Alternative Energy Portfolio Standard Report
By the Public Utilities Commission
To the General Assembly of the State of Ohio
For the 2012 Compliance Year Pursuant to
Ohio Revised Code 4928.64(D)(1)
Issued October 14, 2015
In Case No. 13-1909-EL-ACP

www.puco.ohio.gov

Ohio | Public Utilities Commission

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I. EXECUTIVE SUMMARY

Am.Sub.S.B. No. 221 (S.B. 221) of the 127th General Assembly (2008 Ohio Laws S221, effective July 31, 2008), implemented Ohio's Alternative Energy Portfolio Standard (AEPS) for electric distribution utilities (EDUs) and competitive electric service providers (CRES). The AEPS consists of both renewable energy resources and advanced energy resources. The AEPS contains specific compliance benchmarks for total renewable energy resources, including a specific solar requirement, beginning in 2009. The 2012 compliance year marked the fourth year under the state's AEPS.

Table 2 in the report summarizes the compliance obligations and compliance performances for 2012 based on the companies' annual compliance status report filings. As shown by Table 2, compliance during 2012 was universal for the EDUs. The CRES providers satisfied more than 99 percent of their collective obligations, but they fell short of full compliance in total solar and both non-solar renewable categories. The CRES providers did exceed the required obligation for in-state solar.

Pursuant to Am.Sub.S.B. No. 315 (S.B. 315) of the 129th General Assembly, effective September 10, 2012, Table 3 presents the average prices paid for renewable energy credits (RECs) and solar RECs (SRECs) used by the companies for 2012 compliance. The compliance markets continue to evolve, so the prices in Table 3 should not be interpreted as indicative of current market prices.

The PUCO has been actively reviewing and certifying facilities under the AEPS, with more than 5,400 facilities certified as of December 31, 2012. The tables provided in Appendix A include details on the facilities certified by the PUCO as of December 31, 2012, including data on the location of the facilities, the resources/technologies utilized, the facilities' generating capacity and their on-line dates.

Appendix B includes details on compliance impediments listed by companies in their 2012 compliance reports. The most prominently mentioned potential impediment involved concerns about an adequate future supply of renewable and solar resources, particularly from in-state facilities.

II. ACRONYMS

AEPS:	Alternative Energy Portfolio Standard
CMM:	Coal Mine Methane
CRES:	Competitive Retail Electric Service
DC:	Direct Current
EDU:	Electric Distribution Utility
kW:	Kilowatt
MW:	Megawatt
MWh:	Megawatt-hour
Ohio Adm.Code:	Ohio Administrative Code
R.C.:	Ohio Revised Code
REC:	Renewable Energy Credit
RFP:	Request for Proposal
S.B. 221:	Amended Substitute Senate Bill No. 221 of the 127th General Assembly (2008 Ohio Laws S221), effective July 31, 2008
S.B. 315:	Amended Substitute Senate Bill No. 315 of the 129th General Assembly, effective September 10, 2012
SREC:	Solar Renewable Energy Credit

III. STATUTORY HISTORY

S.B. 221, which became effective July 31, 2008, created the state's new alternative energy portfolio standard (AEPS). The AEPS includes both advanced energy resources and renewable energy resources, as defined by R.C. Section 4928.01(A)(34) and (37) respectively.

The AEPS is addressed most specifically in R.C. 4928.64, with additional supporting language also found in R.C. 4928.65. The overall requirement of the AEPS is that no less than 25 percent of retail electric sales by electric distribution utilities (EDUs) and competitive retail electric service (CRES) providers in the state be sourced from alternative energy resources by 2025, and each calendar year thereafter.

Of the 25 percent alternative energy resources requirement, the statute specified that at least half must come from renewable energy resources. Included within the renewable energy benchmarks is a specific requirement for solar resources (i.e., "solar carve-out"). The statute further required that at least half of the renewable requirements be satisfied through facilities located in Ohio.

To implement the renewable component of the AEPS, the statute included specific annual benchmarks beginning in 2009, including the solar carve-out. The compliance efforts relative to the 2012 renewable requirements constitute the focal point of this report. The requirements for 2012, as dictated by R.C. 4928.64(B)(2), are as follows:

Year	Renewable Energy Resources	Solar Energy Resources	Non-Solar Energy Resources[1]
2012	1.50%	0.060%	1.44%

Subsequent to S.B. 221, there have been several pieces of approved legislation that have modified the state's AEPS. In general, these modifications have retained the overall framework of the AEPS while adjusting specific resource categories.

Amended Substitute House Bill 1, signed by Governor Strickland in July 2009, modified the definition of "renewable energy resource" in R.C. 4928.01, to include coal mine methane emitted from abandoned coal mines.

Substitute Senate Bill 289, signed by Governor Kasich in April 2012, modified the definition of "renewable energy resource" in R.C. 4928.01, to include facilities utilizing

[1] "Non-Solar Energy Resources" is used in this context to represent the total renewable energy resource requirement net of the specific solar requirement

cogeneration technologies provided they satisfy a number of criteria enumerated in the statute.

Amended Substitute Senate Bill 315, signed by Governor Kasich in June 2012, expanded the definitions of "advanced energy resource" and "renewable energy resource" in R.C. 4928.01, to include additional resources/technologies. Waste energy recovery systems were defined and specifically included within the AEPS as a renewable energy resource.

IV. DIRECTIVE FOR ANNUAL REPORT

R.C. 4928.64(D)(1), includes a requirement for a report by the Public Utilities Commission of Ohio (PUCO) to the General Assembly. The PUCO has prepared this report, consistent with the following directive:

> The PUCO annually shall submit to the general assembly in accordance with section 101.68 of the Revised Code a report describing all of the following: (a) The compliance of electric distribution utilities and electric services companies with division (B) of this section; (b) The average annual cost of renewable energy credits purchased by utilities and companies for the year covered in the report; (c) Any strategy for utility and company compliance or for encouraging the use of alternative energy resources in supplying this state's electricity needs in a manner that considers available technology, costs, job creation, and economic impacts. The PUCO shall begin providing the information described in division (D)(1)(b) of this section in each report submitted after the effective date of the amendment of this section by S.B. 315 of the 129th general assembly. The PUCO shall allow and consider public comments on the report prior to its submission to the general assembly. Nothing in the report shall be binding on any person, including any utility or company for the purpose of its compliance with any benchmark under division (B) of this section, or the enforcement of that provision under division (C) of this section.

The 2012 compliance efforts of the electric distribution utilities and electric services companies are summarized in Section VI, while the average renewable energy credit (REC) costs are discussed in Section VII. Section VIII includes a discussion on strategy/policy considerations.

V. CERTIFICATION ACTIVITIES

During the rulemaking process to implement the AEPS, the PUCO proposed, and ultimately implemented, a certification process by which renewable energy generating facilities are evaluated to ensure their consistency with the requirements of R.C. 4928.64. This certification process is addressed in Ohio Adm.Code Section 4901:1-40-04(F), and focuses primarily, but not exclusively, on the following considerations:

A. The resource or technology employed at the facility,
B. The placed-in service date of the facility,
C. The deliverability to the state of the facility's electrical output

The PUCO first made its certification application form available in June 2009**.** Since that time, the application form has undergone revisions based on experience gained with the process. In addition, in October 2010, the PUCO introduced an online application form to ensure consistency and efficiency in the overall process.

