

Methodology and Specifications Guide

US Renewable Energy Certificates

Latest update: November 2020

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INTRODUCTION

S&P Global Platts methodologies are designed to produce price assessments that are representative of market value, and of the particular markets to which they relate. Methodology documents describe the specifications for various products reflected by Platts' assessments, the processes and standards Platts adheres to in collecting data, and the methods by which Platts arrives at final assessment values for publication. These guides are freely available on Platts' website for public review.

Platts discloses publicly the days of publication for its price assessments, and the times during each trading day in which Platts considers transactions in determining its assessments. This schedule of publication is available on Platts' website, at the following link: <https://www.spglobal.com/platts/en/our-methodology/holiday>.

The dates of publication and the assessment periods are subject to change in the event of outside circumstances that affect Platts' ability to adhere to its normal publication schedule. Such circumstances include network outages, power failures, acts of terrorism and other situations that result in an interruption in Platts' operations at one or more of its worldwide offices. In the event that any such circumstance occurs, Platts will endeavor, whenever feasible, to communicate publicly any changes to its publication schedule and assessment periods, with as much advance notice as possible.

All Platts methodologies reflect Platts' commitment to maintaining best practices in price reporting. Platts' methodologies have evolved to reflect changing market conditions through time, and will continue to evolve as markets change. A revision history, a cumulative summary of changes to this and future updates, is included at the end of the methodology.

How this methodology statement is organized

This description of methodology for assessments is divided into seven major parts (I-VII) that parallel the entire process of producing price values for the specified market period (weekly).

- Part I describes what goes into Platts' assessments, what data market participants are expected to submit, the process for submitting data, and criteria for timeliness of market data submissions.
- Part II describes any security and confidentiality practices that Platts uses in handling and treating data.
- Part III details the price assessment principles Platts uses in deriving assessments.
- Part IV explains the process for verifying that published prices comply with Platts' standards.
- Part V lays out the verification and correction process for revising published prices.
- Part VI explains how users of Platts' assessments can contact Platts for clarification of data that has been published, or to register a complaint. It also describes how to find out more about Platts' complaint policies.
- Part VII is a list of detailed specifications for the trading locations for which Platts publishes assessments in this commodity.

PART I: DATA QUALITY AND DATA SUBMISSION

Platts' objective is to ensure that the submission of transactional information and other data inputs that editors use as the basis for their price assessments is of the highest quality. Ensuring

that data used in Platts' assessments is of high quality is crucial to maintaining the integrity of Platts' various price assessment processes. Platts regularly surveys market participants, including brokers, traders, owners of renewable energy facilities, and utilities active in the markets. Publicly available information from auctions and exchanges is also considered.

In addition, Platts accepts information on the Renewable Energy Certificates (REC) market from non-commercial departments (back offices) of companies.

Transactional information from company back offices and direct from individual market participants includes deals, bids and offers.

Platts strongly encourages companies that report transactional data from their back offices on daily electricity deals to also report REC deals. Companies that report REC deals should clearly state key attributes, including trade date, vintage, quantity and product name. Platts provides sample reporting formats to companies that are initiating transaction reporting. The sample reporting formats are available upon request - electricityprice@spglobal.com

PART II: SECURITY AND CONFIDENTIALITY

Price data that is e-mailed to specific Platts e-mail addresses is entered into a secure network where it is accessible only by market editors and designated administrators. Encryption is available upon request by the reporting company. Data is stored in a secure network, in accordance with Platts' policies and procedures. Transaction-level price data is used only for constructing assessments. Platts does not use price data from an individual source for news reporting purposes, and Platts news reporters do not have access to individual entities' transaction reports. Data aggregated from all reporting sources – e.g., changes in prices and trading volumes over time – may be used as the basis for news stories.

PART III: CALCULATING ASSESSMENTS

Platts places independence and impartiality at the heart of its price assessments. Platts has no financial interest in the price of the products or commodities on which it reports. Platts' overall objective is to reflect the transactable value of the commodity assessed.

