RPS COMPLIANCE DATA COLLECTION AND REPORTING PRACTICES

SUPPORTING RENEWABLE ENERGY POLICY IMPLEMENTATION THROUGH INFORMATION SHARING

Prepared for the

State-Federal RPS Collaborative

by

Sustainable Energy Advantage, LLC

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About This Report

This report was produced for the State-Federal RPS Collaborative, a project of the Clean Energy States Alliance (CESA) that is generously supported by the U.S. Department of Energy and the Energy Foundation. The views and opinions stated in this document are the authors' alone.

Acknowledgements

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About SEA

Since 1998, Sustainable Energy Advantage, LLC (SEA) has helped private, public, and non-profit organizations build renewable energy businesses, markets, policies, and projects, through analysis, strategy, and implementation. SEA focuses exclusively on surmounting the barriers to, and tapping the potential of, renewable energy sources.

Disclaimer

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Introduction

The topic of Renewable Portfolio Standard (RPS) data management is often overlooked in the broader discussion of RPS policy and program implementation. In order to provide a closer examination of this topic, the Clean Energy States Alliance (CESA) conducted a survey of RPS program administrators to gain insight into the collection, use and reporting of RPS compliance data.[1] The purpose of this report is to summarize these collection and reporting practices, and to observe ways in which these actions support renewable energy policy implementation through information sharing.

As of June 2015, 29 states[2] (plus the District of Columbia and two U.S. territories) have RPS regulations requiring electricity suppliers (including utilities and other load-serving entities) or procurement agents to acquire a specified percentage or quantity of electricity sales from qualifying sources of renewable energy. Eight additional states (plus 1 U.S. territory) have renewable portfolio goals, which serve as a non-binding alternative to RPS mandates.

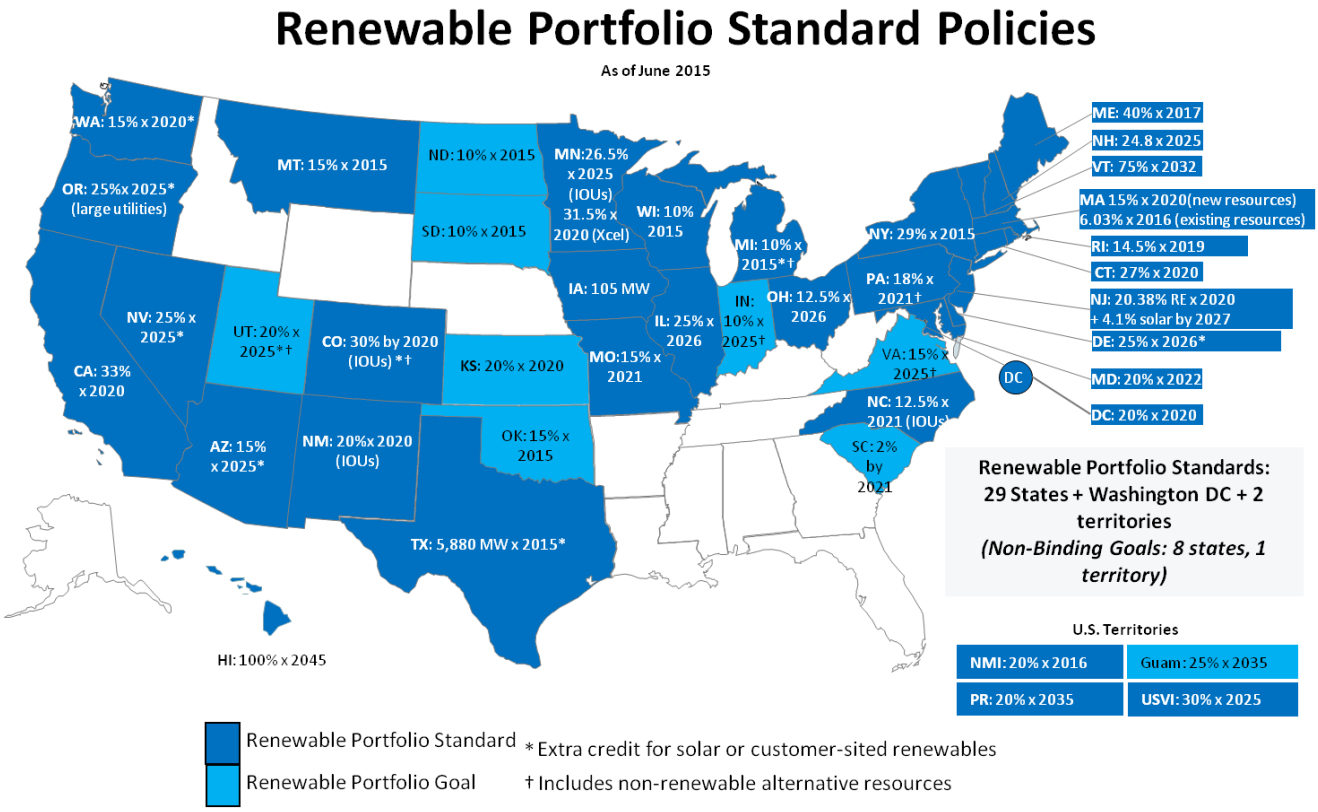


Figure 1: State RPS Policy Overview[3]

[1] The survey included 28 states (Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Iowa, Illinois, Massachusetts, Maryland, Maine, Michigan, Minnesota, Missouri, Montana, North Carolina, New Hampshire, New Jersey, New Mexico, Nevada, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Washington and Wisconsin) and Washington, D.C.

[2] In May and June 2015, Vermont established a mandatory RPS program in June 2015 but does not yet have detailed data collection and reporting procedures in place, while Kansas converted their mandatory RPS to a voluntary goal.

[3] Database of State Incentives for Renewables and Efficiency, 2015 State Legislative Tracking

The intent of RPS policies is to spur demand for additional renewable energy generation at the state and regional level. Thus, RPS policies are central to broad-scale renewable energy deployment nationwide. While RPS states share a common requirement that obligated entities procure some degree of renewable energy for ratepayers, RPS policies vary dramatically in their details and implementation.

Given that the intent of RPS policies is to create and sustain markets for renewable sources of energy, the collection, synthesis and reporting of RPS compliance information represents an important opportunity for policymakers to provide high quality information to the marketplace. When presented and distributed effectively, RPS compliance data can support informed decision-making among both policymakers and market participants –enhancing policy efficiency and effectiveness. Given the variation in state RPSs, it is not surprising that data collection and management practices also vary among the states.

The body of this report focuses on states with binding RPS requirements. The CESA survey is provided as Appendix A: CESA Survey. A table of survey results is provided separately as Appendix B: Detailed Survey Results.

Report Objectives

The objectives of this report are:

- To summarize state RPS data collection and reporting practices;
- To discuss the role of information sharing in RPS compliance markets; and
- To identify certain data collection and/or reporting practices that can enhance market efficiency, enable effective stakeholder participation, and inform policy decision-making.

Report Organization

The report is divided into four sections:

- **Survey Methodology.** This section outlines how the CESA survey was conducted.
- **RPS Data Collection, Reporting and Use.** This section provides an overview of RPS data collection, use, and reporting. It introduces four potential objectives of RPS data management.
- **Survey Findings.** This section is further divided into 3 subsections: Reporting Entities and General Compliance Data Requirements; Total or Aggregated Data; and Individual Systems. Each section contains a summary of the survey responses related to that topic, the role that each aspect of RPS data management plays in policy implementation and key variations among states.
- **Effective Utilization of RPS Compliance Data and Reports.** This section identifies example practices from the survey respondents and makes observations that may enhance the utilization of data to support effective RPS implementation.

Survey Methodology

CESA staff collaborated with Sustainable Energy Advantage, LLC[4] (SEA) to design a survey for states with renewable portfolio standards and goals. The survey included approximately two dozen questions covering a

[4] Sustainable Energy Advantage, LLC is a Framingham, MA-based renewable energy market and policy consulting and advisory firm. http://www.seadvantage.com/

wide array of subjects related to RPS data collection, reporting, and usage practices. The full text of the CESA survey is provided as Appendix A: CESA Survey

The CESA team sent the surveys to state regulators and/or administrators responsible for ensuring compliance with each state's renewable requirements and goals.

