

24/7 CARBON-FREE ENERGY: IT'S IN THE DATA

OUR PATH TOWARD ACCELERATING CARBON-FREE ENERGY INVESTMENTS BEGINS WITH GREATER ACCESS TO DATA

Today, renewable energy consumers still rely on the existing grid which may include a mix of renewable, carbon-free, and/or non-renewable carbon-emitting sources. But many organizations have ambitious 24/7 carbon-free energy and/or emissionality goals. To transform our energy grid and reach a carbon-free electricity (CFE) system, energy markets must incentivize decisions that have the greatest impact on reducing carbon-emitting sources. Renewable energy markets and tracking systems across North America have lacked the tools to measure and evaluate the impact of these decisions and maximize environmental benefits.

Recognizing these challenges, M-RETS is developing innovative digital tools that allow for more precise renewable energy claims and data verification. This level of detail will open new market approaches that support the ability to:

- Match CFE production to consumption down to the watt level by hour.
- Spur investments in next generation resources (i.e., long-duration storage and green hydrogen).
- Measure decarbonization strategies over the long term in a way not yet available.

Integrating Granular Certificates (GC) into the existing market enables organizations to match their CFE procurement with their actual electricity consumption—on an hourly or sub-hourly basis. There are many benefits to this approach, including sending time-specific market signals through price premiums for GCs available at certain times of day that should in turn drive CFE resource investment decisions. Over time, this level of data integration will help us create a renewable energy grid that supports data-driven decarbonization.

By integrating more data into energy markets, consumers can make more informed decisions and maximize decarbonization.

GLOSSARY

Carbon-free electricity (CFE): Energy produced without generating carbon emissions, including renewable energy resources like wind and solar and non-renewable but zero emitting resources like nuclear.

Granular Certificates (GC) or time-based environmental attribute certificates (TEACs): A traceable, digital certificate representing a unit of verified renewable energy that includes the time of production along with other relevant data related to the production of the energy.

Emissionality: A procurement criterion or approach that estimates the impact of clean energy in terms of avoided emissions.



MORE PRECISE DATA-DRIVEN MARKETS SUPPORT

- More efficient market signals
- Better generation asset development planning
- A foundation for battery storage markets
- A data-driven emissionality approach



Collaborating with Google and market leaders

The M-RETS Renewable Energy Certificate (REC) and Renewable Thermal Certificate (RTC) registries provide key data that serve new and existing voluntary and compliance markets across North America. M-RETS facilitates environmental attribute markets by issuing a unique, traceable digital certificate (i.e., one REC) for every megawatt hour (MWh) of verified renewable energy. M-RETS users can choose to transfer (buy/sell), retire, import, or export RECs. In a first step toward 24/7 carbon-free energy matching, M-RETS facilitated the first-ever granular REC retirement in collaboration with Google in 2021, demonstrating that a specific load can be matched to actual carbon-free sources on the grid. Granular, time-based environmental attributes will be the foundation for more data-driven renewable energy markets.

Providing 24/7 data tracking

M-RETS is a trusted centralized solution provider capable of managing the complex data interactions necessary to support this market on a global scale.

Providing standardized GCs will enable next-generation, data-driven energy strategies. That is why M-RETS partnered with organizations like EnergyTag, which is developing a global standard to help build harmonized GCs to streamline adoption and push all markets to granular tracking.

M-RETS will provide the data to assist with making and measuring the impacts of decisions such as:

- Using GCs for 24/7 CFE matching,
- Measuring the benefits of battery storage to ensure carbon reductions,
- And building renewables in high carbon intensity areas of the grid measuring that impact over the life of the asset.

How M-RETS facilitates data-driven markets

1. Integrate tools to support GC issuances, transactions, and claims down to the watt level by hour
2. Develop processes to support GC procurement and management in collaboration with other GC solution providers.
3. Providing leadership to integrate granular energy market data; including carbon data.
4. Support load curve matching and real-time reporting either in the system or by third-party Application Programming Interface (API).
5. Create and maintain API's to streamline CFE management.
6. Amplify insights and emerging best practices to support global 24/7 CFE and emissionality markets.