To ensure the assessments are as robust as possible, Platts editorial systems are backed by a strong corporate structure that includes managerial and compliance oversight. To ensure editors follow Platts methodology guidelines in a consistent manner, Platts' staff are trained and regularly assessed in their own and each other's markets. Platts prices are reviewed prior to publication and exercise of editorial judgment is further discussed and verified during this process.

REC assessments are published on a weekly basis and reflect market values as of Thursday at 2:30 p.m. Eastern prevailing time. Prices are assessed on Thursday and published in the Friday issue of Megawatt Daily. When Thursday falls on a holiday, prices are assessed on the last business day preceding Thursday and published in Megawatt Daily on the first business day following Thursday.

Bids and offers and other market information are compared and analyzed during the week. Bids and offers made and transactions done nearer the close receive greater weight in the assessment process.

When there is no trading activity, editors, assess prices using current relationships between related markets.

PART IV: PLATTS EDITORIAL STANDARDS

All Platts employees must adhere to the S&P Global Code of Business Ethics (COBE), which has to be signed annually. The COBE reflects S&P Global's commitment to integrity, honesty and acting in good faith in all its dealings.

In addition, Platts requires that all employees attest annually that they do not have any personal relationships or personal financial interests that may influence or be perceived to influence or interfere with their ability to perform their jobs in an objective, impartial and effective manner.

Editors are required to ensure adherence to published methodologies as well as internal standards that require accurate records are kept in order to document their work.

Platts has a compliance function that is independent of the editorial group. Compliance is responsible for ensuring the quality and adherence to Platts' policies, standards, processes and procedures. The Compliance team conducts regular assessments of editorial operations, including checks for adherence to published methodologies.

S&P Global's internal auditor, an independent group that reports directly to the parent company's board of directors, reviews the Platts risk assessment programs.

PART V: CORRECTIONS

Platts is committed to promptly correcting any material errors. When corrections are made, they are limited to corrections to

data that was available when the assessment was calculated.

Errors that data providers should report to Platts are limited to inaccuracies in the attributes (price, volume, location, etc.) at the time the transaction was done and reported to Platts, and do not include operationally driven, after-the-fact changes in the nature of the transaction.

If Platts is notified of an error in a submission after a price is calculated and published, it will assess the impact of the error.

PART VI: REQUESTS FOR CLARIFICATIONS OF DATA AND COMPLAINTS

Platts strives to provide critical information of the highest standards, to facilitate greater transparency and efficiency in physical commodity markets.

Market participants raise questions about its methodologies and the approach taken in price assessments, proposed methodology changes and other editorial decisions in relation to Platts' price assessments. Platts strongly values these interactions and encourages dialogue concerning any questions a customer or market stakeholder may have.

However, Platts recognizes that occasionally customers may not be satisfied with responses received or the services provided by Platts and wish to escalate matters. Full information about how to contact Platts to request clarification around an assessment, or make a complaint, is available on the Platts website, at: <https://www.spglobal.com/platts/en/contact/complaints>.

PART VII: DEFINITIONS OF THE TRADING LOCATIONS FOR WHICH PLATTS PUBLISHES WEEKLY ASSESSMENTS

The REC market consists of two broad segments, one for complying with state renewable portfolio standards, and the other for purchasing RECs to voluntarily support renewable energy projects. Within each of these categories lie a number of REC products conforming to specific eligibility guidelines.

The trading of RECs can be done on a spot or forward basis. The spot market involves the buying and selling of RECs generated during the current time period in question, while the forward market entails future delivery. The forward market refers to longer term contracts obliging one party to sell the RECs it generates to another party.