While most states responded to the survey, CESA staff conducted desktop research in four[5] cases in order to complete state-specific surveys where responses were not received. The following sections detail the survey's findings. A table of detailed survey results is provided as Appendix B: Detailed Survey Results.

[5] Illinois, Maryland, Michigan and Texas.

RPS Data Collection, Reporting and Use: An Overview

Goals of RPS Data Collection, Reporting and Use

The way in which RPS data is managed is important to RPS (and associated Renewable Energy Credit[6] (REC) market) implementation. In administering RPS and renewable portfolio goal policies, state regulators and/or program administrators must balance four interrelated goals:

- **Market Transparency.** The efficiency and effectiveness of statewide and multi-state RPS markets depends upon the broad sharing of a wide variety of renewable energy market data (e.g. total forecasted utility sales, total renewable energy generation, total RECs created, banked and retired, total alternative compliance payments and other shareable information). The availability and accuracy of this information is important to the investment decisions of market participants, and to the confidence of stakeholders, policy makers and customers seeking to understand how RPS policies affect them and their state.
- **Efficient Policy Implementation.** Complex compliance data collection and verification procedures can be administratively burdensome and result in delays in compliance determination. Significant delays in the determination of compliance or non-compliance may cause obligated entities to over-comply or under-comply in subsequent years[7]. In some cases, the cost associated with over-compliance or under-compliance (such as Alternative Compliance Payments (ACPs)) is passed on to ratepayers.
- **Balancing Transparency and Confidentiality.** While it is important to maximize policy and market transparency, it is also important to respect the competitive sensitivity of certain market data. Even in more open markets where RECs are traded bilaterally, certain information regarding energy and REC production is either confidential or available only in aggregate in order to protect facility-specific information. It is important for these needs to be balanced with market interests and the public interest at large.
- **Cost Management.** Most state RPS policies are intended to provide for market-based procurement of the most cost-effective renewable resources. Given that renewable energy procurement under RPS and other related policies can often result in a cost premium to electric ratepayers, collecting an appropriate degree of data about that cost is important to determining whether objectives are being met.

Survey Findings and Discussions

Reporting Entities and General Compliance Data Requirements

The first stage in managing RPS compliance is data acquisition. The data collection process includes:

[6] Or Renewable Energy Certificate, which are equivalent and used interchangeably and abbreviated as REC.

[7] See Retail Energy Supply Association (RESA) comments to the Connecticut Public Utility Regulatory (PURA) Working Group to Amend Regulations Concerning Renewable Portfolio Standards (Docket 14-03-36). Available at: http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/cd89998205776bcf85257d00006e4389?OpenDocument

- Identifying the entity (or entities) carrying the compliance obligation (or responsible for keeping records related to RPS compliance for other market participants);
- Determining what data to collect in order to ultimately ensure proper use and reporting of RPS data; and
- Designing mechanisms to collect the data from these entities.

To this end, the CESA survey addressed questions to RPS compliance officials in each state with regard to:

- The entities carrying a compliance obligation (or serving as a repository of REC market data);
- Whether the entity carrying a compliance obligation reports both data for the most recent compliance year (CY) and/or for future CY activities;
- The type of CY and/or future CY data reported to state officials; and
- The frequency with which this data is reported to state officials.

Survey Results: Entities Providing Compliance Data

The survey asked state regulators and/or program administrators about the entities that carry an RPS compliance obligation within their state. The question asked if data was received from any of the following entities.

Regulated Utilities

In regulated markets, and in competitive markets where distribution utilities remain – at least in part – as generation service providers, RPS compliance obligations reside with regulated utilities. As such, distribution utilities are the most common entity required to file RPS or renewable goal compliance data, and are required to file this data in 26 of 29 survey respondents[8] with RPS requirements. Eleven (11) of these 26 states are in restructured markets (in which generators compete in a wholesale market), while the remainder are in regulated markets.

Electricity Suppliers

In restructured markets in which customers can choose their retail service provider, the compliance obligation falls upon utilities and/or third-party service providers that procure generation service for retail customers. These electric suppliers, who may alternatively be known as load serving entities (LSEs), are required to file RPS compliance information in 16 of the 29 states (and DC) surveyed. Of these, 10 states are in restructured markets.

REC Tracking Systems

In addition, some program administrators obtain compliance information from a variety of REC tracking systems, in some cases that have been set up either by or in parallel to wholesale generation markets, such as PJM's Generation Attribute Tracking System (GATS), the New England Power Pool Generation Information System (NEPOOL GIS), or single-state systems such as the North Carolina Renewable Energy Tracking System (NC-RETS). This data, which can often serve as the official record of various tradable REC markets nationwide, is collected by

[8] From this point forward, the term "survey respondents" will refer to the 28 states surveyed plus DC (for a total of 29 "state" governments) and thus does not refer to the states with voluntary renewable goals. As noted above, detailed survey responses provided by some of the states with voluntary requirements are provided in Appendix B.

regulators/program administrators in 15 of the 29 survey respondents. Of the 15 states collecting data from REC tracking systems, 10 states are in restructured markets.

Non-Jurisdictional Utilities

Another, albeit infrequent, source of compliance information is municipal and cooperative utilities. While most are exempt, some municipal and cooperative utilities are required to participate in RPS markets (or do so voluntarily). According to survey responses, only 3 of the 29 respondents collect significant degrees of data from non-jurisdictional utilities.

State Energy Office or the State Renewable Energy Fund/Authority

In one state (Missouri), data related to RPS compliance is provided to state regulators from state officials working for 1) a state renewable energy fund or authority or 2) a state energy office.

Other Entities

In 6 of the 29 responding states and territories, other entities, such as third-party renewable energy system meter reading companies, also reported RPS compliance-related data to state officials. For example, New York uses data from third-party meter readers to evaluate system production associated with its RPS program.

Survey Results: Data Provided by Entities Carrying Compliance Obligations

Among the various entities reporting RPS compliance data, there is significant variation in the data being collected. Figure 2 illustrates the total number and relative percentage of states placing specific data collection requirements on entities carrying a compliance obligation.

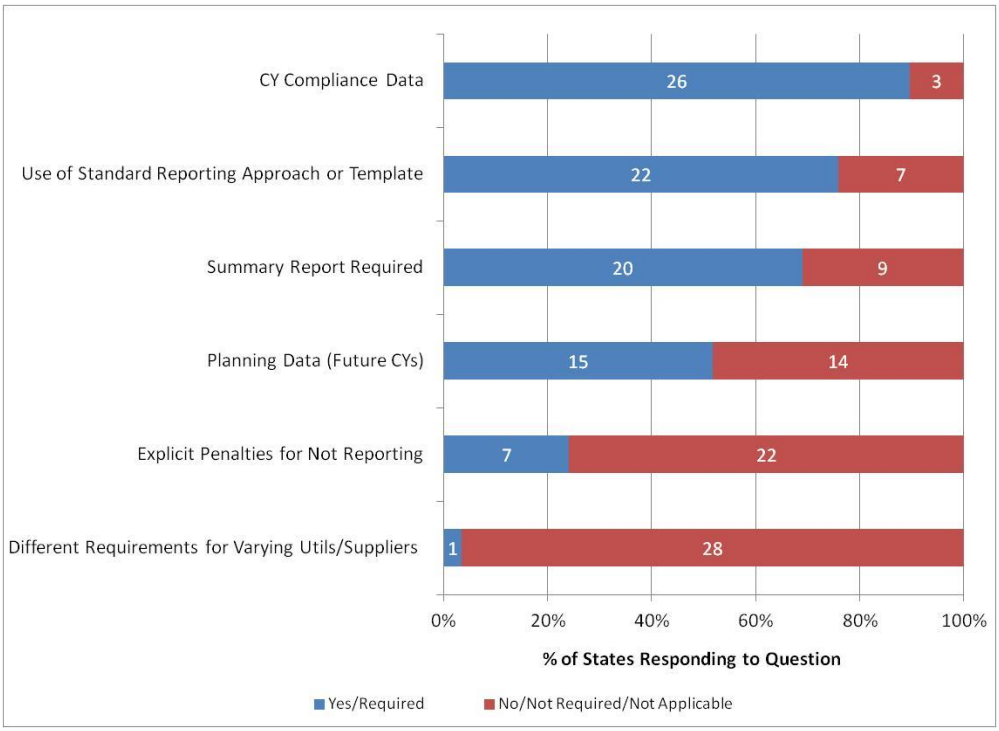


Figure 2: Data Collection Requirements for Entities in States + DC Carrying Compliance Obligation

Compliance Year (CY) Data

Overall, the most commonly reported data surrounds the most recently completed CY, which is collected by nearly 90% (26/29) of survey respondents.

