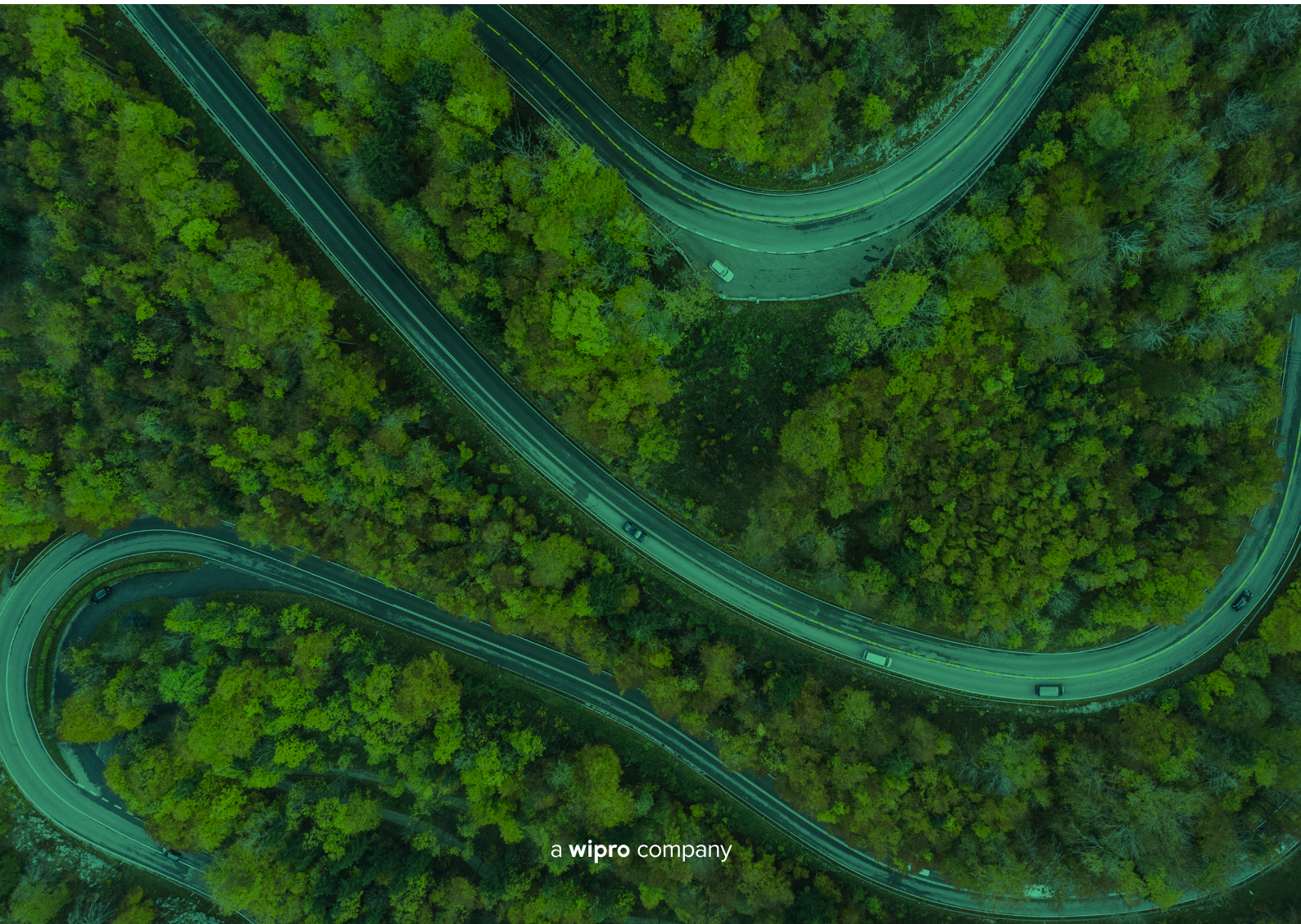
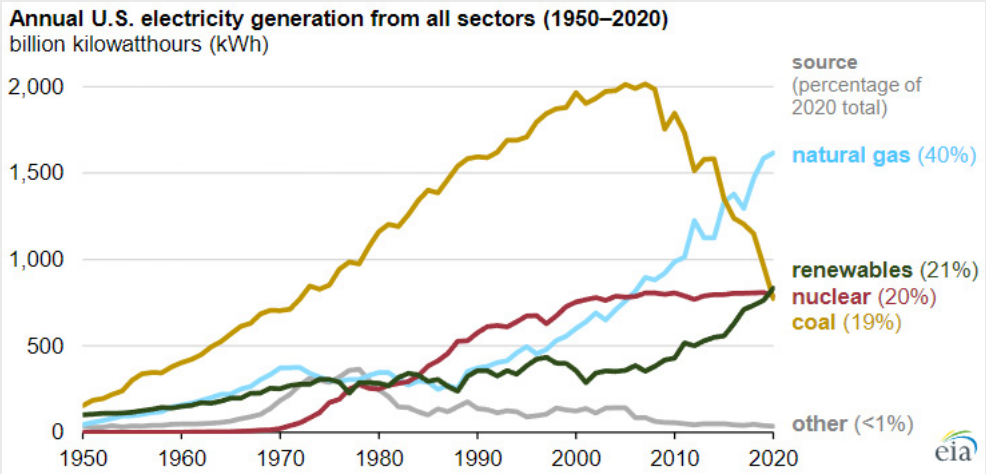
CAPCO