There is no fee associated with the voluntary application process, and the vast majority of these applications are processed under a 60 day auto-approval process, with certification issued on the 61st day after filing. However, some applications, either due to a need for additional information or due to facts unique to the application, are suspended for specific PUCO consideration. All of the applications can be viewed online through the PUCO's Docketing Information System, ensuring transparency for the process. The rule further permits interested persons to intervene in, and provide comments on, any certification proceeding.

Only renewable energy credits (RECs) and solar renewable energy credits (SRECs) from PUCO-certified renewable energy generating facilities are recognized for AEPS compliance purposes. There are potentially eligible renewable facilities within the state that have not sought certification to date, perhaps because their renewable facilities were installed to satisfy a different objective. The output from such facilities would not be recognized under the AEPS. In addition, the PUCO has certified facilities that were not operational at the time of certification. This should be considered when interpreting the numbers in Table 1 below. It should be noted, however, that RECs and SRECs are a function of generation output, and therefore a non-operating facility is not capable of producing RECs or SRECs.

As of December 31, 2012, the PUCO had received approximately 5,700 applications as indicated by the table below.

Table 1

	As of 12/31/2009	As of 12/31/2010	As of 12/31/2011	As of 12/31/2012
Applications Filed	187	1,260	4,523	5,685
Applications Certified	81	825	4,013	5,495
Applications Pending	90	402	457	130
Applications Suspended	0	4	4	6
Applications Denied	5	7	8	8
Applications Withdrawn	11	18	34	37
Applications Dismissed/ Certificates Revoked	0	4	7	9

Additional details on the applications certified as of December 31, 2012, are provided in Appendix A to this report.

As indicated in Table 1, eight facilities have been denied certification as of December 31, 2012. Two of these facilities[2] were denied on the basis of failing to satisfy the statutory placed in-service date requirement, five facilities[3] were deemed to have not satisfied the deliverability requirement and one facility[4] was registered in an attribute tracking system not recognized by PUCO rule.

For current facility certification data, please see the PUCO Ohio Renewable and Advanced Energy Portfolio Standard web page:

www.puco.ohio.gov/puco/renewables

2 Cases 09-0751-EL-REN and 09-0877-EL-REN

3 Cases 09-555-EL-REN; 09-835-EL-REN; 09-836-EL-REN; 10-0313-EL-REN; and 10-0322-EL-REN

4 Case 11-4171-EL-REN

VI. SUMMARY OF 2012 COMPLIANCE ACTIVITIES

RECs and SRECs represent the compliance currency for Ohio's alternative energy portfolio standard. Based on the compliance status reports, the companies obtained RECs and SRECs through several different methods including, but not limited to, self-generation, bilateral transactions, brokers, residential REC programs and the use of requests for proposals (RFPs).

RECs and SRECs are created by attribute tracking systems based on the electrical production of registered electric generating facilities. PUCO rules recognize the following two tracking systems:

PJM EIS Generation Attribute Tracking System (GATS)
Midwest Renewable Energy Tracking System (M-RETS)

In addition to creating the RECs and SRECs, the attribute tracking systems act as electronic book keepers for RECs and SRECs and create an accounting system that facilitates several regulatory processes including compliance verification. The tracking systems also provide an avenue for RECs and SRECs to be retired, officially removing them from circulation and preventing any potential double-counting.

During the 2012 AEPS compliance year, all of the companies used GATS to demonstrate their compliance efforts. The PUCO maintains a regulatory account with GATS that permits the PUCO to review the REC and SREC data associated with each company's compliance efforts. GATS data was used 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.

The information in Table 2 below summarizes the 2012 compliance performances, as presented by the companies in their respective annual compliance status reports.[5] The final resolution of these proceedings may support these figures, or the PUCO may determine that revisions are warranted. The details for the CRES providers have been aggregated so as to protect individual company data for which confidential treatment has been requested.

As demonstrated by Table 2 on page 11 of this report, the Ohio electric distribution utilities (EDUs) maintained approximately two-thirds of the overall compliance obligation

[5] The individual compliance status reports can be accessed at the PUCO Ohio Renewable and Advanced Energy Portfolio Standard web page (www.puco.ohio.gov/puco/renewables/) by clicking on the link to Alternative Energy Portfolio Status Reports-2012 .

with the remaining one-third assigned to CRES providers. Compared to the 2011 compliance year, the CRES providers are assuming a larger percentage of the overall compliance obligation reflecting the increased customer switching that has occurred within the state. As the compliance obligations are a function of a company's historical retail electric sales in the state, the obligations would gradually shift from EDUs to CRES providers as customers exercise their choice of electric providers. The number of CRES providers who filed AEPS compliance status reports for the 2012 compliance year increased significantly from 2011 signaling the entrance of numerous new competitive providers into the Ohio electric market. These new market entrants, who may not have fully understood all of the regulatory requirements, contributed to the small amount of under-compliance for CRES providers as shown on Table 2. With increased experience and familiarity with the AEPS, such deficiencies may be avoided in the future.

A. Non-solar compliance

The figures for non-solar compliance, representing the total renewable requirement net of the specific solar requirement, show a total compliance obligation of approximately 1.9 million megawatt hours (MWhs) for 2012. Compliance with that total figure fell just short of compliance, with 99.5 percent of the necessary RECs having been retired to satisfy the aggregate 2012 compliance obligation.

The minimum requirement for in-state non-solar resources totaled 944,778 MWhs, with actual performance falling just short of that minimum requirement. As demonstrated by Table 2, the in-state non-solar compliance deficiency is attributed to the CRES providers.

B. Solar Compliance

The total solar obligation for 2012, including deficiencies from previous years that were rolled forward to 2012, was 78,740 MWhs, with 99.8 percent of the requirement having been satisfied. As demonstrated by Table 2, the solar compliance deficiency is attributed to the CRES providers.

The minimum requirement for in-state solar resources totaled 39,378 MWhs, with the performance having exceeded that requirement. The excess for this category was the result of several CRES providers voluntarily utilizing a greater percentage of in-state solar resources than is required.

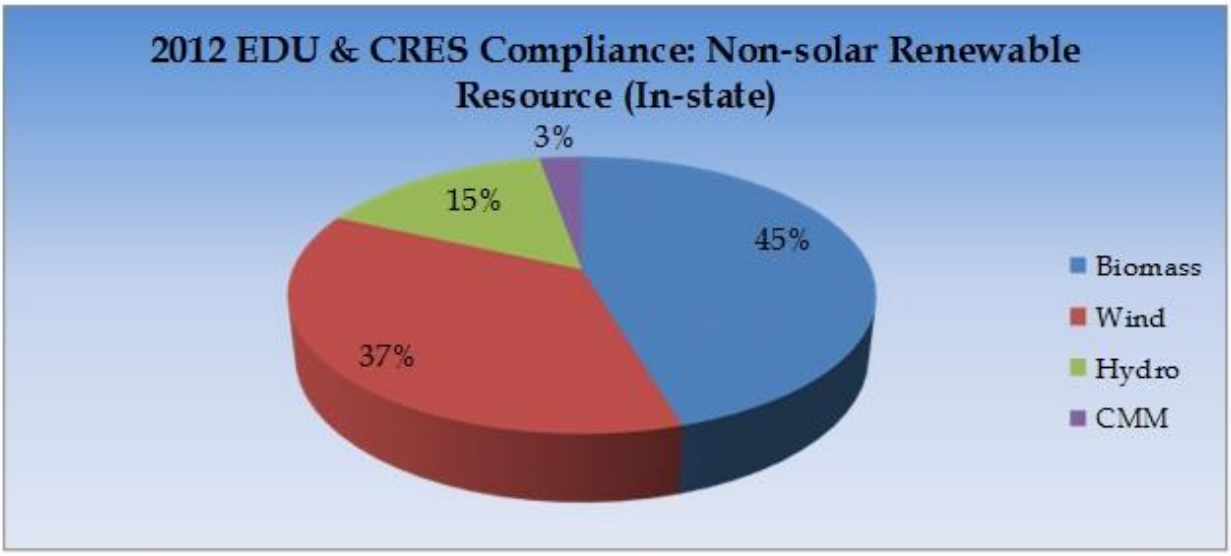
Table 2
2012 Compliance Summary Data
Source: Companies' annual compliance status report filings

