

RENEWABLE PORTFOLIO STANDARD REPORT
TO THE GENERAL ASSEMBLY
BY THE PUBLIC UTILITIES COMMISSION OF OHIO
FOR THE 2016 COMPLIANCE YEAR

PUCO Case No. 18-1840-EL-ACP

www.puco.ohio.gov

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I. EXECUTIVE SUMMARY

Amended Substitute Senate Bill 221 created Ohio's Alternative Energy Portfolio Standard (AEPS). The AEPS originally contained specific compliance benchmarks for the total renewable energy resources and advanced energy requirements for electric distribution utilities (EDUs) and the competitive retail electric service (CRES) providers.

Substitute Senate Bill 310 (SB 310), which became effective on September 10, 2014, revised Ohio's AEPS and, among other things, eliminated the advanced energy provision.¹ Since the advanced energy provision was eliminated, the AEPS will now be referred to as the Renewable Portfolio Standard (RPS).

The Ohio Revised Code (R.C.) section enacting this legislation requires the Public Utilities Commission of Ohio (PUCO) to submit a report detailing information regarding renewable energy compliance with the statutory standards to the General Assembly.² Specifically:

The commission annually shall submit to the general assembly in accordance with section 101.68 of the Revised Code a report describing all of the following:

- (1) The compliance of electric distribution utilities and electric services companies with division (B) of this section;
- (2) The average annual cost of renewable energy credits purchased by utilities and companies for the year covered in the report;
- (3) Any strategy for utility and company compliance or for encouraging the use of qualifying renewable energy resources in supplying this state's electricity needs in a manner that considers available technology, costs, job creation, and economic impacts.

PUCO rules require EDUs and CRES providers to file by April 15 of each year, a renewable energy portfolio status report that analyzes all activities undertaken in the previous calendar year.³ The public may comment on the status report of each EDU and

¹ Additionally, SB 310 eliminated the requirement that 50% of renewable energy credits (RECs) come from in-state renewable facilities and froze the percentages of electric sales required to result from renewable sources at 2014 levels until 2017. Finally, in addition to the ability to use a compliance baseline based on a three year average of sales, an EDU or CRES provider can now choose to use compliance year sales as the compliance baseline.

² See R.C. 4928.64.

³ See Ohio Administrative Code (Ohio Adm.Code) 4901:1-40-05(A).

CRES provider within 30 days of its filing.⁴ While the PUCO reviews status reports for individual company compliance with the renewable energy requirements, the status reports also provide a substantial portion of information necessary for the RPS reports. The information contained in this report reflects the information as filed by the EDUs and CRES providers, and not necessarily as modified and verified by PUCO review.⁵

The information required to be submitted by the PUCO to the General Assembly is contained herein as the PUCO’s eighth annual General Assembly filing (2016 RPS Report). Section II summarizes the 2016 compliance efforts of the EDUs and CRES providers. Section III details the average costs of renewable energy credits (RECs) and solar RECs (S-RECs) used for compliance in 2016. Section IV considers the resources and strategy for encouraging the use of renewable energy resources.

II. 2016 COMPLIANCE ACTIVITIES

The RPS requirements are addressed most specifically in R.C. 4928.64, with additional supporting language found throughout R.C. Chapter 4928. To implement the RPS, the statute includes specific annual benchmarks, including a requirement for solar resources. The requirements for 2016, as specified by R.C. 4928.64(B)(2), were as follows:

Year	Renewable Energy Resources	Solar Energy Resources	Non-Solar Energy Resources⁶
2016	2.50%	0.120%	2.38%

Each EDU and CRES provider is subject to a compliance payment if it does not meet the annual benchmarks. EDUs and CRES providers may purchase RECs and S-RECs to comply with this rule and therefore RECs and S-RECs represent the compliance currency for Ohio’s RPS.⁷

⁴ See Ohio Adm.Code 4901:1-40-05(B).

⁵ Staff reviews the information filed annually by each EDU and CRES provider in individual PUCO dockets, each of which is then accompanied by a Commission Finding and Order.

⁶ This report uses the term “non-solar energy resources” to represent the total renewable energy resource requirement net of the specific solar requirement.

⁷ Based on the compliance status reports, the companies obtained RECs and S-RECs through several different methods including, but not limited to, self-generation, bilateral transactions, brokers, residential REC programs and the use of requests for proposals.