Standard Reporting Approach for Data Collection

The second most common data collection approach taken by nearly 80% (22/29) of survey respondents is to require compliance entities to use a standard data reporting template or approach to ensure uniform collection of required data across entities.

Future CY Planning Data and Summary Reports Detailing Current and/or Future Compliance

The survey results indicate that it is somewhat less common to require complying entities to report on their future plans for ensuring RPS compliance. Slightly more than half (15 of 29 survey respondents) indicated that this was a requirement. A majority (20/29) of respondents also require, at a minimum, that each entity required to comply with the RPS (e.g. a utility, electric supplier, or other organization) submit a summary report detailing their activities in the most recent compliance year.

Explicit Penalties for Not Reporting and Standard Exceptions from Reporting Requirements

A minority of survey respondents, only 7 out of 29, levy penalties on complying entities for failure to submit RPS compliance data. Less common were approaches allowing reports from obligated entities to vary from one another. According to their survey responses, California is the only state permitting this practice.

Total or Aggregated Data

Survey Results: Specific Data Collected Related to Sales, Renewable Energy, and Generated RECs

Data in CY filings on sales, renewable energy, and RECs is of foundational importance to verification of RPS compliance. Total sales help to determine the overall compliance obligation. The total amount of renewable generation and corresponding RECs created during the CY helps determine whether the obligation was met. Figure 3 illustrates state responses to the survey questions related to this topic, and whether the information is 1) collected and publicly available, 2) collected but not publicly available or 3) not collected at all.

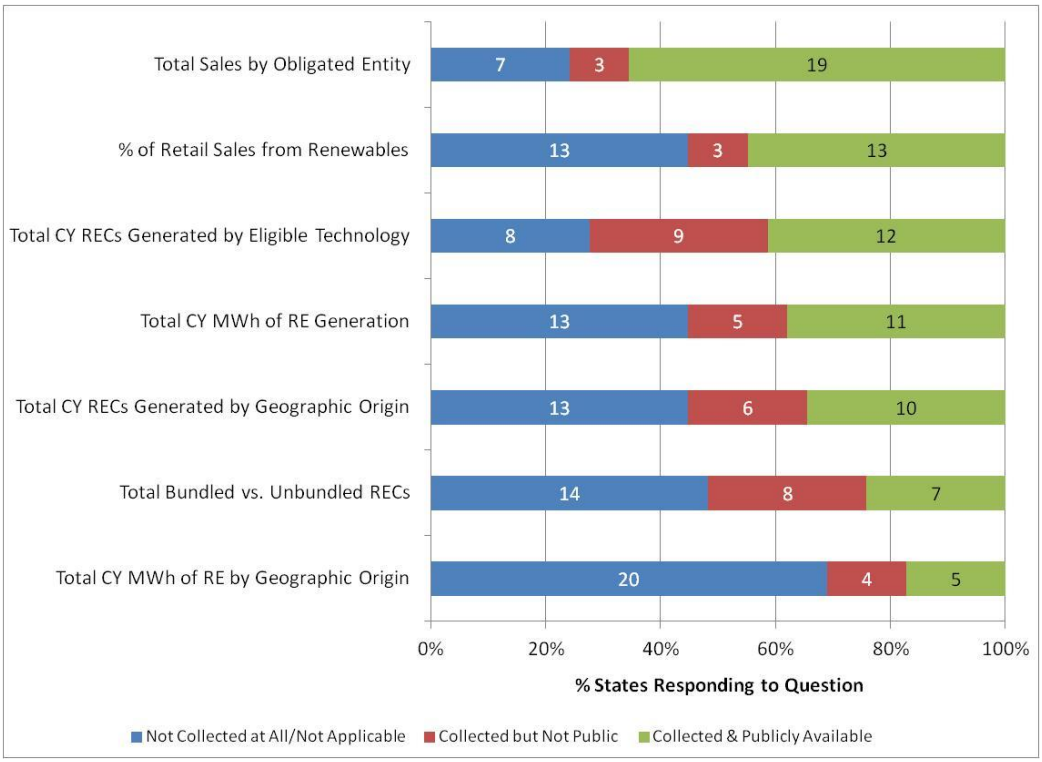


Figure 3: Data Collected Related to Sales, Renewable Energy Generation and RECs

Total Sales and Renewables Sales

Overall, 22 of 29 survey respondents indicated that they collect and/or publish the electricity sales by utilities and electricity suppliers carrying a compliance requirement, respectively. Taking steps to collect this data tends to be important for most state RPS policies, given that the complying entity's total sales (and percentage of system sales originating from renewables) tends to serve as the foundation for determining their compliance requirement (as well as any rates for RPS cost recovery).[9]

Total CY Renewable Energy and RECs by Technology and Geographic Origin

Twenty-one of 29 survey respondents indicated that they actively collect or publish data on RECs generated during the most recent CY by the technology of systems generating them. Sixteen of 29 survey respondents collected or published data on the geographic origin of the RECs, with only 10 of 29 making this data available for public inspection.

Bundled v. Unbundled RECs

Another less commonly collected set of data is the degree to which each given REC originates from a "bundled" contract that includes the energy generated by the eligible renewable energy system, or from an "unbundled" contract that is strictly for the system's RECs. The survey indicates 15 of the 29 survey respondents collect this data, and 8 of those 15 states indicate that they publish such data.

[9] Questions associated with establishing the portion originating from renewable energy sited behind-the-meter could serve as the foundation for further inquiry.

Survey Results: REC Retirement and Cost Data Collected by State (and District)

Another broad class of RPS data frequently collected by states is the vintage (year generated) of RECs procured by the complying entity, as well as the costs of those RECs to ratepayers. This data is important to collect, given that the total number of retired and banked RECs is essential to determining overall compliance, as well as future REC supply and demand dynamics – which is critical data for market participants.

Figure 4 illustrates the number and relative percentage of states collecting and reporting data related to REC vintage, retirement and cost. It should be noted that not all states offer an ACP, and therefore such data does not apply to all markets.

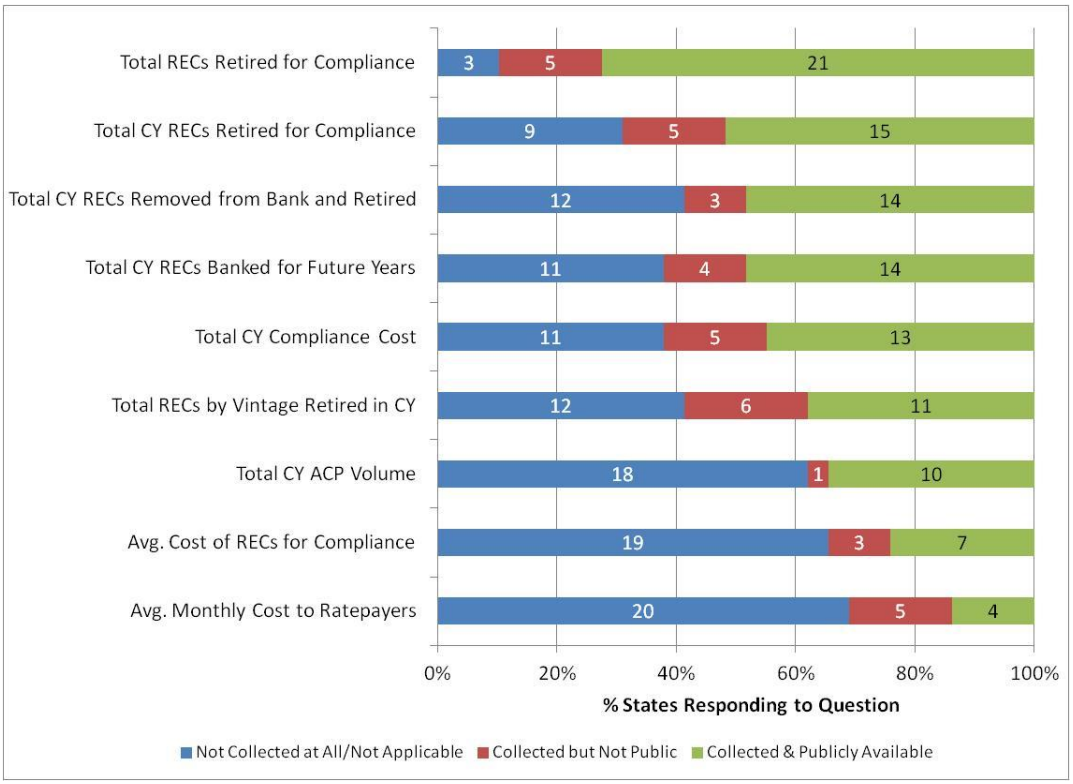


Figure 4: REC Retirement and Cost Data Collected by States + DC with RPS Programs