	Non-Solar Renewable (MWhs)				Solar Renewable (MWhs)			
	Total	Total	In-State	In-State	Total	Total	In-State	In-State
Company	Required	Retired	Required	Retired	Required	Retired	Required	Retired
CEI	118,895	118,895	59,448	59,448	4,954	4,954	2,477	2,477
Dayton Power & Light	142,796	142,796	71,398	71,398	5,950	5,950	2,975	2,975
Duke Energy - Ohio	163,182	163,182	81,591	81,591	6,800	6,800	3,400	3,400
Ohio Edison	171,023	171,023	85,512	85,512	7,126	7,126	3,563	3,563
Ohio Power	584,073	584,073	292,037	292,037	24,336	24,336	12,168	12,168
Toledo Edison	67,991	67,991	33,996	33,996	2,833	2,833	1,417	1,417
EDU Totals	1,247,960	1,247,960	623,982	623,982	51,999	51,999	26,000	26,000
CRES Providers	641,383	637,918	320,796	319,697	26,741	26,589	13,378	13,695
TOTALS	1,889,343	1,885,878	944,778	943,679	78,740	78,588	39,378	39,695

Notes:
1) The numbers above are from the companies' annual compliance status report filings. The actual compliance obligations and performances may vary pending PUCO review of the filings.
2) "Non-Solar" is used in this context to represent the total renewable energy requirement net of the solar requirement.
3) The "In-State Requirement" is a minimum and is calculated as 50 percent of the total requirement.

While Table 2 above presents the overall compliance status, Charts 1-7 below provide additional details on the specific non-solar resources used for compliance during the 2012 compliance year. The charts are designed to show such details as which resources are coming from Ohio's contiguous states, the differences in the resources relied upon by EDUs and CRES providers, and a breakdown of the biomass resources used for compliance.

Chart 1

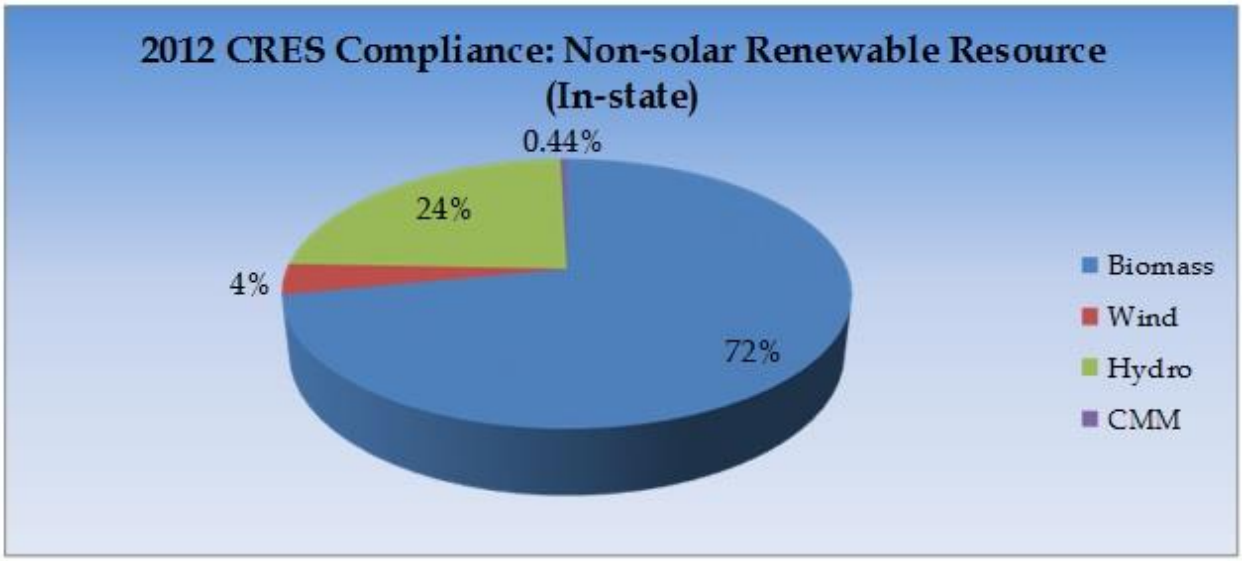


As evident in Chart 1, there was a mix of non-solar renewable resources from Ohio used for compliance. Biomass energy resources were the primary contributor, with wind energy a close second.[6]

[6] Biomass = biomass energy; Wind = wind energy; Hydro = hydroelectric; and CMM = coal mine methane

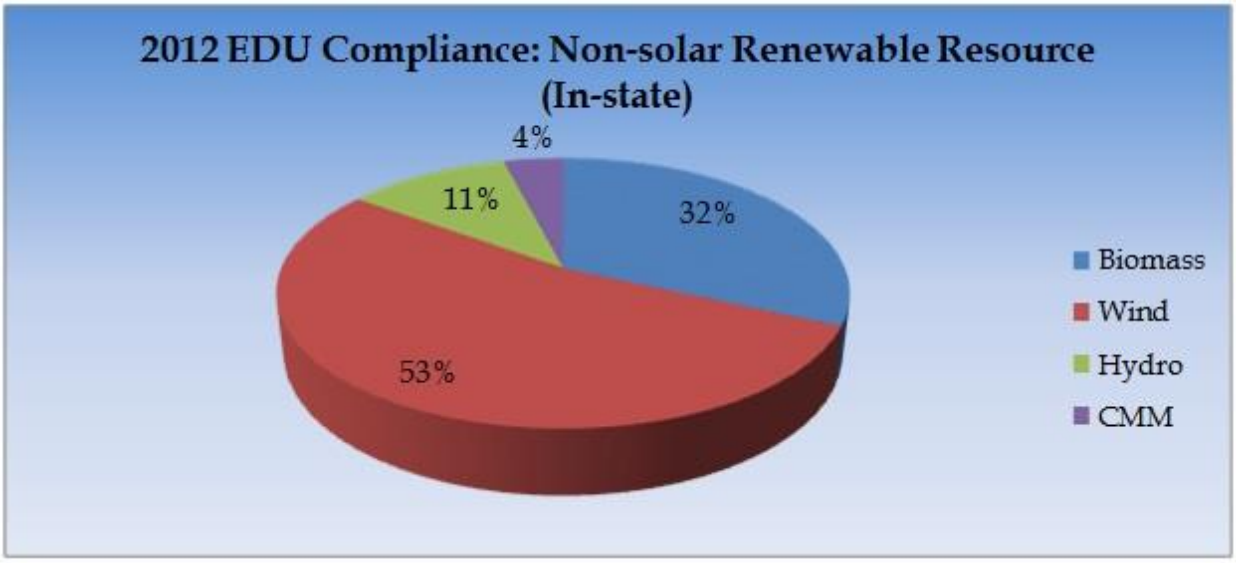
When looking exclusively at the CRES providers in Chart 2, biomass was the dominant resource used for compliance with hydroelectric making up a significant portion as well.

