



# Renewable Electricity: How do you know you are using it?

When electricity is generated—either from a renewable or non-renewable power plant—the electrons added to the grid are indistinguishable. So, on what basis can a consumer of electricity claim to be using renewables? In the United States, renewable energy certificates (RECs) are used to track renewable electricity from the point of generation to the consumer. RECs represent the environmental benefits of one megawatt-hour of generation and can be sold separately or together with the underlying electricity. In the United States, RECs were developed as states passed renewable portfolio standards (RPSs) and were requiring fuel mix disclosure labels.<sup>1</sup> RECs are also used in the voluntary market, where customers are buying renewables to meet sustainability goals. The concept of RECs is used most widely in the United States, but international markets also have tradable renewable electricity certificates.<sup>2</sup>

RECs provide a way for purchasers to demonstrate claims of renewable electricity. Compliance purchasers (those with a mandated renewable obligation) purchase RECs to demonstrate that they have met requirements. Voluntary purchasers need to substantiate their self-imposed renewable targets and their marketing claims (e.g., “This product was made with 100% wind power”). In both compliance and voluntary markets, RECs are the way to show you are using renewable energy.

<sup>1</sup>Fuel disclosure labels require electricity suppliers to disclose their fuel mix (% coal, % natural gas, % renewable electricity) to their customers.

<sup>2</sup>In this document we use the term “REC” to refer to renewable attribute certificates, though these certificates come by different names in different countries.

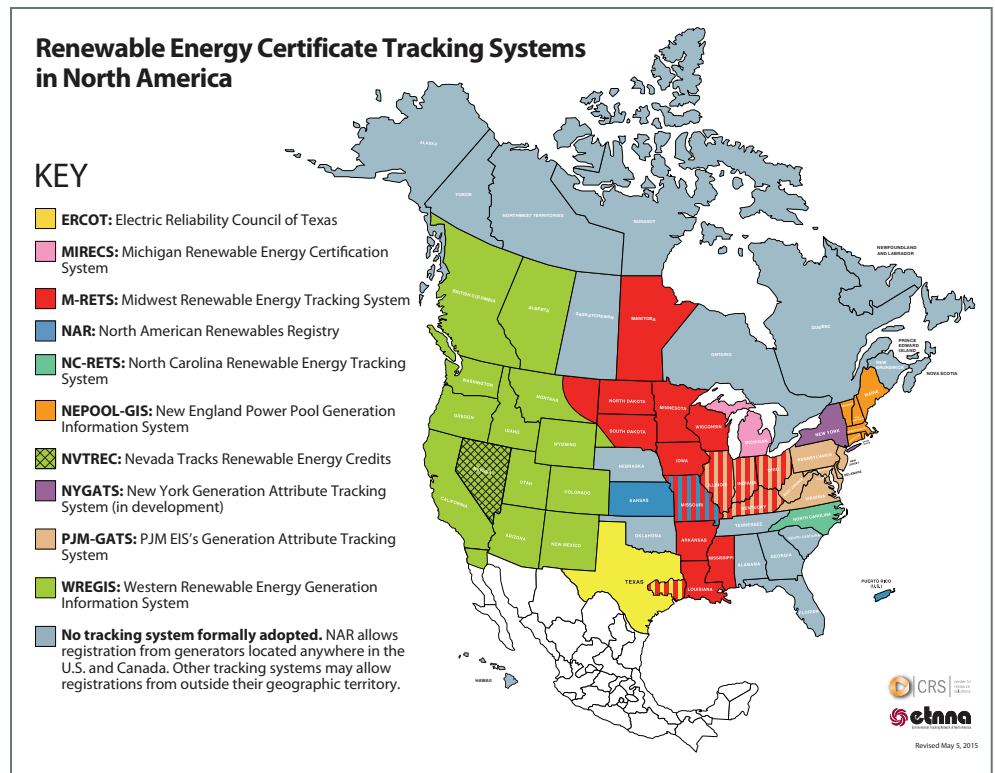


Figure 1. Renewable energy certificate tracking systems in the United States and Canada

## How to ensure that RECs are not double-counted

In the United States, ten regional electronic REC tracking systems (Figure 1) facilitate the creation, management, and retirement of RECs. These tracking systems ensure that each REC is counted only once by assigning a unique serial number to each megawatt-hour of renewable electricity generation. In recent years, regional REC tracking systems have begun interacting with each other more, allowing RECs to be imported and exported across REC tracking system boundaries.