Platts assesses the spot market value of REC products once a week. One vintage, the current vintage, is assessed per REC product at a given time. The roll date follows the last day in which parties can transfer a REC that can still be used for the most recent compliance period. The roll date, in most markets, corresponds with the deadline for REC holders to demonstrate they hold the required number of RECs. The roll date is later than the end of the compliance period because REC holders are provided a true-up period at the end of the compliance period during which they can continue to buy and sell RECs to meet the requirements of the then-concluded compliance period. Another reason for the delay is the lag between the moment renewable energy is generated and the associated REC is created in a tracking system.

Below is a list of REC assessments by type of REC product and market, including the compliance periods and roll dates. Platts publishes assessments for eight renewable compliance markets, for five solar carve-out compliance markets, for two bundled compliance markets, and for two voluntary markets. The markets are listed alphabetically within each of the four categories.

I. Renewable compliance markets

1. California Tradable Renewable Energy Certificates (Bucket 3)

Description: Eligible sources include anaerobic digestion, biomass, geothermal, landfill gas, municipal solid waste, small hydroelectric, solar thermal, photovoltaics and wind. California Tradable Renewable Energy Certificates (“TRECs”) are only transactions of environmental attributes, and do not include the delivery of actual electricity. (TRECs are known as unbundled RECs; California also has requirements for so-called bundled RECs, which are accompanied by electricity products.) TRECs satisfy the requirements enumerated in California Public Utilities Code § 399.16(b)(3).

Start Date: 2011

Authorizing Statute: California Public Utilities Code § 399.11 et. seq.

Certification Body: California Energy Commission, California

Public Utilities Commission

Compliance Period: Multi-year beginning in 2017

Roll Date: August 1.

2. Connecticut Class I

Description: Eligible sources include fuel cells, certain run-of-the-river hydropower facilities, methane gas from landfills, solar, sustainable biomass facilities and wind.

Start Date: 2006

Authorizing Statute: Conn. Gen. Stat §16-1(a)(26)

Certification Body: Connecticut Public Utilities Regulatory Authority

Compliance Period: January-December

Roll Date: June 16

3. Maryland Tier I

Description: Eligible sources include anaerobic digestion, biomass, fuel cells using renewable fuels, hydroelectric, landfill gas, municipal solid waste and wind.

Start Date: 2006

Authorizing Statute: Maryland Public Utility Companies Code § 7-701 et. seq.

Certification Body: Maryland Public Service Commission

Compliance Period: January-December

Roll Date: April 1

4. Massachusetts Class I

Description: Eligible sources include anaerobic digestion, hydroelectric, landfill gas, municipal solid waste and wind.

Start Date: 2004

Authorizing Statute: Massachusetts General Law Ch. 25A § 11F

Certification Body: Massachusetts Department of Energy Resources

Compliance Period: January-December

Roll Date: June 16

5. New Jersey Class I

Description: Eligible sources include anaerobic digestion, certain forms of sustainable biomass, fuel cells using renewable fuels, landfill gas and wind.

Start Date: 2005

Authorizing Statute: New Jersey Statute § 48:3-49 et. seq.

Certification Body: New Jersey Board of Public Utilities

Compliance Period: June-May

Roll Date: October 2

RENEWABLE COMPLIANCE MARKETS

California Tradable Renewable Energy Certificates (Bucket 3)	RECCAB3
Connecticut Class I	RECCTC1
Maryland Tier I	RECMDT1
Massachusetts Class I	RECMAC1
New Jersey Class I	RECJWT1
Ohio	RECOHI0
Pennsylvania Tier I	RECPAT1
Texas	RECTX00

6. Ohio

Description: Eligible sources include biomass, landfill gas, solid waste-to-energy and wind.

Start Date: 2009

Authorizing Statute: Ohio Revised Code 4928.64 et. seq.

Certification Body: Ohio Public Utilities Commission

Compliance Period: January-December

Roll Date: April 15

7. Pennsylvania Tier I

Description: Eligible sources include biomass, biologically derived methane gas, coal-mine methane, fuel cells, low-impact hydroelectric and wind.