Chart 2



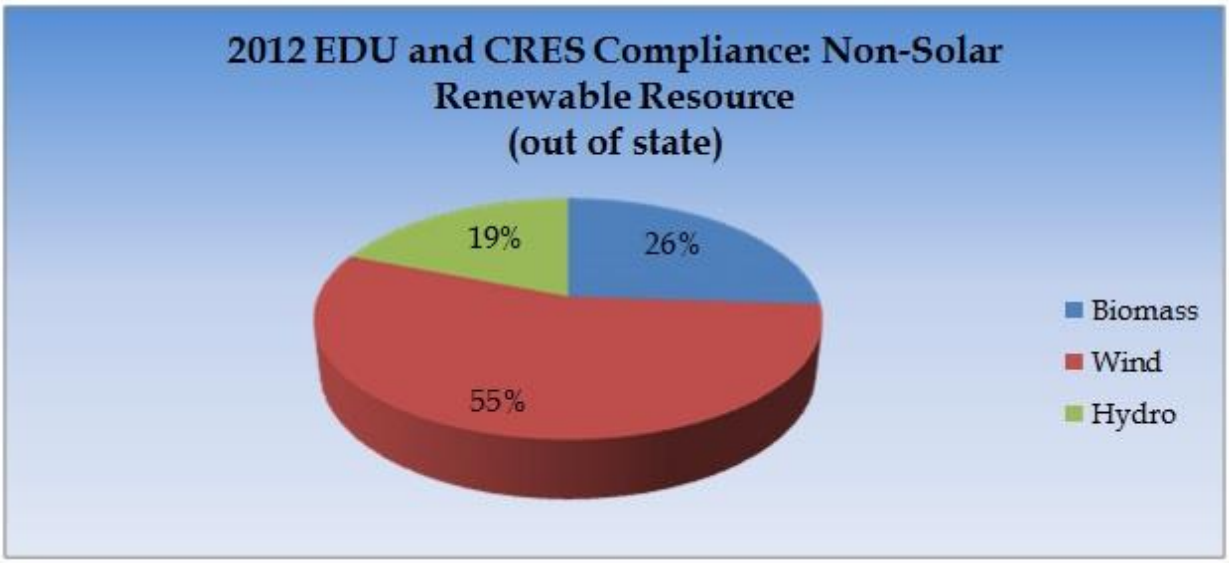
When specifically analyzing how the EDUs complied with their in-state non-solar requirements, wind energy was the dominant resource used for compliance (refer to Chart 3). However, biomass also contributed significantly to the compliance resources, with smaller amounts of hydroelectric and coal mine methane also having been utilized.

Chart 3



When evaluating the out of state renewable resources relied upon in 2012 (Chart 4 below), wind energy was the main resource used with significant contributions from biomass and hydroelectric resources as well.

Chart 4



When specifically analyzing how the EDUs and CRES providers complied with the non-solar renewable resource requirements for out of state, wind energy dominated for both while EDUs had a larger percentage of compliance from biomass.

Chart 5

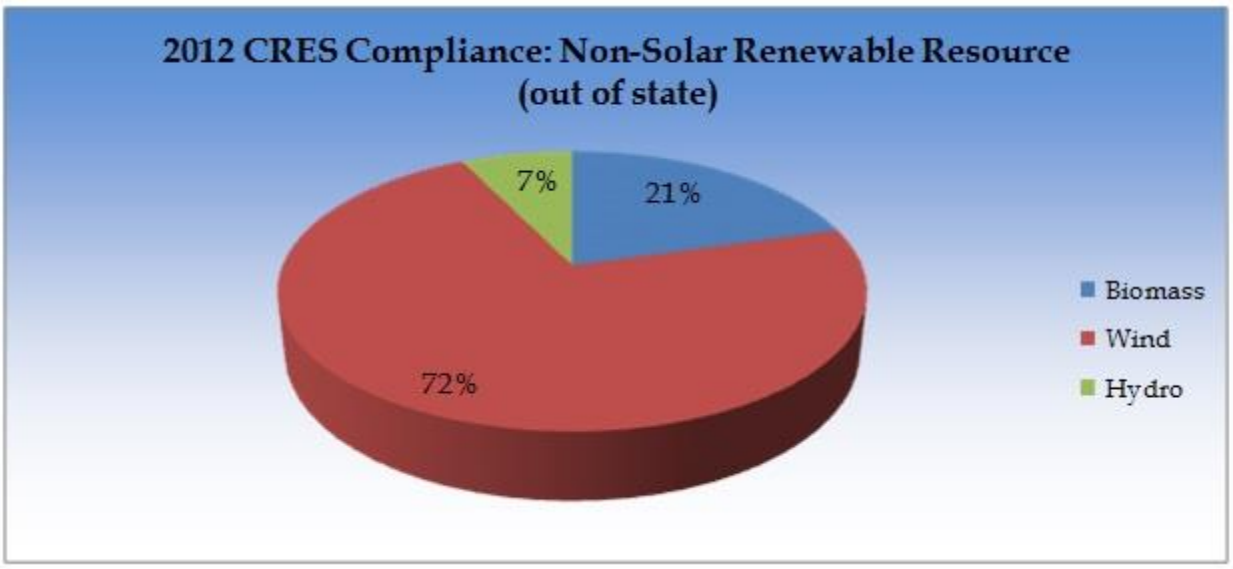
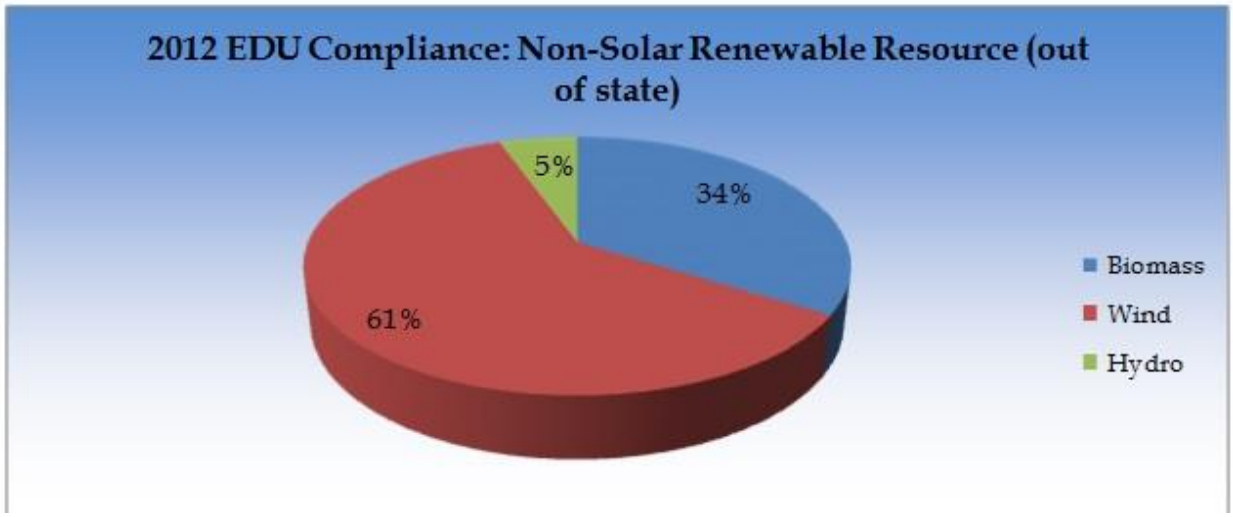
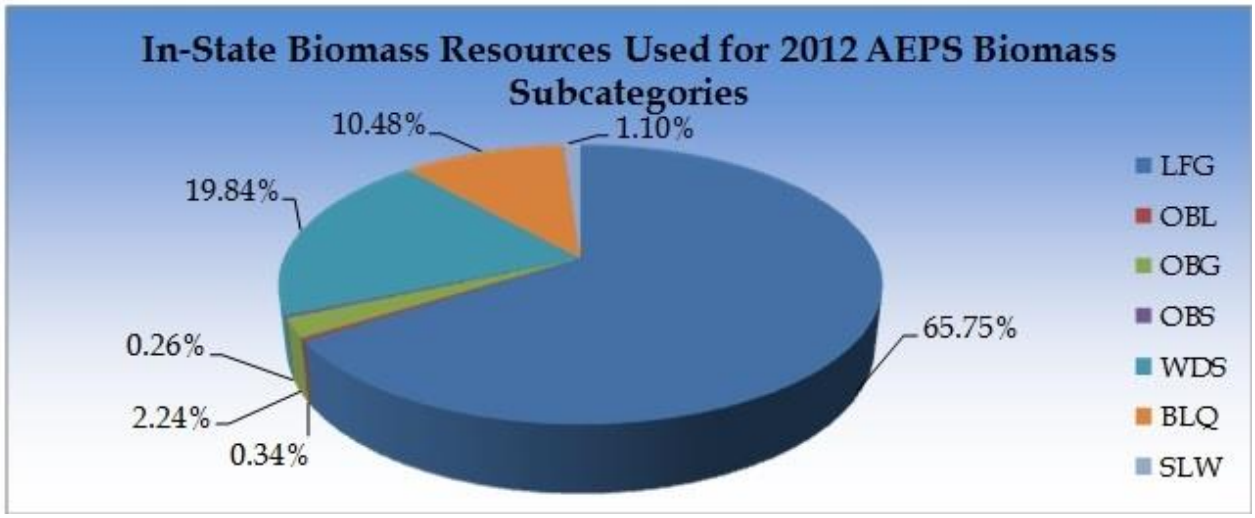