THE REC – RENEWABLE POWER GOES MAINSTREAM



If you have shopped for electricity service recently, you have likely noticed products and offers with slogans such as, “This plan is sourced from 100% wind power”, or “This plan is guaranteed to be sourced from at least 50% solar.” If your next question is, “How is that possible?” you are not alone. In a world where consumers have begun to pay more attention to their carbon footprint power retailers have become increasingly focused on the composition of their portfolios. Over the past 10 years, the renewable share of the grid has roughly doubled and represents nearly a quarter of all generation. Marketing clean, renewable, power has grown from niche business to big business.

Electric power is pooled on the grid regardless of its source. This means the electrons generated and flowing from a coal fired plant are identical and inseparable from the electrons generated and flowing from a wind turbine. So, what allows certain electrons to be deemed ‘clean’ over any other? The answer is a Renewable Energy Credit (REC), which represents a megawatt hour (MWh) of electricity produced from a renewable energy source. The REC is a legal document that allows a company to represent a MWh as generated from a renewable resource.



Source: U.S. Energy Information Administration (EIA)

WHAT IS A REC?

RECs, along with RINs and Carbon Offsets, are environmental products used to help manage and reduce the carbon emissions associated with our power systems. Each of these environmental products have unique objectives, characteristics, and challenges. We addressed these topics for RINs in our "RIN Position Management: The Evolution From Compliance To Opportunity" post and will do the same for Carbon Offsets in a future post.

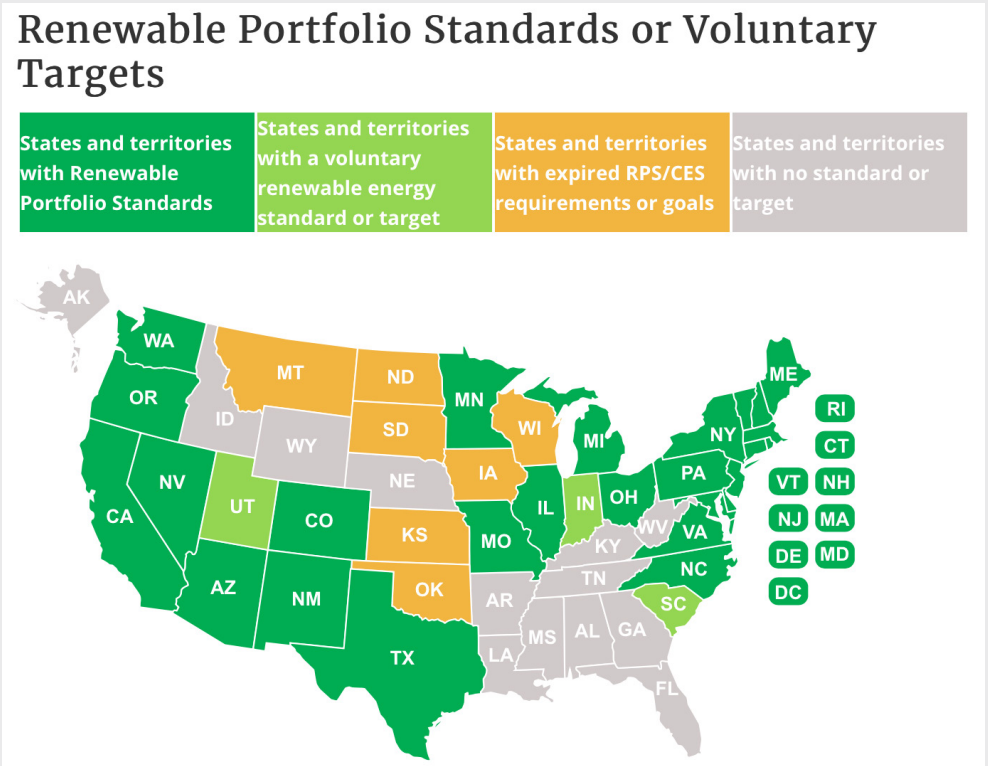
A REC, also known as a Green tag or renewable energy credit is a tradable, non-tangible paper instrument that represent the right to the environmental, social, and other non-power attributes of one megawatt hour (MWh) of renewable electricity generation. One REC is created for each MWh of electricity generated that's delivered to the grid from a renewable resource. Since electricity, once co-mingled on the grid, is impossible to trace, the ability to document and inventory REC certificates clears a significant hurdle in representing delivered power as 'green' or from a renewable source.

