems need to be built upon, not discarded.

My advice would be:

- Focus on continuity and credibility.
- Keep climate as the North Star guiding feature development.
- And listen closely to customers and market participants about what they need.

The West has an outsized role in energy and emissions leadership. How tracking systems evolve here will influence the rest of the country. So taking a thoughtful, customer-centered approach will be essential.

Brian Rounds:
Thank you, James.

Alex, your closing thoughts?

Alex Piper (Head of U.S. Policy & Markets, EnergyTag):
Thanks, Brian.

I'll zoom out a little.

We've moved beyond the age of just "getting renewables onto the grid." That was the first phase. Now, especially in the West, we're in the era of **integration.**

The key is integration that is:

- **Efficient** — using granular data to send the right investment signals.
- **Effective** — actually reducing emissions at every hour of the day.
- **Fair** — making sure costs don't fall unfairly on ratepayers.

That means we need storage, firm clean resources, and demand flexibility. We need to build markets and policies that send clear signals for those investments.

And the way to do that is aligning incentives with physical grid realities — through granular certificates, robust tracking systems, and clear accounting rules.

So my vision is: ambition matched with integrity. Western states have the ambition. Now we need the accounting infrastructure to achieve it in a way that's efficient, effective, and fair.

Brian Rounds:
Thank you, Alex.

And thanks to all of our speakers — Wenbo Shi from Singularity Energy, Alex Piper from EnergyTag, and James Critchfield from CleanCounts.

Thanks also to our audience for joining and for the thoughtful questions.

This is a critical time for energy markets in the West, and I think today's discussion has highlighted both the opportunities and the challenges ahead.

With that, we'll close the webinar.