REC Retirement Dynamics

The survey results indicate that nearly all survey respondents (26 of 29) collect or report data on the total number of RECs retired for compliance during the current compliance year. In addition, 20 and 17 of 29 survey respondents report data on the total number of RECs from the most recent CY that have already been retired for compliance, as well as the total number of RECs by vintage retired in the most recent compliance year, respectively.

REC Banking Dynamics

Fewer survey respondents (18 of 29) collect or report data associated with the "banking" of RECs/RPS compliance during the most recent CY to be held for use in future years. In addition, 17 of 29 survey

respondents collect or report data associated with RECs retired after being removed from a complying entity's supply of "banked" RECs.

Total Cost, Average Cost and Alternative Compliance Payment (ACP) Volume Data

According to the survey results, 18 of 29 survey respondents reported collecting data regarding the total cost of compliance with RPS policies. However, only 9 of 29 survey respondents collect or report data associated with the average cost per ratepayer per month and the total cost of RECs. Where present, REC costs are reported as an average, which limits the insights that can be gained from procurement practices, but is understandable due to the sensitivity of this information.

Finally, 11 of 29 survey respondents collect or report data related to the total amount (where applicable) of ACPs in lieu of RECs made by complying entities).

Comparison of Cost of Renewable Energy to Conventional Resources

In most cases, the basis for determining the cost of RPS compliance to ratepayers is to compare the costs of renewable energy to the market's marginal cost resource. Eight of 29 survey respondents make this cost comparison explicit.

Individual Systems

The other important area of state data collection and reporting practice surrounding RPS and renewable goal policies is associated with data from individual systems. These data can generally be broken into 1) the general information or "vital statistics"-type data reported on an individual system level and 2) the total energy and RECs originating from those systems.

Survey Results: General Information and "Vital Statistics" Collected and Reported for Each RPS-Eligible System

Figure 5 shows the number of states and relative percentage responding to questions about general information collected and reported for each system.

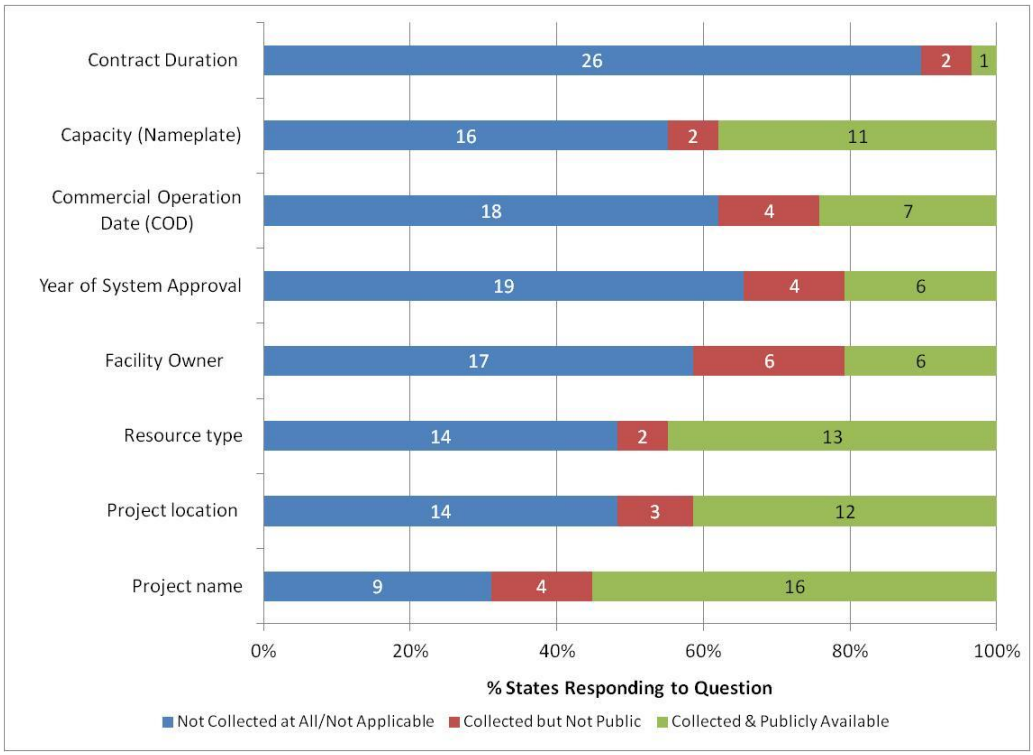


Figure 5: General Information and "Vital Statistics" Collected and Reported for Each RPS-Eligible System

Project Name, Location and Resource Type

The most frequently collected and reported "vital statistics" data for individual systems are the name (20 of 29 surveyed), location (15 of 29 surveyed) and type of renewable resource the system uses to generate electricity (15 of 29 surveyed).

System Capacity, Facility Ownership, Year of Approval and Contract Duration

A variety of additional data points important to market participants is reported less frequently. Specifically, the least commonly collected data surrounds the system's capacity (13 of 29 surveyed), the owner of the system (12 of 29 surveyed), the system's date of initial commercial operation (11 of 29 surveyed) and the year the system was approved to participate in the RPS market (10 of 29 surveyed).

Survey Results: Specific Eligible System-Level Energy and REC Data Collected and Reported by State

The remaining information covered by the survey relates to facility-level energy and REC production. In general, this data is less frequently collected from and/or reported by the survey respondents. Figure 6 illustrates the total number and relative percentage of states collecting and/or reporting information related to energy and RECs from each renewable energy facility generating RECs for that compliance year.