Whether driven by regulatory requirement, shareholder / investor demand or voluntary action, RECs are a powerful and increasingly popular tool in helping organizations reduce the carbon footprint associated with their energy consumption. As regulatory and corporate focus on minimizing the environmental impact of our societies' power systems continues to grow, the challenges associated with trading, managing, and reporting on environmental products will continue to become more acute. RECs have several unique attributes that create challenges for most Energy Trading and Risk Management solutions. The remainder of this paper discusses six distinct areas where challenge and opportunity collide.

REC CHALLENGES FOR TRADING AND RISK MANAGEMENT SOLUTIONS

LACK OF REGULATORY STANDARDIZATION - Like many aspects of carbon emission tracking and reduction, the lack of standardization represents a significant challenge for RECs. From a regulatory perspective there is not an international or North American REC standard. Furthermore, within the United States many regions and states have no regulatory obligation at all. In fact, only 29 states have entered into compliance agreements either at the state or regional level. For example, The Western Electricity Coordinating Council, WECC, encompasses 14 states, whereas ERCOT comprises just one - Texas. Within compliance markets, state legislatures set specific guidelines that have become known as the Renewable Portfolio Standard (RPS). Utilities in these states are required to demonstrate their compliance to the RPS by either generating power from renewable sources, holding RECs as part of their portfolio, or a combination of both. Because these standards are established at the state level, each RPS can have different goals and timelines, which adds complexity to data management and position reporting.

In addition to the various regulatory governance models to account for, many organizations have voluntary, investor/shareholder driven obligations, which create additional governance, management, and reporting requirements to be met.



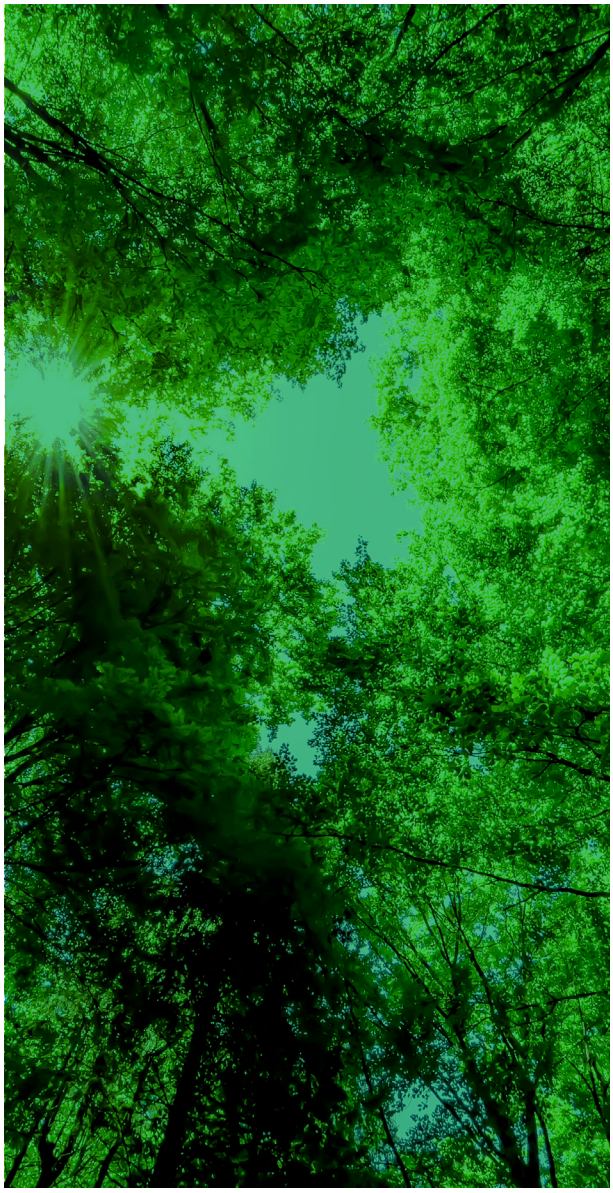
Source: State Renewable Portfolio Standards and Goals

INVENTORY MANAGEMENT – Inventory for RECs can be attained from generation or purchased bundled or unbundled with the source power. Additionally, there are multiple forms of a REC. An SREC is a solar specific certification. There is even unique RECs created for zero emission vehicles (ZEV) produced in the United States and Europe. Accounting for these different types of RECs, their specific details, the various platforms they are traded on and their ultimate sale or retirement, requires a flexible and scalable application. The system must be configured to capture, track, reconcile, and maintain all aspects of the renewable certificate and how it affects the company's overall position.