Start Date: 2007

Authorizing Statute: 73 Pennsylvania Statute § 1648.1 et. seq.

Certification Body: Pennsylvania Public Utility Commission

Compliance Period: June-May

Roll Date: October 2

8. Texas

Description: Eligible sources include biomass, biologically derived methane gas, coal-mine methane, fuel cells, low-impact hydroelectric and wind.

Start Date: 1999

Authorizing Statute: Texas Utilities Code § 39.904

Certification Body: Public Utility Commission of Texas

Compliance Period: January-December

Roll Date: April 1

II. Solar carve-out compliance markets

1. Maryland

Description: Electricity derived from solar technologies.

Start Date: 2008

Authorizing Statute: Maryland Public Utility Companies Code § 7-701 et. seq

Certification Body: Maryland Public Service Commission

Compliance Period: January-December

Roll Date: April 1

2. Massachusetts

Description: Electricity derived from solar technologies.

Start Date: 2010

Authorizing Statute: Massachusetts General Law Ch. 25A § 11F

SOLAR CARVE-OUT COMPLIANCE MARKETS

Maryland	RECMS0
Massachusetts	RECMAS0
New Jersey	RECJNS0
Ohio	RECOHSI
Pennsylvania	RECPAS0

Certification Body: Massachusetts Department of Energy Resources

Compliance Period: January-December

Roll Date: June 16

3. New Jersey

Description: Electricity derived from solar technologies.

Start Date: 2005

Authorizing Statute: New Jersey Statute § 48:3-49 et. seq.

Certification Body: New Jersey Board of Public Utilities

Compliance Period: June-May

Roll Date: October 2

4. Ohio

Description: Electricity derived from solar technologies.

Start Date: 2009

Authorizing Statute: Ohio Revised Code 4928.64 et. seq.

Certification Body: Ohio Public Utilities Commission

Compliance Period: January-December

Roll Date: April 15

5. Pennsylvania

Description: Electricity derived from solar technologies.

Start Date: 2007

Authorizing Statute: 73 Pennsylvania Statute § 1648.1 et. seq.

Certification Body: Pennsylvania Public Utility Commission

Compliance Period: June-May

Roll Date: October 2

III. Bundled compliance markets

1. California Bundled Renewable Energy Certificates (Bucket 1)

Description: Eligible sources include anaerobic digestion, biomass, geothermal, landfill gas, municipal solid waste, small hydroelectric, solar thermal, photovoltaics and wind. California bundled RECs include physical power as well as the environmental attributes.

Platts assessments are for the value of the environmental attributes needed to comply with the California renewable portfolio standard and do not include the value of the energy. If necessary, bundled transactions are normalized by subtracting the market price of electricity.

Buckets 1 and 2 are distinguished on the basis of deliverability requirements.

A renewable facility can become Bucket 1 eligible by satisfying one of several conditions enumerated in California Public Utilities Code § 399.16(b)(1).

Start Date: 2011

Authorizing Statute: California Public Utilities Code § 399.11 et. seq.

BUNDLED COMPLIANCE MARKETS

California Bundled Renewable Energy Certificates (Bucket 1) **RECCAB1**

California Bundled Renewable Energy Certificates (Bucket 2) **RECCAB2**

Certification Body: California Energy Commission, California Public Utilities Commission

Compliance Period: Multi-year beginning 2017

Roll Date: December 31.

2. California Bundled Renewable Energy Certificates (Bucket 2)

Description: Eligible sources include anaerobic digestion, biomass, geothermal, landfill gas, municipal solid waste, small hydroelectric, solar thermal, photovoltaics and wind. California bundled RECs include physical power as well as the environmental attributes.

Platts assessments are for the value of the environmental attributes needed to comply with the California renewable portfolio standard only and do not include the value of the energy. If necessary, bundled transactions are normalized by subtracting the market price of electricity.

Buckets 1 and 2 are distinguished on the basis of deliverability requirements.