Chart 6



As indicated in the charts above, biomass energy resources contributed significantly to the compliance efforts in 2012. By PUCO rule, there are a number of different resources that fall within the biomass category.[7] Of the biomass resources used for compliance with the in-state requirement in 2012, landfill gas to electricity (LFG) was the main in-state resource used by a large margin, as shown by Chart 7 below. Black liquor (BLQ) and wood wastes solids (WDS) also combined to represent approximately 30% of the biomass resources used for 2012.[8]

Chart 7

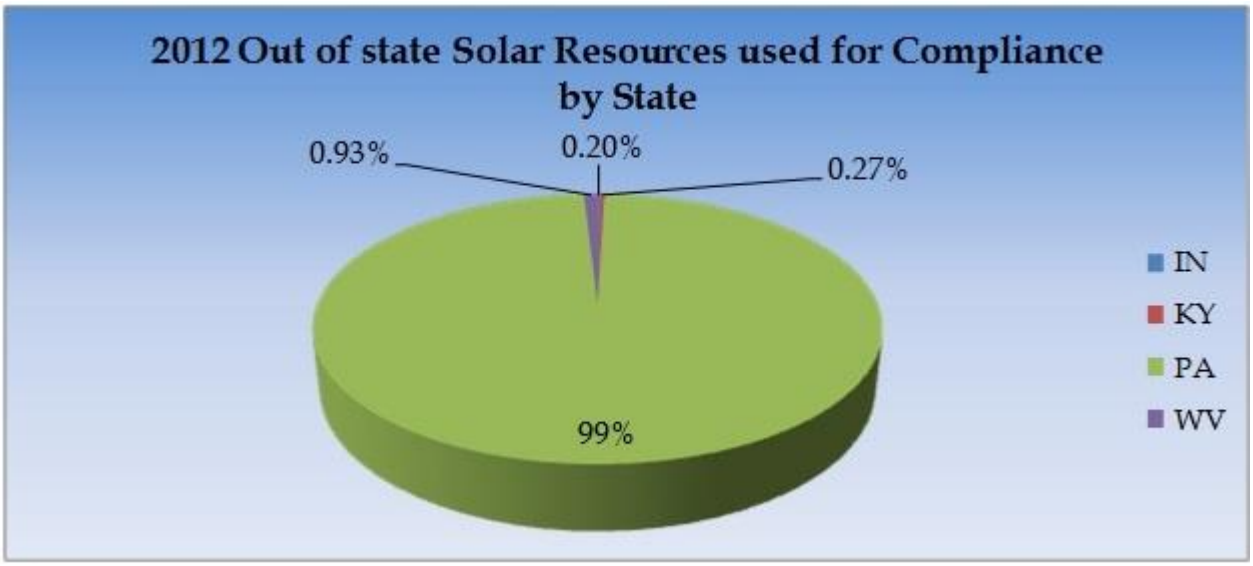


[7] Ohio Adm.Code 4901:1-40-01(E)

[8] The biomass categories listed in Chart 7 are as follows: LFG-landfill Gas, OBL-Other Biomass Liquids, OBG-Other Biomass Gases, OBS-Other Biomass Solids, WDS-Wood Waste Solids, BLQ-Black Liquor, and SLW-Sludge Waste.

As reflected below in Chart 8, Pennsylvania was the main supplier of out of state solar resources used for compliance in 2012 by a very large margin.

Chart 8



VII. AVERAGE REC COSTS

S.B. 315, which became effective September 10, 2012, included a new provision that required the PUCO's AEPS reports to the General Assembly to describe "…the average annual cost of renewable energy credits purchased by utilities and companies for the year covered in the report."[9] In order to obtain and compile this required REC cost information, a PUCO Entry was issued that ordered each EDU and electric services company to file average REC cost data for the 2012 compliance year.[10] The Entry allowed companies to file their average REC cost data under seal along with a motion for protective order, and many companies did so. The Entry further specified that the cost information be provided for the following categories in recognition of the market differences between the REC/SREC categories:

Ohio Solar;
Other Solar;
Ohio Non-Solar; and
Other Non-Solar

In response to the Entry, the PUCO received cost information from most, but not all, of the companies that had a 2012 AEPS compliance obligation.[11] PUCO Staff used this average cost information, along with the companies' respective compliance volumes for 2012, to calculate weighted average costs for RECs used for 2012 compliance. This weighted average REC cost information, provided separately for EDUs and electric service companies, is summarized in Table 3 below. The compliance markets continue to evolve, so the prices in Table 3 should not be interpreted as indicative of current market prices.

Table 3

	Ohio Electric Distribution Utilities	**Ohio Competitive Retail Electric Service Providers**
Category	**Avg. $/REC**	**Avg. $/REC**
Ohio Solar	$212.23	$195.93
Other Solar	$58.75	$104.99
Ohio Non-Solar	$33.51	$13.08
Other Non-Solar	$24.93	$2.04

9 R.C. 4928.64(D)(1)(b)

10 Entry dated October 29, 2013, Case No. 13-1909-EL-ACP

11 REC cost data were not provided by APN Starfirst, Border Energy Services, Dominion Retail, Energy Plus Holding, FirstEnergy Solutions, GDF Suez, Glacial Energy, Hess Corporation, Independence Energy Group, Linde Energy Services, Texas Retail Energy, or Verde Energy USA Ohio.