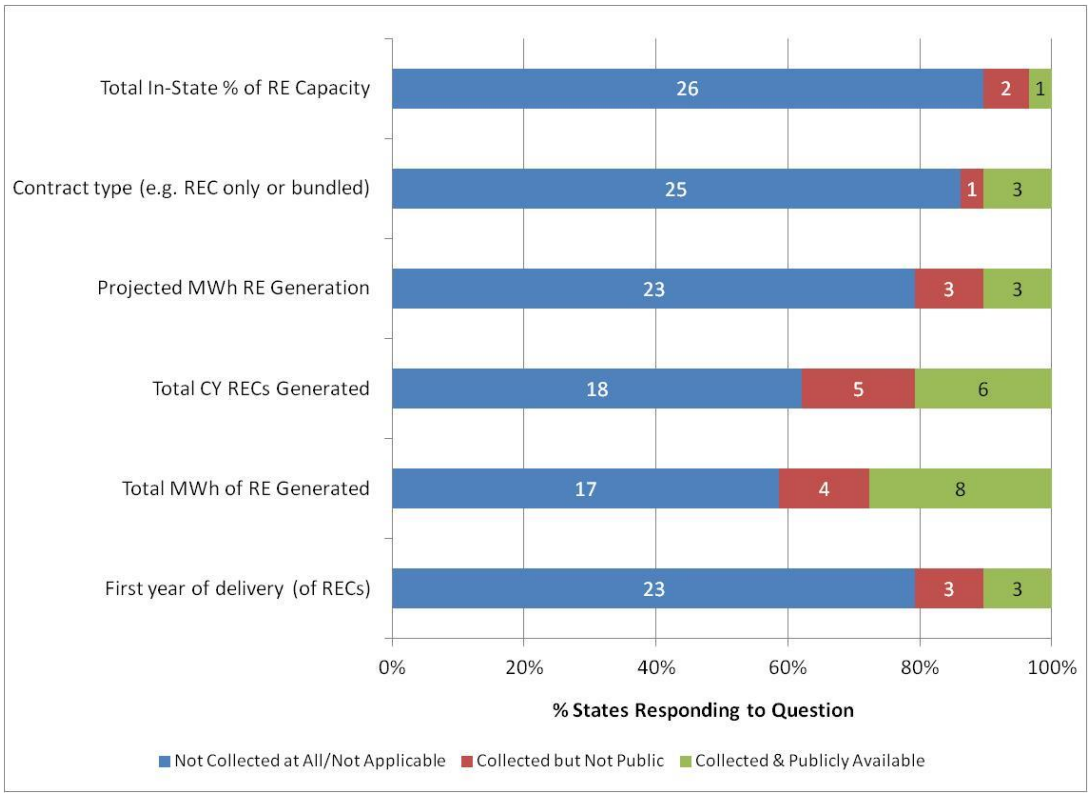


Figure 6: Energy and REC Data Collected at the System Level

Total Renewable Energy Generation

The most commonly collected and reported data on energy and RECs is the total MWh of renewable energy generated in the compliance year (12 of 29 survey respondents).

Geographic Origin, REC and Energy Projection and Delivery Data

The least common data types collected and reported are the amount of energy generated in the compliance year (12 of 29 surveyed), RECs generated (11 of 29 surveyed), the year of first delivery of RECs (6 of 28 surveyed), the total percentage of RE generated originating from within the state (3 of 29 surveyed), the projected RE generation over the coming year or years (6 of 29 surveyed) and whether contracts used for compliance are for bundled energy and RECs or RECs alone (4 of 29 surveyed).

Recommendations for Effective Use of RPS Compliance Data and Reports

RPS data collected and reported is used by policymakers and a variety of market participants for compliance verification and market facilitation purposes. Compliance verification is a critical step of RPS policies as it determines: 1) whether individual supplier obligations are met; 2) whether the state's overall RPS target is met; and 3) whether adjustments are necessary to meet the RPS policy objectives, maximize ratepayer benefits, and maintain market balance. Quality RPS data that is publicly accessible can also inform sound business and investment decisions and facilitate market growth. The following section identifies example practices based on survey results and observations from various states' experience. State regulators and RPS program administrators may wish to consider these practices in order to enhance the utilization of RPS compliance data and facilitate achievement of the objectives identified earlier in this report.

Enforce RPS Compliance Data Filing through Penalties

Obligated entities failing to meet compliance filing requirements within the required timeline may delay the determination of compliance or cause incomplete data collection. Regulators may consider different measures to enforce timely filing. Among the survey respondents, six have imposed explicit penalties for failure to meet RPS compliance filing requirements. Penalties may include fines (e.g. Kansas, Washington D.C. and Washington) and loss of electricity supplier license (Washington D.C. and Massachusetts).

Provide Comprehensive and Clear Summary Reports

Summary reports, such as annual RPS compliance reports, are provided publicly by 19 of 28 survey respondents, and are a valuable source of market information. These reports frequently contribute to market participants' understanding of supply and demand, resource availability and cost trends. Comprehensive and clear reports allow for more effective utilization of market information. Below is a list of characteristics that states may wish to be mindful of when preparing summary reports:

- **Centralized data.** Key compliance data should be compiled in one place within the report for easy navigation.
- **Clear labeling.** Ensure all values and units are clearly labeled to avoid confusion and misrepresentation.
- **Consistency.** Annual compliance reports with similar lay-outs and structure from year to year allow stakeholders to locate information and track program progress more efficiently. Consistency in data reporting and presentation also avoids confusion and ensures "apples-to-apples" comparisons. For example, value units should be consistent where applicable (e.g. kWh and MWh should not be used interchangeably throughout the report) and clearly labeled (e.g. whether dollar values are expressed in nominal or real values).

The following summary table, extracted from Massachusetts' Annual RPS Compliance Report, is a good example of clear, comprehensive and centralized data presentation. The inclusion of data from previous compliance years facilitates year-to-year data comparisons and assessment of program progress.

	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
CY Retail Sales (= Retail Load Obligation) [40]	49,252,929	48,992,430	49,386,169	50,026,093	48,301,821	50,321,635	50,978,101	50,143,130	51,558,778	50,063,092
CY Minimum Standard (% obligation) [41]	*7.714%*	*6.837%*	*5.8373%*	*4.9321%*	*4.0%*	*3.5%*	*3.0%*	*2.5%*	*2.0%*	*1.5%*
CY aggregated compliance obligation [42]	3,799,402	3,349,611	2,882,823	2,467,336	1,932,089	1,761,257	1,529,343	1,253,578	1,031,176	750,946
Total RECs from CY generation	4,064,043	3,056,894	2,613,122	2,323,609	2,129,918	1,896,008	1,599,533	938,772	644,849	444,680
minus CY total surplus RECs	(330,272)	(70,022)	(107,805)	(241,062)	(387,664)	(216,550)	(87,957)	(9,458)	(739)	(20,297)
Net CY RECs for CY obligation	3,733,771	2,986,872	2,505,317	2,082,547	1,742,254	1,679,458	1,511,576	929,314	644,110	424,383
plus Banked from pre-CY surpluses	31,102	107,351	271,303	380,824	189,835	80,605	6,863	1,661	19,531	61,147
Total RECs used for CY obligation	3,764,873	3,094,223	2,776,620	2,463,371	1,932,089	1,760,063	1,518,439	930,975	663,641	485,530
plus Total ACP Credits	31,642	255,388	106,203	3,965	0	1,208	10,920	322,625	367,858	265,424
Total for compliance obligation [43]	3,796,515	3,349,611	2,882,823	2,467,336	1,932,089	1,761,271	1,529,359	1,253,600	1,031,499	750,954
Surplus Attributes banked forward [44]	328,984	69,916	107,804	241,061	386,059	210,580	80,743	9,458	739	20,297
ACP proceeds (rounded)	$2,065,273	$16,350,132	$6,598,386	$241,551	$0	$70,765	$623,750	$17,786,316	$19,566,367	$13,645,448

Figure 7: Massachusetts Annual RPS Compliance Summary Table

Avoid Overreliance on Utility Self-Reporting

As noted above, utility self-reporting is the primary method for data collection. This method, while efficient, may create accountability risks. States may wish to pursue data more actively through other sources, including generators and tracking systems. In Connecticut, certified RPS generators are required to provide quarterly production data to the Public Utilities Regulatory Authority. These filings are available for public consumption under each certified facility's docket. This methodology allows states to more accurately track resource availability and plan for RPS adjustments and possible procurement efforts.

Avoid Misrepresentation of RPS Data

States should be cautious when reporting RPS data to avoid misrepresentation of the reported values. For calculated values (such as compliance obligation), states may wish to consider including an explanation on how the values are derived. Further, it is critical that any comparison of data is conducted under commensurable and non-biased assumptions. States should also be mindful that data aggregation may sometimes over-simplify or undermine important contexts. RPS cost data is a good example. While a number of states collect and report compliance cost information, not all values are represented in a way that is valuable to policymakers and market stakeholders. For example, some states report an average REC cost for a given compliance year. REC prices often vary by contract term, project size, technology, or RPS eligibility category. RECs may also be bundled with energy. An average value of the total compliance cost inclusive of all technologies over the total obligation requirement does not reveal information regarding market characteristics and trends that is meaningful to policy and market decision making. Having said this, respecting confidentiality – particularly with respect to something like price – will also be important. Separating average cost data by technology, vintage and/or geography may help balance transparency and confidentiality.