Attribute tracking systems act as electronic bookkeepers for RECs and S-RECs and maintain an accounting system that facilitates several regulatory processes including compliance verification.⁸ During the 2016 RPS compliance year, Ohio's EDUs and CRES providers used the following tracking systems to monitor their compliance efforts: the PJM Environmental Information Services Generation Attribute Tracking System (GATS) and the Midwest Renewable Energy Tracking System (M-RETS).⁹ The PUCO maintains a regulatory account with each tracking system that permits the PUCO to review the REC and S-REC data associated with each company's compliance efforts.¹⁰

Compliance obligations are a result of a company's historic retail electric sales in the state. As consumers continue to exercise their choice of electric providers, the compliance obligations are gradually shifting from EDUs to CRES providers. Pursuant to the EDUs and CRES providers' 2016 compliance filings, the EDUs were responsible for approximately twenty-seven percent (27.0%) of the overall compliance obligation in 2016 with seventy-three percent (73.0%) assignable to CRES providers.

The information in Table 1 below summarizes the 2016 compliance performances, as presented by the EDUs and CRES providers in their respective annual compliance status reports.¹¹ The 2016 RPS Report combines the details for the CRES providers to protect certain individual company data for which CRES providers have requested confidential treatment. As shown in Table 1, both the EDUs and CRES providers reported meeting, if not exceeding, their compliance obligations during 2016 for both solar and non-solar categories. As noted above, each company's compliance with the RPS is reviewed by the PUCO, and therefore the information contained in the status reports may be subsequently verified or modified based on the PUCO's review. Thus, the data provided in Table 1 is as filed by the companies, and not as verified or modified by the PUCO.

⁸ The tracking systems also provide an avenue for RECs and S-RECs to be retired, officially removing them from circulation and preventing any potential double-counting.

⁹ In 2016, Ohio's EDUs and CRES providers predominantly retired RECs and S-RECs through GATS, with only 1.4% of RECs and S-RECs retired through M-RETS.

¹⁰ PUCO staff utilized GATS and M-RETS data as the source for many of the charts in this report, with the data having been aggregated in places so as to not disclose specifics that may be deemed confidential.

¹¹ See R.C. 4928.64(C)(1); *see also*, Ohio Adm.Code 4901:1-40-05(A). Additionally, the individual compliance status reports can be accessed at the PUCO Ohio Renewable Energy Portfolio Standard web page (www.puco.ohio.gov/puco/renewables/) by clicking on the link to [Renewable portfolio standard status reports – 2016](#).

Table 1:
EDU and CRES Providers' Reported 2016 Compliance Data in Summary Form

Company	Non-Solar (MWhs)		Solar (MWhs)	
	Total Required	Total Retired	Total Required	Total Retired
Cleveland Electric Illuminating	68,654	68,654	3,462	3,462
Dayton Power and Light	91,245	91,245	4,601	4,601
Duke Energy	120,469	120,469	6,074	6,074
Ohio Edison	121,494	121,494	6,126	6,126
Ohio Power	255,461	255,461	12,880	12,880
Toledo Edison	59,140	59,140	2,982	2,982
EDU Totals	716,463	716,463	36,125	36,125
CRES Providers	1,959,463	1,966,125	98,703	99,021
TOTALS	2,675,926	2,682,588	134,828	135,146

A. Non-solar compliance

The figures reported by EDUs and CRES providers for all non-solar compliance show a total compliance obligation of 2,675,926 megawatt-hours (MWhs), which was exceeded as a result of over-compliance from some CRES providers.

B. Solar compliance

Based on information reported by EDUs and CRES providers, the total solar obligation for 2016 was 134,828 MWhs, which was exceeded as a result of over compliance from some CRES providers.

C. Additional details on 2016 compliance resources

The table and charts below provide further details on the state of origin and renewable resource categories used for compliance during the 2016 compliance year. Once a REC or S-REC is used for compliance, it is deemed "retired" in the GATS and M-RETS tracking systems. The below usage data of renewable resources during the compliance year is based on REC and S-REC retirement data gathered from GATS and M-RETS.

Table 2:
2016 Ohio REC Retirements by State of Origin

Source: PJM GATS and M-RETS Databases

	Ohio	Indiana	Kentucky	Michigan	West Virginia	Pennsylvania	Total
Total S-REC Retirements	69.49%	9.33%	1.19%	0.63%	0.31%	19.04%	100.0%
Total Non-solar REC Retirements	20.79%	24.41%	14.77%	1.72%	17.67%	20.63%	100.0%
Wind-Specific	37.31%	42.03%	---	---	1.03%	19.63%	100.0%
Biomass-Specific	28.68%	21.37%	47.13%	2.82%	---	---	100.0%
Hydro-Specific	1.36%	---	5.41%	---	50.82%	42.42%	100.0%

Chart 1:

Source: PJM GATS and M-RETS Databases

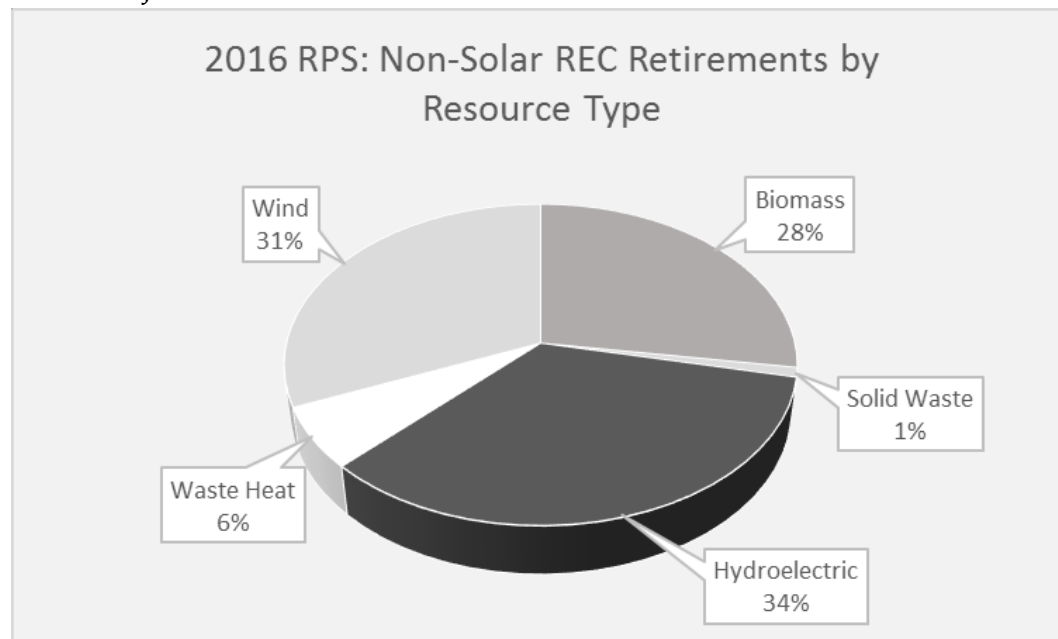


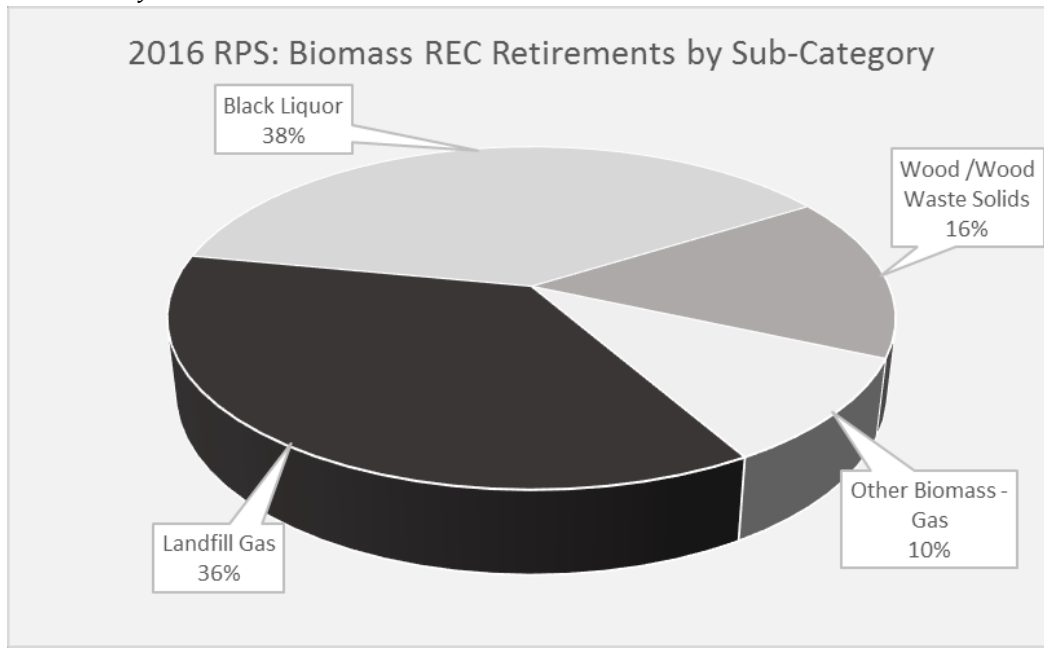
Chart 1 details the REC retirements by resource category from 2016. Biomass energy was a significant contributor to the 2016 REC retirements. By PUCO rule, biomass energy includes several different subcategories of energy produced from organic material derived from plants or animals and available on a renewable basis, including but not

limited to biologically derived methane gas, wood/wood waste solids, and sludge waste.¹²