VIII. STRATEGY / POLICY CONSIDERATION

The Revised Code[12] requires that this annual report describe any strategy for (a) utility and company compliance or (b) encouraging the use of alternative energy resources to satisfy the state's electricity demand, with consideration of such factors as technology, costs, job creation, and economic impacts.

A. Utility and company compliance

With respect to utility and company 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 SRECs. The sellers in such instances could be numerous, including independent power producers, aggregators, or brokers.

The procurement strategies have varied from longer-term solicitations to spot purchases. The longer-term solicitations, often using an instrument such as a Request for Proposal (RFP), offer greater assurance for a supply into the future. With such supply certainty, however, comes a more fixed price that may preclude a buyer from recognizing any cost reductions in the REC or SREC spot markets. The long-term renewable contracts haven taken different forms including fully-bundled power purchase agreements (PPAs) 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 offer greater flexibility, but also expose a buyer to potential market volatilities, which could be to their advantage or disadvantage depending on the direction of the market. This flexibility also must be balanced against potential concerns of future supply that come from shorter commitments.

Independent power producers have articulated a preference for longer-term contracts (10+ years) to assist with project financing. A movement to shorter-term transactions may, over time, present a concern if it fails to satisfy the needs of developers thus resulting in fewer installations of new renewable resources. For now, the supply of both non-solar renewable and solar RECs appears adequate as evidenced by the lack of *force majeure* filings in 2012. However, this should be monitored in the future, and, if needed, steps should be taken to encourage a greater use of long-term instruments.

[12] R.C. 4928.64(D)(1)(c)

B. Encouraging the use of alternative energy resources

In addition to monitoring and enforcing compliance with the AEPS, it is important to foster strategies for compliance with the standard and encourage the use of alternative generating resources with consideration given to available technology, costs, job creation and economic impacts, as directed by the statute.

Currently in the United States, renewable energy policy and financial incentives are a continually evolving mix of federal and state level initiatives to promote cleaner, domestic energy sources and economic development. Further, renewable energy development and regulation are dramatically growing around the world in national and regional markets, and it is important for Ohio policymakers and stakeholders to stay informed about alternative policies and trends in relation to Ohio's own electricity portfolio standard, and develop additional policies or incentives as needed to support effective implementation of the standard at reasonable costs.

Interconnection and net metering polices may affect the deployment of distributed generation facilities, including renewable energy facilities. In late 2012, the PUCO initiated reviews of its existing net metering and interconnection rules, in part, to identify and minimize any regulatory impediments to the deployment of renewable and other distributed resources while protecting public and worker safety and system reliability. Dockets for the PUCO's review of the net metering and interconnection rules are as follows respectively:

Case No. 12-2050-EL-ORD
Case No. 12-2051-EL-ORD

APPENDIX A

to the Alternative Energy Portfolio Standard Report by the Public Utilities Commission to the General Assembly of the State of Ohio for the 2012 Compliance Year pursuant to Ohio Revised Code 4928.64(D)(1) in Case No. 13-1909-EL-ACP

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1. PUCO Certified Renewable Energy Generating Facilities by Resource Type

Renewable Generation Type	FACILITIES CERTIFIED[2]			CAPACITY (megawatts)		
	Count	Ohio	Outside Ohio	Capacity	Ohio	Outside Ohio
Solar Photovoltaic	5,377	941	4,436	188.63	72.13	116.47
Wind	45	24	21	2,834.98	421.13	2,413.85
Hydroelectric	3	1	2	123.09	1.09	122.00
Solid Waste	3	2	1	97.80	42.80	55.00
Abandoned Coal Mine Methane	1	1	-	49.00	49.00	-
Fuel Cell	1	1	-	1.00	1.00	-
Totals:	**5,430**	**970**	**4,460**	**3,294.50**	**587.15**	**2,707.35**
Biomass/Biogas	**Count**	**Ohio**	**Outside Ohio**	**Capacity**	**Ohio**	**Outside Ohio**
Landfill Gas	35	10	25	362.72	114.82	247.90
Anaerobic Digestion	8	3	5	9.44	3.45	5.99
Food Processing	3	3	-	2.51	2.51	-
Wastewater Treatment	2	2	-	1.15	1.15	-
Wood Waste	1	1	-	177	177	-
Other	2	2	-	2.11	2.11	-
Biomass/Biogas Totals:	**51**	**21**	**30**	**554.93**	**301.04**	**253.89**
CoFired[1]	**Count**	**Ohio**	**Outside Ohio**	**Capacity**	**Ohio**	**Outside Ohio**
Biomass	8	7	1	-	-	-
Paper Manufacturing	4	3	1	-	-	-
Other	2	2	-	-	-	-
CoFired Totals:	**14**	**12**	**2**	**-**	**-**	**-**
Grand Totals:	**5,495**	**1,003**	**4,492**	**3,849.43**	**888.19**	**2,961.24**

1. "Co-fired" means simultaneously using multiple fuels in the generation of electricity. For co-fired facilities, the proportion of energy input comprised of a renewable energy resource shall dictate the proportion of electricity output from the facility that can be considered a renewable energy resource. Co-fired renewable sources include woody biomass, biodiesel and switch grass.

2. Facilities Certified through 12/31/2012

2. PUCO-Certified Renewable Energy Generating Facilities by State of Facility

State in Which Facility is Located	Facilities Certified	Capacity (megawatts)
Ohio	1,003	888.19
Indiana	161	1,329.41
Kentucky	170	17.91
Michigan	35	69.72
Pennsylvania	4002	959.03
West Virginia	124	585.17
Other	0	0.00
Totals:	**5,495**	**3,849.42**

- Co-firing projects have been included in the number of facilities certified but have been excluded from the megawatt capacity summary due to their variable nature.
- Facilities certified through 12/31/2012

3. PUCO-Certified Solar PV Generating Facilities by State of Facility

State in Which Facility is Located	Solar Facilities Certified	Capacity (megawatts)
Ohio	941	72.13
Indiana	138	1.07
Kentucky	162	1.11
Michigan	31	0.32
Pennsylvania	3,986	112.93
West Virginia	119	1.07
Other	0	0.00
Totals:	**5,377**	**188.62**

- Facilities certified through 12/31/2012

4. PUCO-Certified Solar PV Generating Facilities by Generating Capacity

Individual Generating Capacities of Solar PV Facilities	Facilities Certified
0 to 10 kW	3,463
10.1 kW to 30 kW	1,256
30.1 kW to 60 kW	263
60.1 kW to 100 kW	146
100.1 kW to 200 kW	115
200.1 kW to 1 MW	118
1.1 MW to 2 MW	5
2.1 MW and larger	11
Total:	**5,377**

- Facilities certified through 12/31/2012

5. PUCO-Certified Ohio Solar PV Generating Facilities by On-Line Date

Facility On-Line Date	Solar Facilities Certified	Capacity (megawatts)
Pre 8/1/2008	55	0.45
8/2/2008 – 12/31/2008	20	0.35
2009	78	1.77
2010	189	20.19
2011	409	25.99
2012	190	23.38
Totals:	**941**	**72.13**