Establish a Frequently-Updated Certified RPS Generator List

Having access to a frequently-updated list of certified RPS generators provides market participants with greater visibility into the near- to mid- term project pipeline and allows them to make informed decisions regarding resource development and/or REC portfolios. Washington D.C. and Massachusetts both provide frequently-updated and detailed certified generator databases. These databases include generator information such as project name, fuel type, nameplate capacity, and RPS effective date. In Massachusetts, the Statement of

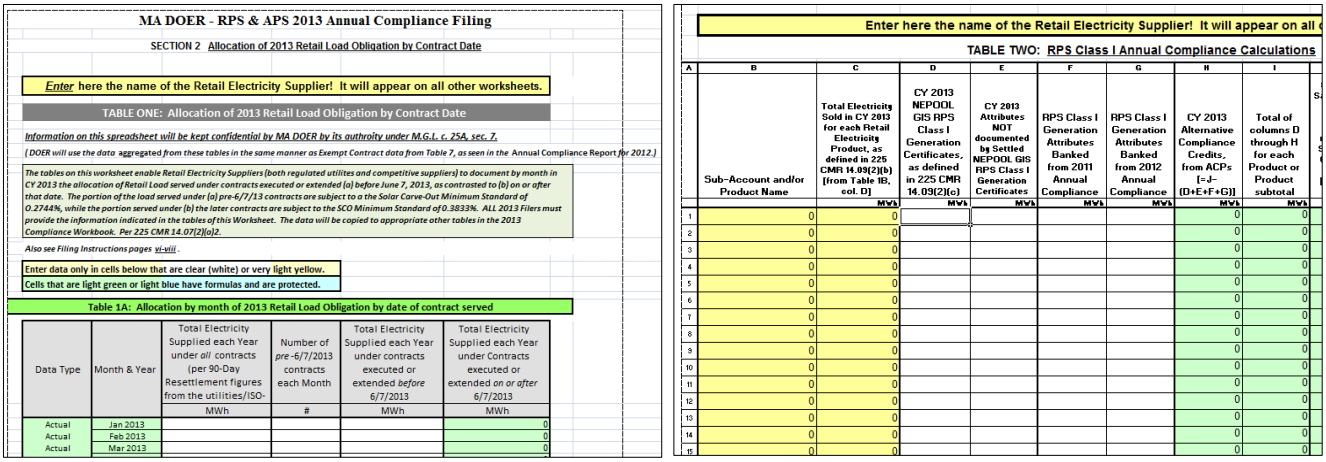
Qualification database includes both projects that are certified and ones that have submitted certification applications and are pending the Department of Energy Resources' review.

Assign a RPS Program Administrator

Some states dedicate program administrators to oversee RPS data management and compliance verification process. An RPS program administrator can be an internal staff, such as the Massachusetts Department of Energy Resources RPS Program Manager, or an external entity, such as those hired by the states of Rhode Island and Pennsylvania to support PUC staff in the administration of the states' RPS programs. Having dedicated staff for managing RPS data may streamline and accelerate the collection, reporting and verification procedures, thereby improving the efficiency of RPS implementation. Hiring independent third-party entities as RPS program administrators may also strengthen the accountability of policy implementation.

Establish Digital Compliance Template and Calculation Workbook

Manual reporting templates or guidelines, while helpful, can be burdensome for obligated entities and are prone to errors. States may wish to consider establishing automated digital compliance templates, such as Excel workbooks, that allow easy data entry and collection, as well as accurate calculation of RPS compliance obligations and ACP requirements. Massachusetts, for example, has created a detailed guideline[10] and an Excel-based compliance workbook[11] for retail electricity suppliers to determine their annual obligated load and report their RPS compliance.



MA DOER - RPS & APS 2013 Annual Compliance Filing

SECTION 2 Allocation of 2013 Retail Load Obligation by Contract Date

Enter here the name of the Retail Electricity Supplier! It will appear on all other worksheets.

TABLE ONE: Allocation of 2013 Retail Load Obligation by Contract Date

Information on this spreadsheet will be kept confidential by MA DOER by its authority under M.G.L. c. 25A, sec. 7.

(DOER will use the data aggregated from these tables in the same manner as Exempt Contract data from Table 7, as seen in the Annual Compliance Report for 2012.)

The tables on this worksheet enable Retail Electricity Suppliers (both regulated utilities and competitive suppliers) to document by month in CY 2013 the allocation of Retail Load served under contracts executed or extended (a) before June 7, 2013, as contrasted to (b) on or after that date. The portion of the load served under (a) pre-6/7/13 contracts are subject to a the Solar Carve-Out Minimum Standard of 0.2744%, while the portion served under (b) the later contracts are subject to the SCO Minimum Standard of 0.3833%. ALL 2013 Filers must provide the information indicated in the tables of this Worksheet. The data will be copied to appropriate other tables in the 2013 Compliance Workbook. Per 225 CMR 14.07(2)(a)2.

Also see Filing Instructions pages vi-viii .

Enter data only in cells below that are clear (white) or very light yellow.

Cells that are light green or light blue have formulas and are protected.

Table 1A: Allocation by month of 2013 Retail Load Obligation by date of contract served

Data Type	Month & Year	Total Electricity Supplied each Year under *all* contracts (per 90-Day Resettlement figures from the utilities/ISO-	Number of *pre*-6/7/2013 contracts each Month	Total Electricity Supplied each Year under contracts executed or extended *before* 6/7/2013	Total Electricity Supplied each Year under Contracts executed or extended *on or after* 6/7/2013
		MWh	#	MWh	MWh
Actual	Jan 2013				0
Actual	Feb 2013				0
Actual	Mar 2013				0

Enter here the name of the Retail Electricity Supplier! It will appear on all

TABLE TWO: RPS Class I Annual Compliance Calculations

	A	B	C	D	E	F	G	H	I
		Sub-Account and/or Product Name	Total Electricity Sold in CY 2013 for each Retail Electricity Product, as defined in 225 CMR 14.09(2)(b) [from Table 1B, col. D]	CY 2013 NEPOOL GIS RPS Class I Generation Certificates, as defined in 225 CMR 14.09(2)(c)	CY 2013 Attributes NOT documented by Settled NEPOOL GIS RPS Class I Generation Certificates	RPS Class I Generation Attributes Banked from 2011 Annual Compliance	RPS Class I Generation Attributes Banked from 2012 Annual Compliance	CY 2013 Alternative Compliance Credits, from ACPs [=J-(D+E+F+G)]	Total of columns D through H for each Product or Product subtotal
			MWh	MWh	MWh	MWh	MWh	MWh	MWh
1		0	0					0	0
2		0	0					0	0
3		0	0					0	0
4		0	0					0	0
5		0	0					0	0
6		0	0					0	0
7		0	0					0	0
8		0	0					0	0
9		0	0					0	0
10		0	0					0	0
11		0	0					0	0
12		0	0					0	0
13		0	0					0	0
14		0	0					0	0
15		0	0					0	0

Figure 8: Massachusetts RPS & APS Annual Compliance Filing Workbook

[10] http://www.mass.gov/eea/docs/doer/rps-aps/rps-compliance-basis-guideline.pdf

[11] http://www.mass.gov/eea/docs/doer/rps-aps/2013-rps-aps-annual-compliance-workbook.xls

Conclusions & Observations

The collection and reporting of RPS compliance data holds the potential to play an important role in successful program implementation. As RPS policies mature, advancements in data collection and information sharing techniques can lead to greater transparency of market activity and more effective program evaluation. A more robust, periodic evaluation also supports informed decisions by state policymakers seeking to foster long-term, stable markets for renewable energy development.

Policymakers may wish to evaluate their own programs with the following observations in mind:

- RPS compliance data is valuable to policy makers for market monitoring, and to market participants for a wide range of development, procurement, and strategic planning purposes.
- RPS data should be collected uniformly from all obligated market participants, and made available in an aggregated summary format that provides insight into market dynamics without compromising competitively sensitive information. There is a great deal of information that can enhance market development without compromising confidentiality.
- RPS data collection tends to place the greatest emphasis on activities of the most recent compliance year. Closely monitored programs should also collect and review data related to the accumulation and use of bank balances, reliance on ACPs (if applicable) and planning for future year compliance.
- Automation of data collection may accelerate compliance evaluation, reduce errors and increase efficiency in RPS compliance reporting to policymakers and the public.
- When published annually, RPS compliance reports provide a useful and predictable tool which informs policymaker and market participant actions.