Without the use of electronic REC tracking systems, purchasers have to rely solely on contract audits and paper attestations. Electronic tracking systems significantly reduce the administrative requirements to prevent double counting.

## Regulator Role: Simplify compliance and create public market information

Regulators have an important role to play in ensuring compliance with renewable mandates and providing public information. Regulators can require that utilities use tracking systems to demonstrate compliance with the state RPSs and mandatory fuel disclosure options, which can greatly simplify the auditing process.

Regulators can also influence the level of public information available. Many tracking systems make automated public reports available that provide aggregate numbers on how many RECs have been created, their location, resource type, and other key statistics. This public information can help renewable project developers figure out which markets to target for new projects.

## Generator and Purchaser Role: Evaluate trade-offs to owning or selling RECs and ensure accurate claims

When generating renewable energy on-site or purchasing it through an off-site power purchase agreement, organizations have the option of holding or selling the renewable attributes. The revenue from REC sales is sometimes required to ensure that a project is financially viable, and an organization may value cost savings over being able to make a renewable claim. Regardless of whether the organization keeps or sells the RECs, it should ensure that contracts clearly define the RECs and REC ownership. Organizations selling the RECs cannot claim that they are getting their electricity from renewable energy.<sup>3</sup>

## International Use of RECs

RECs are being utilized around the world and are becoming more prevalent. The United Kingdom (U.K.) has used renewable obligation certificates since 2002 in order to ensure compliance with the U.K. Renewables Obligation. Across the European Union, guarantees of origin are used. Australia has used RECs since 2001. More recently, India set up a REC market to facilitate compliance

with state renewable purchase obligations. Although the India REC market has had challenges, the establishment of two REC exchange platforms has addressed some of the market issues.<sup>4</sup> In Mexico, as part of the country's electricity market restructuring, the Energy Regulatory Commission will create a market for Clean Energy Certificates (Certificados de Energías Limpias), which will be required to demonstrate compliance with the country's new renewable obligation.

The standard practice for governments is to establish an electronic tracking system in order to verify claims. To do that, governments may choose to contract with someone to build a system, or may choose to use a pre-existing tracking system. The International REC Standard is a pre-built tracking system that can be customized for individual countries, and is used by generators in Spain, Turkey, and Taiwan.<sup>5</sup>

## Additional Resources

Center for Resource Solutions. 2015. *Guidelines for Renewable Energy Claims*. San Francisco: Center for Resource Solutions. Accessed June 18, 2015.

[http://www.resource-solutions.org/pub\\_pdfs/Guidelines%20for%20Renewable%20Energy%20Claims.pdf](http://www.resource-solutions.org/pub_pdfs/Guidelines%20for%20Renewable%20Energy%20Claims.pdf)

Hamrin, J. 2014. *REC Definitions and Tracking Mechanisms Used by State RPS Programs*. Prepared for the State-Federal RPS Collaborative. Montpelier, VT: Clean Energy States Alliance. Accessed June 18, 2015.

<http://www.cesa.org/assets/2014-Files/RECs-Attribute-Definitions-Hamrin-June-2014.pdf>

Heeter, J., K. Belyeu, and K. Kuskova-Burns. 2014. *Status and Trends in the U.S. Voluntary Green Power Market (2013 Data)*. NREL/TP-6A20-63052. Golden, CO: National Renewable Energy Laboratory. Accessed June 18, 2015.

<http://www.nrel.gov/docs/fy15osti/63052.pdf>

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<sup>3</sup>For more on legal claims, see *Guidelines for Renewable Energy Claims*, developed by the Center for Resource Solutions, at [http://www.resource-solutions.org/pub\\_pdfs/Guidelines%20for%20Renewable%20Energy%20Claims.pdf](http://www.resource-solutions.org/pub_pdfs/Guidelines%20for%20Renewable%20Energy%20Claims.pdf).

<sup>4</sup>Shrimaili, G., S. Tirumalachetty, and D. Nelson. 2012. *Falling Short: An Evaluation of the Indian Renewable Certificate Market*. San Francisco: Climate Policy Initiative. Accessed July 1, 2015. <http://climatepolicyinitiative.org/wp-content/uploads/2012/12/Falling-Short-An-Evaluation-of-the-Indian-Renewable-Certificate-Market.pdf>

<sup>5</sup>For more information, see <http://www.internationalrec.org>.