Bucket 2 RECs satisfy the conditions enumerated in California Public Utilities Code § 399.16(b)(2).

Start Date: 2011

Authorizing Statute: California Public Utilities Code § 399.11 et. seq.

Certification Body: California Energy Commission, California Public Utilities Commission

Compliance Period: Multi-year beginning 2017

Roll Date: December 31.

IV. Voluntary markets

1. National, Any Technology

Description: Electricity originated from a Green-e certified facility located in the United States or Canada. Eligible technologies include solar, wind, geothermal and certain hydroelectric.

Certification Body: Center for Resource Solutions

Compliance Period: Not applicable

Roll Dates: January 1, July 1

2. National Wind

Description: Electricity originated from a Green-e certified wind farm facility located in the United States or Canada.

Authorizing Body: Center for Resource Solutions

Compliance Period: Not applicable

Roll Dates: January 1, July 1

VOLUNTARY MARKETS

National, Any Technology	RECUSAV
National Wind	RECUSWV

Carbon Markets

California Carbon Allowances (CCA) is a Cap-and-Trade Program established by the California Air Resources Board that allows physically delivered greenhouse gas emissions allowances to be traded. The goal of this program is to reduce greenhouse gas emissions to 1990 levels by 2020. Another assessment are California Offsets, which are physically delivered greenhouse gas emissions offset credits representing on metric ton equivalent of greenhouse gas emission reduction or removal. These are limited to emissions-reduction projects in the US and specifically five areas: forestry, urban forestry, destruction of ozone-depleting substances, and mine methane capture.

RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont to cap and reduce CO2 emissions from the power sector. Following a comprehensive 2012 Program Review, the RGGI states implemented a new 2014 RGGI cap of 91 million short tons. The RGGI CO2 cap then declines 2.5 percent each year from 2015 to 2020.

V. California Carbon

1. California Carbon Allowance (CCA)

Description: Physically delivered greenhouse gas emissions allowance representing one metric ton of CO2 equivalent

Authorizing Body: California Air Resources Board

Compliance Period: Multiyear beginning 2020

Roll Dates: December 31

CALIFORNIA CARBON

REC Carbon California Carbon Allowance Wkly	ARECB04
REC Carbon California Offset Wkly	ARECC04
REC Carbon RGGI Wkly	ARECA04

2. Carbon Offset

Description: Physically delivered greenhouse gas emissions offset credits representing on metric ton equivalent of greenhouse gas emission reduction or removal

Authorizing Body: California Air Resources Board

Compliance Period: Multiyear beginning 2020

Roll Dates: December 31

VI. RGGI

1. Regional Greenhouse Gas Initiative (RGGI)

Description: Monthly physically delivered contract on RGGI CO2 allowances that are initially sold by states

Authorizing Body: The US states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont

Compliance Period: Multiyear beginning 2020 and forwards for up to 10 years

Roll Dates: Three Business Days prior to the last Business Day of the delivery month

REVISION HISTORY

November 2020: Platts completed an annual review of the US Renewable Energy Certificates Methodology Guide. Platts reviewed all content and made minor edits to language.

April 2020: Platts started publishing weekly California Carbon Allowance, Carbon Offset, and Regional Greenhouse Gas Initiative assessments sections effective April 16, with historical assessments available in the database.

October 2019: Platts completed an annual update to the US Renewable Energy Certificates Methodology Guide. In this update, Platts reviewed all content.

August 2018: Platts removed outdated reference to the in-state requirement for Ohio non-solar Renewable Energy Certificate assessments.

May 2018: Platts completed an annual update to the US Renewable Energy Certificates Methodology Guide in May 2018.

In this update, Platts reviewed all content.

March 2017: Platts completed an annual update to the US Renewable Energy Certificates Methodology Guide in March 2017. In this update, Platts reviewed all content.

December 2014: Document modified according to Platts approved format.

February 2013: Creation of document.