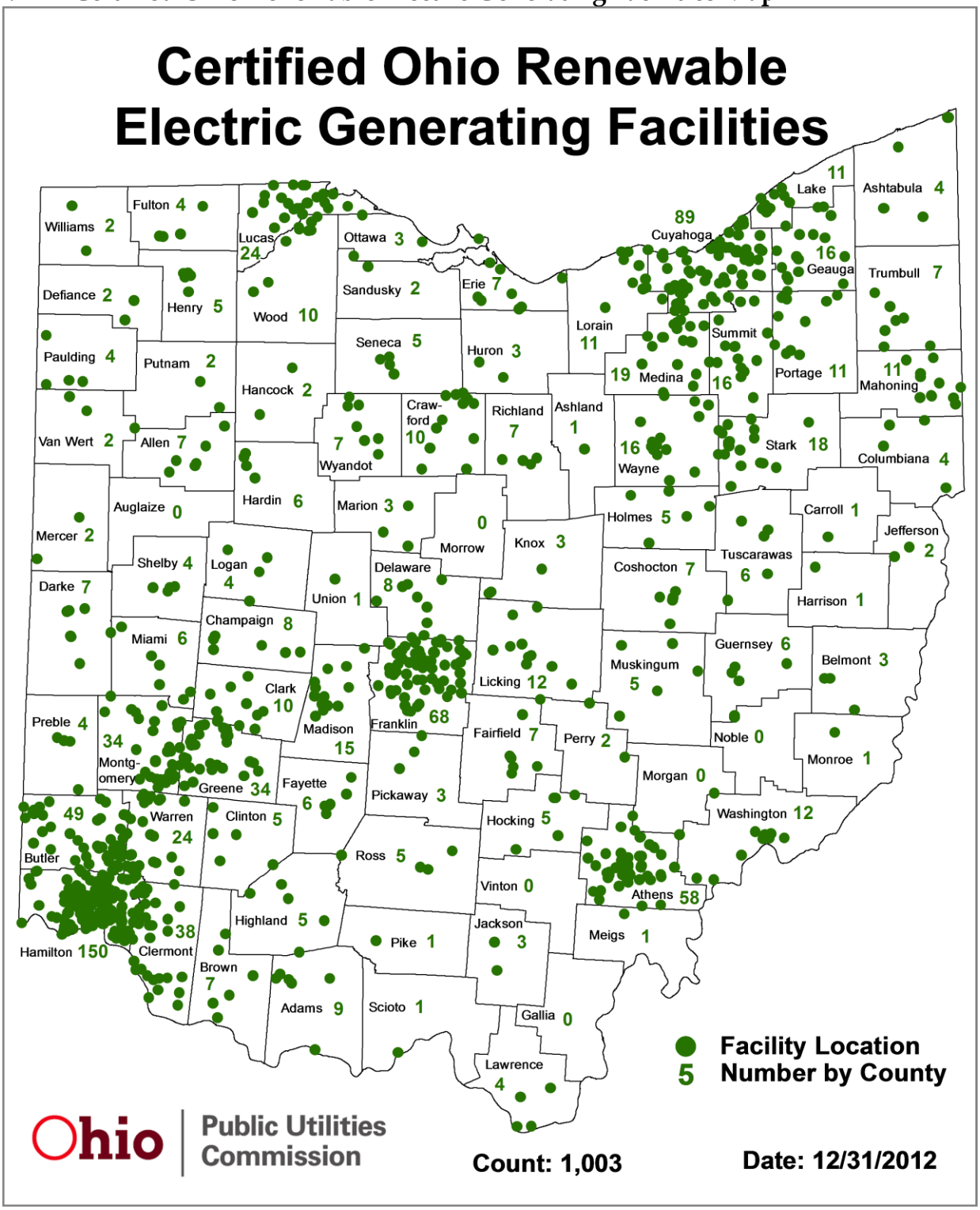
- Facilities certified through 12/31/2012

6. PUCO-Certified Ohio Wind Facilities by On-Line Date

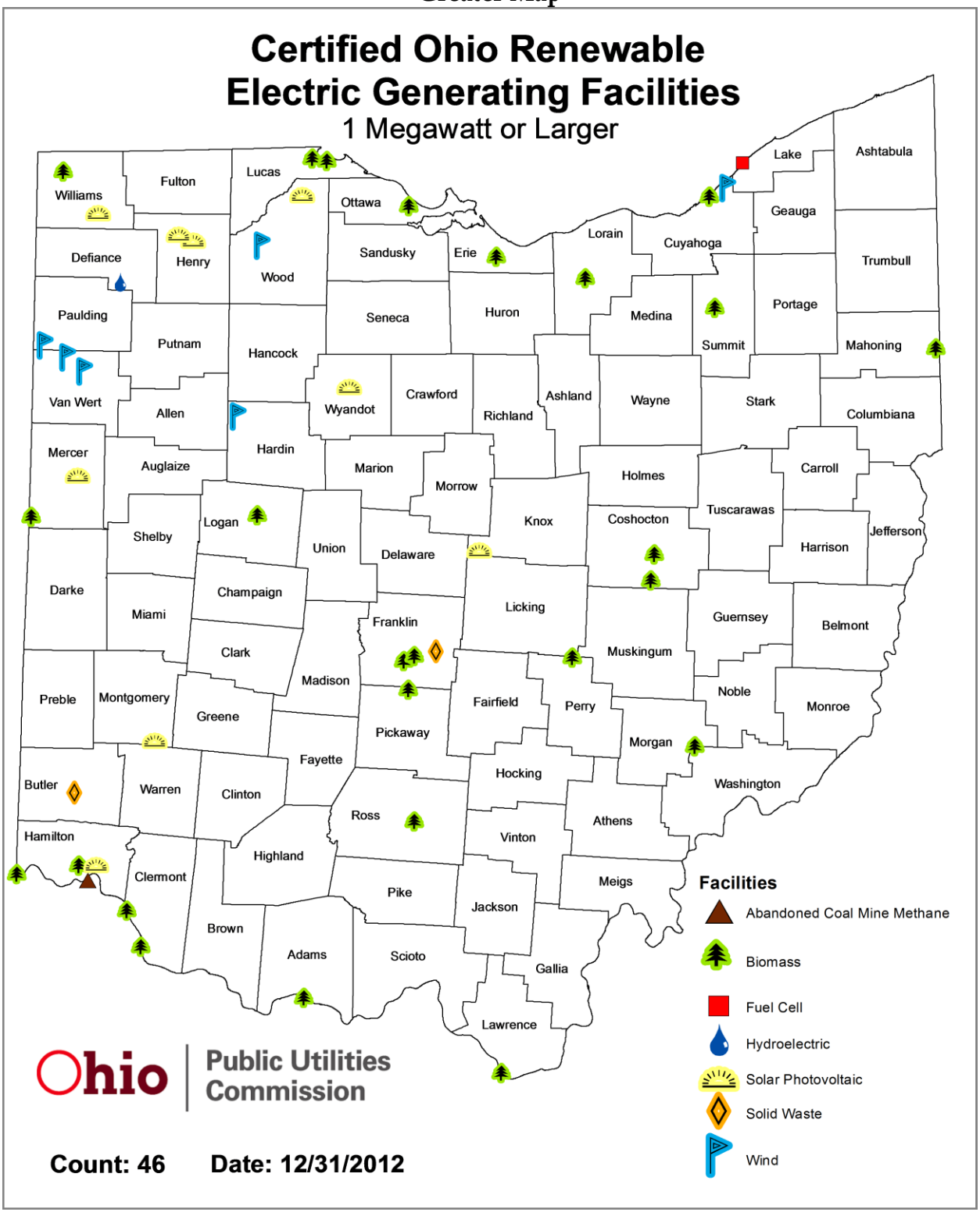
Facility On-Line Date	Wind Facilities Certified	Capacity (megawatts)
Pre 8/1/2008	3	7.22
8/2/2008 – 12/31/2008	0	0.00
2009	5	0.38
2010	9	3.31
2011	6	410.02
2012	1	0.20
Totals:	**24**	**421.13**