Through these and other progressive actions, RPS data collection, analysis and reporting can play an active role in renewable energy policy implementation.

Appendix A: CESA Survey

RPS Compliance Data and Reporting Questionnaire

Instructions: Please answer the following questions to the best of your ability. Contact Samantha Donalds (sam@cleanegroup.org) at the Clean Energy States Alliance (CESA) with any questions or concerns. Please complete this survey and return it to sam@cleanegroup.org.

Your Name:
Title:
Organization:
State:
Contact Email:
Contact Phone:

Reporting Sources

From which of the following does your state receive information about RPS compliance and the generating facilities used for compliance? Please mark all that apply, and specify the type of data (i.e. production, emissions, cost, load, meter, and/or REC descriptive characteristic data, etc.) received from each source.

- ☐ Utilities
  Type of data received:_____
- ☐ Electricity suppliers
  Type of data received:_____
- ☐ REC tracking systems (e.g. NEPOOL GIS, PJM GATS, WREGIS, etc.)
  Type of data received: :_____
- ☐ State Energy Office
  Type of data received:_____
- ☐ State Renewable Energy Fund / Authority
  Type of data received:_____
- ☐ Non-jurisdictional utilities (e.g. municipal utilities)
  Type of data received:_____
- ☐ Other (please specify):_____
  (e.g. third-party database, meter reader, etc.)
  Type of data received:_____

Reporting by Utilities and Electricity Suppliers

- Does your state require utilities and/or electricity suppliers to submit RPS compliance filings? *(If not, skip to next section.)*
  - If these filings are posted online, please provide a link.
- Does your state require utilities and/or electricity suppliers to submit RPS planning filings (e.g. how the compliance entity plans to meet RPS obligations)?

- If these filings are posted online, please provide a link and/or relevant docket number.

- Is there a template or other standard formatting that utilities and/or electricity suppliers have to use for their compliance filings?
    - If a template or other instructions (including legislation, guidelines) are available online, please provide a link.

- Are filing requirements different for different categories of electricity suppliers? (Electric providers of different sizes, different technologies, etc.) If so, please describe.

- When are compliance filings due each year?
    - If other than annually, or if interim reports are required, please specify.

- Are there penalties for failure to file?

- What are the most common exceptions to the minimum reporting requirements *requested* by RPS-obligated entities?
    - What are the most common exceptions *granted*?

- Does your state use the data from individual filings to produce a summary document (e.g. an aggregated Compliance Report) about RPS compliance?
    - Are these summary reports publically available and posted online? If so, please provide a link. If the reports are available in a docket, please include the docket number.

Which of the following does your state collect from utilities and/or electricity suppliers in their annual RPS compliance filings?

Check all that apply and indicate whether the information is publically available. Please elaborate in the "Notes" section wherever possible.

Collected	Publically Available	
		RPS COMPLIANCE & PROGRAM TOTALS
		Whether each utility or electricity supplier was able to achieve RPS compliance for that year. Notes:
		Number of RECs retired in that year to meet the RPS. Notes:
		Amount of Alternative Compliance Payments (ACPs) required to achieve RPS compliance for that year. Notes:
		Obligated entity's total electricity sales to end-use customers. Notes:
		Percentage of retail sales attributable to qualifying renewable energy (by class, where applicable). Notes:
		RENEWABLE ENERGY GENERATED
		Number of current year RECs applied to the current year RPS. Notes:

Collected	Publically Available	
		MWh of renewable energy generated and applied to the RPS for that year (If different than number of RECs due to multipliers). Notes:
		BANKING OF EXCESS RECs/COMPLIANCE
		Number of RECs/quantity of excess compliance banked with regulators for use in future years. Notes:
		Number of previously banked RECs/quantity of previous excess compliance withdrawn from the bank for use in current compliance year. Notes:
		The year ("vintage") of RECs retired to meet the RPS in that compliance year. (i.e., the year the renewable energy associated with the RECs was generated.) Notes:
		REC DETAILS
		Geographic Origin: Quantity of RECs applied to the current compliance year, by location (state and control area). Notes:
		Geographic Origin: Quantity of renewable energy (MWh), if different from RECs due to multipliers, applied to the current compliance year, by location (state and control area). Notes:
		Technology: Quantity of RECs applied to the current compliance year, by technology/generating source (wind, biomass, hydro, solar, etc.). Notes:
		Whether RECs were acquired as part of bundled or unbundled contracts. Notes:
		PROGRAM COSTS
		Total cost of compliance for the subject year. Notes:
		Average monthly cost of RPS to ratepayers. Notes:
		Average cost of RECs used to meet compliance. Notes:

In-State Renewable Energy Generation Portfolio

Are utilities and electricity suppliers required to submit a list of renewable generation projects used to meet their RPS obligation during the compliance period in question?

Does the applicable regulatory authority publish a list of all state-certified RPS generators?

If so, which of the following fields are they required to include in their compliance filings:

Collected	Publically Available	Data Type
		Project name
		Project location
		Resource type
		Facility Owner
		Capacity

		Actual production that year in MWh
		Total RECs generated that year (if different from actual production due to multipliers)
		Projected generation next year
		Year approved
		Commercial operation date
		First year of delivery (of RECs)
		Contract type (e.g. REC only or bundled)
		Contract duration
		State share of capacity (i.e. how much of the renewable energy generated by this facility stays in-state).

RPS Cost Data

Please specify the type and format of any and all REC/RPS cost data obtained from RPS-obligated entities: (Note: This should include, but not be limited to, long-term contracts, short-term contracts, bundled (energy + REC) contracts, and/or REC-only contracts between RPS-qualified generators and utilities and/or competitive suppliers or other RPS-obligated entities.)

Does your RPS have a cost cap? How do you track RPS costs and compare them to such a cap? What guidance do you give to compliance entities, if they are calculating the costs and cap? Please provide any relevant docket numbers.

Does your program track the cost of renewable energy compared to conventional sources? If yes, please explain how this is done and provide any relevant docket numbers.

Describe any other important information that your state collects related to RPS compliance that has not been covered by this survey. Please also note whether this information is made publically available.

Appendix B: Detailed Survey Results

The following tables summarize the data collected by for this report. Some states with voluntary RPS programs responded to this survey; their responses are marked in **red**.

Reporting Sources

From which of the following does your state receive information about RPS compliance and the generating facilities used for compliance?

Utilities	Electricity Suppliers	REC Tracking Systems	State Energy Office	State Renewable Energy Fund/ Authority	Non-Jurisdictional Utilities	Other
AZ, CA, CO, CT, DC, DE, HI, IA, IL, **KS**, MA, MI, MN, MO, MT, NC, **ND**, NH, NJ, NM, NV, NY, OH, OR, RI, **SD**, **VA**, WA, WI	CT, DC, IL, MA, MI, MT, NC, NH, NJ, NV, NY, OH, OR, RI, **SD**	DC, DE, IL, **KS**, MA, MO, NC, NH, NJ, NV, NY, OH, RI, **SD**, TX, **VA**, WA, WI	MO	MA	CO, NC	MA, NC, NY, OH, RI, **SD**

Reporting by Utilities and Electricity Suppliers

Which of the following are required in your state?

Utilities/ electricity suppliers required to submit RPS compliance filings	Utilities/ electricity suppliers required to submit RPS planning filings	Template or standard formatting required	Different filing requirements for different categories of electricity suppliers	Penalties for failure to file	Summary document produced by state
AZ, CA, CO, CT, DC, DE, HI, IL, **KS**, MA, MD, ME, MI, MN, MO, MT, NC, **ND**, NJ, NM, NV, OH, OR, RI, **SD**, TX, **VA**, WA, WI	AZ, CA, CO, IL, **KS**, MI, MN, MO, NC, NM, OH, OR, RI, **VA**, WA, WI	AZ, CA, CO, CT, DC, DE, IL, **KS**, MA, MD, ME, MI, MN, MT, NC, NH, NJ, NM, OR, RI, TX, WA, WI	CA	AZ, DC, DE, **KS**, MA, NJ, WA	CA, CT, DC, DE, HI, IL, **KS**, MA, MD, ME, MI, MN, MT, NC, **ND**, NH, NJ, OH, RI, **SD**, WA, WI

Which of the following does your state collect from utilities and/or electricity suppliers in their annual RPS compliance filings?