Chart 2 details the different categories of biomass RECs retired for 2016. As shown by Chart 2, black liquor was the single largest subcategory. Landfill gas and wood/wood waste solids also contributed meaningfully to the volume of biomass RECs retired for 2016.¹³

Chart 2:

Source: PJM GATS Database¹⁴



III. 2016 AVERAGE REC COSTS

Ohio law requires that the RPS report describe, "... [t]he average annual cost of renewable energy credits purchased by utilities and companies for the year covered in the report."¹⁵ The PUCO received required cost information from many, but not all, of the CRES providers. PUCO staff used this average cost information reported by the EDUs and

¹² See Ohio Adm.Code 4901:1-40-01(E).

¹³ Not included in Chart 2 are other biomass-liquids and sludge waste, which together comprised 0.21%.

¹⁴ Biomass retirements were only reported in the PJM GATS database for the 2016 compliance year; no biomass retirements were reported in M-RETS for that time.

¹⁵ See R.C. 4928.64(D)(2).

CRES providers, along with their respective compliance volumes reported in GATS and M-RETS, to calculate weighted average costs for RECs used for 2016 compliance.¹⁶ This weighted average REC cost information is summarized in Table 3 below and divided into categories in recognition of the market differences between the REC and S-REC categories.

Table 3:¹⁷
EDU and CRES Providers' Reported 2016 REC and S-REC Cost Information

Category	Ohio EDUs Avg. \$/REC	Ohio CRES Providers Avg. \$/REC
Solar	\$112.08	\$75.90
Non-Solar	\$13.99	\$8.16

IV. STRATEGY AND POLICY CONSIDERATION

Ohio law requires that the RPS report describe any strategy for utility and company compliance, or encouraging the use of renewable energy resources to satisfy the state's electricity demand, with consideration of such factors as technology, costs, job creation, and economic impacts.¹⁸

A. Purchasing of RECs and S-RECs

With respect to EDU and CRES provider compliance, some entities have self-generated a portion of their needed compliance resources, but the predominant compliance strategy has been the purchase of RECs and S-RECs. The sellers in such instances could be numerous, including independent power producers, aggregators or brokers.

The procurement strategies for the purchase of RECs and S-RECs have varied from longer-term solicitations to spot purchases.¹⁹ The longer-term solicitations, often using an instrument such as a request for proposal, may offer greater assurance for a supply

¹⁶ For those companies for which the cost data were not available, the REC and S-REC volumes were excluded from the average cost calculations.

¹⁷ The costs in Table 3 are an average of the costs for RECs and S-RECs retired for 2016 compliance. As these RECs and S-RECs may have been purchased several years prior, the costs in the table should not be interpreted as indicative of current market costs.

¹⁸ See R.C. 4928.64(D)(3).

¹⁹ A longer-term solicitation typically seeks delivery of a renewable resource over a multi-year period, such as five to 20 years. A spot purchase, on the other hand, typically covers a much shorter period and may entail immediate delivery of the resource.

into the future. With such supply certainty, however, comes pre-determined prices that may preclude a buyer from recognizing any cost reductions in the REC or S-REC spot markets. The long-term renewable contracts have taken different forms including fully-bundled power purchase agreements as well as REC-only unbundled products.

Other companies have exhibited a preference for shorter-term transactions, in part due to uncertainty about their future sales and thus their future compliance obligations. Long-term cost recovery questions may also be a factor supporting a greater use of short-term transactions. Shorter-term transactions may offer greater flexibility, but can also expose a buyer to potential market price volatilities. A balanced approach may be used to address potential concerns of future supply that result from shorter commitments.

B. Excusing non-compliance

Ohio law permits EDUs and CRES providers to make a *force majeure* filing to the PUCO to excuse compliance with minimum benchmarks during times when sufficient quantities of renewable energy resources are not reasonably available in the market.²⁰ The PUCO received no *force majeure* requests in 2016.

C. Perceived impediments to compliance

PUCO rules require affected companies to submit a report annually that describes their non-binding compliance plans over a 10-year planning horizon.²¹ As part of this report, companies also address perceived impediments to achieving compliance with the RPS requirements and suggest means for addressing such impediments.

Most of the companies either did not mention any perceived impediments or mentioned that they believe there is a lack of perceived impediments in the near-term. However, a few companies did cite potential impediments to achieving compliance, including potential future supply and pricing constraints.

The companies offered no suggestions about how to address the perceived impediments.

²⁰ See R.C. 4928.64(C)(4)(a).

²¹ See Ohio Adm.Code 4901:1-40-03(C).

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