OBLIGATION MANAGEMENT – For clients in an RPS compliant state, obligation is a pre-defined target. However, ETRM solutions generally do not provide a simple plug and play solution. A producer will need to view obligation as a MWh of renewable power required to reduce the output of non-renewable MWh generation by 'x' percent. A marketer will view obligation as a MWh amount of renewable energy required to legally present delivered power as containing 'x' percent. An end consumer will view obligation as the percentage of purchased power that is credited as being sourced from renewables. Each permutation of how obligation needs to be determined will require a different calculation and could potentially come from a different form of inventory. Some participants may have multiple permutations of obligation calculations across several business units, third parties, and locations across various time periods. The challenge in providing an accurate obligation number is paramount to calculating the net overall position which drives the result of whether you achieve compliance. Keep in mind that most systems are too immature to handle the tracking of a certificate much less the calculation of obligation.

VALUATION – Pricing of a renewable certificate, or it's defined value, is determined by its type, when it was created, where it was created, whether it is retired to comply with the RPS or voluntary, its source, and lastly the regulatory uncertainty. A REC can be purchased, unbundled, directly, on the open market, or well into the future utilizing longer dated futures contracts. Keep in mind that pollution is not geographically confined, however, the REC compliance markets are. While 'a REC is a REC', there are varying degrees of price and incentives to participants in different markets. An SREC carve out in California may price at a significant variance to a SREC in Texas based solely on geographic limitations of solar capacity and the RPS that each state or region has in place. Additionally, RECs can only be sold once. Liquidity and flexibility are limited, which can create volatility risk without proper valuation models present.

CROSS MARKET COMPATIBILITY – As RECs are not a nationally recognized standard, compliance and cross market compatibility can be a difficult task. There are 10 region-based REC tracking systems in the US, each designed to provide an electronic registry system that assigns REC certificate numbers and tracks that a REC is only 'retired' once. In addition to the formal regional facilities, there are independent companies which assist in certifying RECs. Between regional RPS requirements and each facility utilizing different systems, the compatibility of data can wreak havoc on ETRM applications. Given most ETRM solutions are not well prepared to handle certificate tracking, obligation calculation and proper REC valuation, optimizing across markets/platforms and trying to achieve compliance in a single system leaves many companies struggling to fulfill these functions outside of their ETRM with complex, manual, spreadsheet driven processes and reporting.



CONCLUSION

Since the first REC was traded in Texas in 2001, the REC has grown to represent more than just a compliance tool. Conceptualized as a mechanism to incentivize green power production, the REC has now become both the tool of compliance and the retail face of clean power. Whether required, or self-governed, the REC is the corporate and retail signage that lets the public know that you are acting toward a reduced emissions footprint. As state requirements continue to increase and corporations seek to advertise their green goals, the need for on-system management and accounting for RECs will only continue to grow.

At the same time, the unique characteristics of RECs including the multiple markets, compliance requests, instrument types and differing registry platforms, represent gaps in and challenges to most ETRM solutions. Given the lack of maturity of most ETRM solutions to handle environmental products like RECs, overcoming these challenges is not an easy or straightforward task. Capco stands ready to leverage our deep domain knowledge, experience, and expertise in implementing robust and mature REC Trading solutions to help our customers overcome these challenges.

AUTHOR

David Snider, Principal Consultant

CONTACT

Please email us at energytransition@capco.com to find out how we can help

ABOUT CAPCO

Capco, a Wipro company, is a global technology and management consultancy specializing in driving digital transformation in the financial services industry. With a growing client portfolio comprising of over 100 global organizations, Capco operates at the intersection of business and technology by combining innovative thinking with unrivalled industry knowledge to deliver end-to-end data-driven solutions and fast-track digital initiatives for banking and payments, capital markets, wealth and asset management, insurance, and the energy sector. Capco's cutting-edge ingenuity is brought to life through its Innovation Labs and award-winning Be Yourself At Work culture and diverse talent.

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