Collected but not publically available	Collected & Publically Available	
		RPS COMPLIANCE & PROGRAM TOTALS
NC, NH, NY, TX	AZ, CA, CO, CT, DC, DE, HI, MA, ME, MN, MO, MT, **ND**, NJ, NM, NV, OH, OR, PA, RI, **SD**, **VA**, WI	Whether each utility or electricity supplier was able to achieve RPS compliance for that year.
IL, NC, NM, NY, TX	AZ, CA, CO, CT, DC, DE, MA, ME, MI, MN, MO, MT, NH, NJ, NV, OH, OR, PA, RI, **SD**, **VA**, WA, WI	Number of RECs retired in that year to meet the RPS.

Collected but not publically available	Collected & Publically Available	
IL	CT, DC, DE, MA, ME, NJ, OH, OR, PA, RI	Amount of Alternative Compliance Payments (ACPs) required to achieve RPS compliance for that year.
DC, ME, NC	AZ, CA, CO, DE, HI, MA, MI, MN, MO, MT, NH, NJ, NM, NV, OH, OR, PA, **SD**, WA, WI	Obligated entity's total electricity sales to end-use customers.
DC, MO, NH	AZ, CA, DE, HI, MA, ME, MI, ND, NJ, OR, PA, RI, WA, WI	Percentage of retail sales attributable to qualifying renewable energy (by class, where applicable).
		RENEWABLE ENERGY GENERATED
MO, NH, NY, PA, **SD**, WI	AZ, CA, CO, CT, DC, MA, ME, MN, MT, NJ, NM, NV, OR, RI, **VA**, WA	Number of current year RECs applied to the current year RPS.
IL, MO, NH, TX, WI	AZ, CA, CO, DE, ME, MI, MT, NM, OR, RI, **VA**, WA	MWh of renewable energy generated and applied to the RPS for that year (If different than number of RECs due to multipliers).
		BANKING OF EXCESS RECs/COMPLIANCE
MO, NC, NH, WI	AZ, CA, CO, CT, DE, MA, ME, MT, NJ, NM, NV, OR, RI, **VA**, WA	Number of RECs/quantity of excess compliance banked with regulators for use in future years.
MO, NH, **SD**, WI	AZ, CA, CO, CT, DC, DE, MA, ME, MT, NJ, NV, OR, RI, **VA**, WA	Number of previously banked RECs/quantity of previous excess compliance withdrawn from the bank for use in current compliance year.
CO, IL, MO, NH, PA, **SD**, WI	CA, CT, DC, DE, MA, ME, MT, NJ, NM, OR, WA	The year ("vintage") of RECs retired to meet the RPS in that compliance year. (i.e., the year the renewable energy associated with the RECs was generated.)
		REC DETAILS
DC, IL, MO, NH, NJ, **SD**, WI	CO, CT, DE, MA, ME, MT, OR, PA, RI, WA	Geographic Origin: Quantity of RECs applied to the current compliance year, by location (state and control area).
DC, MO, NH, WI	CO, DE, ME, OR, WA	Geographic Origin: Quantity of renewable energy (MWh), if different from RECs due to multipliers, applied to the current compliance year, by location (state and control area).
AZ, DC, IL, MO, NC, NH, NM, TX, WI	CA, CO, CT, DE, ME, MT, NJ, NV, OR, PA, RI, **SD**, **VA**, WA	Technology: Quantity of RECs applied to the current compliance year, by technology/generating source (wind, biomass, hydro, solar, etc.).
ME, MN, MO, NH, OH, PA, RI, WI	CA, CO, MA, MI, NV, NY, OR	Whether RECs were acquired as part of bundled or unbundled contracts.
		PROGRAM COSTS
NC, NH, OH, OR, RI	CA, CO, DC, DE, ME, MI, NJ, NM, NV, NY, PA, **VA**, WA, WI	Total cost of compliance for the subject year.
AZ, NC, NJ, OH, RI	CA, CO, ME, MI	Average monthly cost of RPS to ratepayers.
CO, OR, RI	CA, DC, DE, ME, NJ, OH, PA	Average cost of RECs used to meet compliance.

In-State Renewable Energy Generation Portfolio

Are utilities and electricity suppliers required to submit a list of renewable generation projects used to meet their RPS obligation during the compliance period in question?

Answering yes: AZ, CO, DE, IL, **KS**, MA, ME, MI, MO, MT, NC, NH, NJ, NV, OR, PA*, RI, TX, WA

Does the applicable regulatory authority publish a list of all state-certified RPS generators?

Answering yes: CT, DC, DE, IL, MA, ME, MI, MO, NC, NH, NJ, NY, OR, PA*, RI, TX

If so, which of the following fields are they required* to include in their compliance filings?

Data Type	Collected	Publically Available
Project name	ME, MN, NH, PA*, TX	AZ, CO, CT, IL, MA, MI, MO, MT, NC, NJ, NM, NV, NY, OR, PA*, WA
Project location	**KS**, ME, NH, NV, PA*	CO, CT, IL, MA, MO, MT, NC, NJ, NY, OR, PA*, WA
Resource type	**KS**, NH, NV, PA*	AZ, CO, CT, IL, MA, MO, NC, NJ, NM, NY, OR, PA, WA
Facility Owner	CO, **KS**, MO, NH, NV, OR, TX	AZ, CT, IL, NC, NJ, NY
Capacity	NH, OR, PA*	AZ, CO, CT, IL, MI, MO, NC, NJ, NV, NY, PA*
Actual production that year in MWh	MO, NJ, NY, TX	AZ, CO, CT, IL, MI, NM, NV, WA
Total RECs generated that year (if different from actual production due to multipliers)	MN, MO, NJ, NY, TX	CO, CT, MT, NM, NV, WA
Projected generation next year	MO, NV, NY	AZ, CO, NJ
Year approved	CO, NJ, NV, NY, PA*	CT, MI, MO, NC, OR, PA*
Commercial operation date	CO, **KS**, NV, NY, TX	CT, IL, MI, MO, NC, NJ, OR
First year of delivery (of RECs)	CO, NV, NY	CT, MO, OR
Contract type (e.g. REC only or bundled)	MO	CO, NY, OR
Contract duration	CO, MO	NY
State share of capacity (i.e. how much of the renewable energy generated by this facility stays in-state).	MO, NY	CO
*Pennsylvania indicated that while they do not immediately require this information, they do not do so because they can collect it from the PJM-GATS system.		

Cost Data

Does your RPS have a cost cap?

Answering yes: CO, ME, MO, MT, NC, NM, NY, OH, OR, WA

Does your program track the cost of renewable energy compared to conventional sources?

Answering yes: AZ, CA, MO, MT, OR, RI, WA, WI

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The Clean Energy States Alliance (CESA) is a national, nonprofit coalition of public agencies and organizations working together to advance clean energy. CESA members—mostly state agencies—include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country.

CESA works with state leaders, federal agencies, industry representatives, and other stakeholders to develop and promote clean energy technologies and markets. It supports effective state and local policies, programs, and innovation in the clean energy sector, with emphasis on renewable energy, power generation, financing strategies, and economic development. CESA facilitates information sharing, provides technical assistance, coordinates multi-state collaborative projects, and communicates the positions and achievements of its members.

www.cesa.org

ABOUT THE STATE-FEDERAL RPS COLLABORATIVE

The State-Federal RPS Collaborative, mangaed by the Clean Energy States Alliance, serves as a forum for the exchange of experiences and lessons learned regarding the implementation of state Renewable Portfolio Standard (RPS) policies. It was established to advance dialogue and cooperation among a broad network of state and federal government officials, renewable energy certificate tracking system administrators, NGO experts, industry representatives, and other stakeholders. It is supported by the U.S. Department of Energy and the Energy Foundation.

The Collaborative offers a free monthly newsletter, regular webinars, reports, an annual National Summit on RPS, and opportunities for information exchange.

For more information see http://www.cesa.org/projects/state-federal-rps-collaborative/.