- Facilities certified as through 12/31/2012

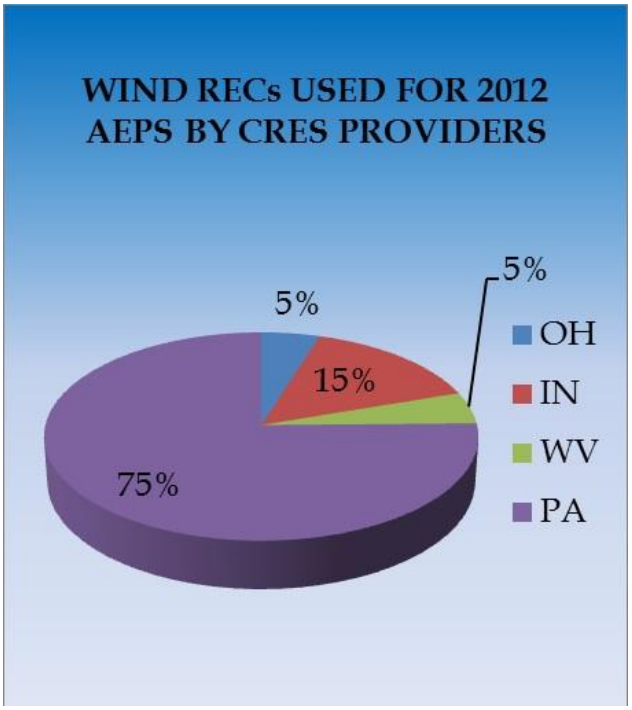
7. Certified Ohio Renewable Electric Generating Facilities Map

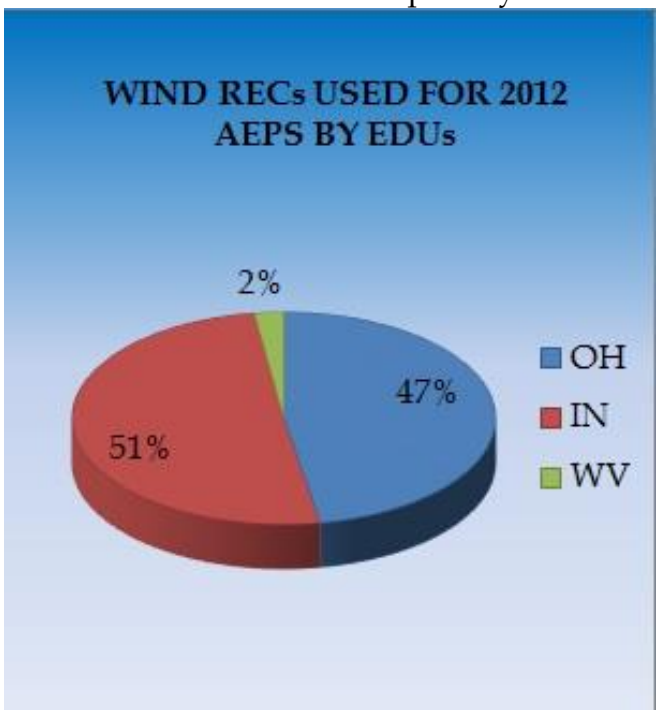


8. Certified Ohio Renewable Electric Generating Facilities One Megawatt or Greater Map

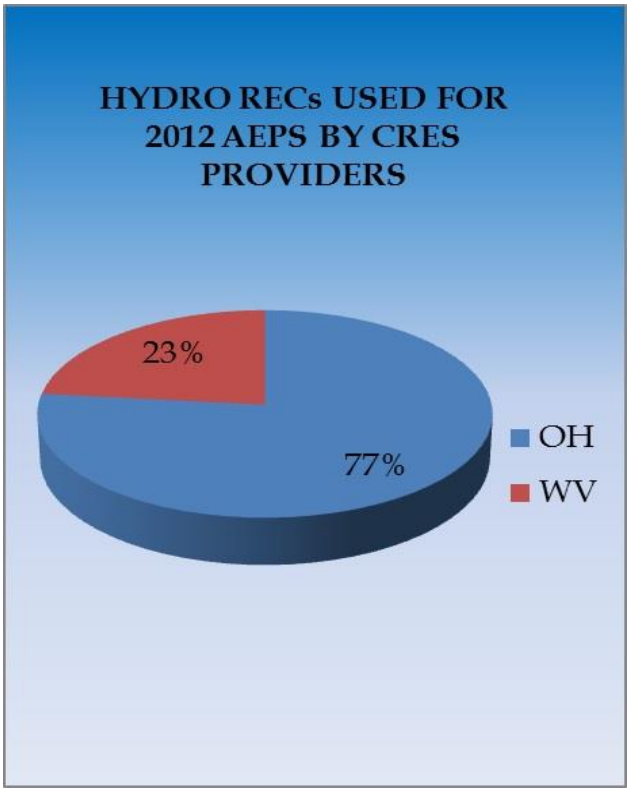


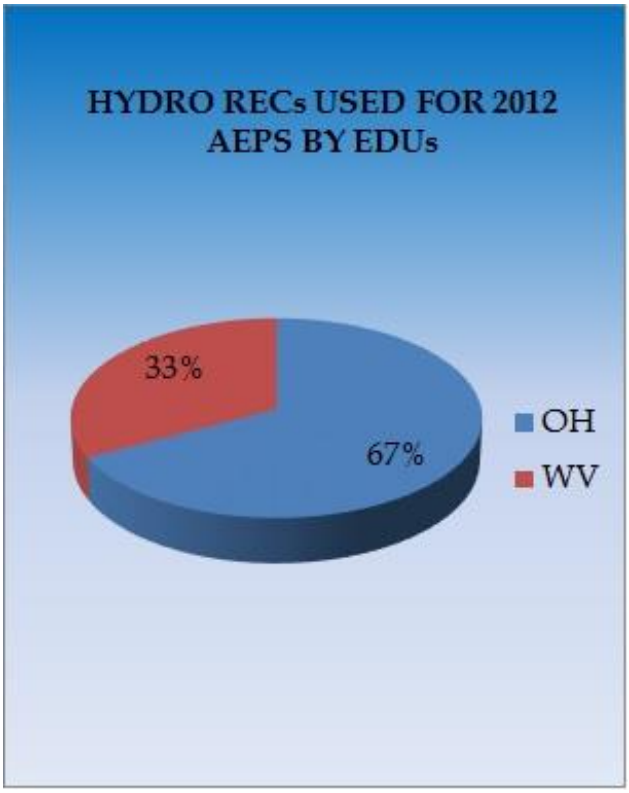
9. The following charts provide a state-by-state comparison of the wind energy RECs that were retired for 2012 AEPS compliance by CRES providers and the EDUs, separated by state of origin. As illustrated by this chart, the CRES providers relied primarily on RECs from wind facilities in Pennsylvania, while the Ohio EDUs used wind RECs from both Ohio and Indiana comparably.





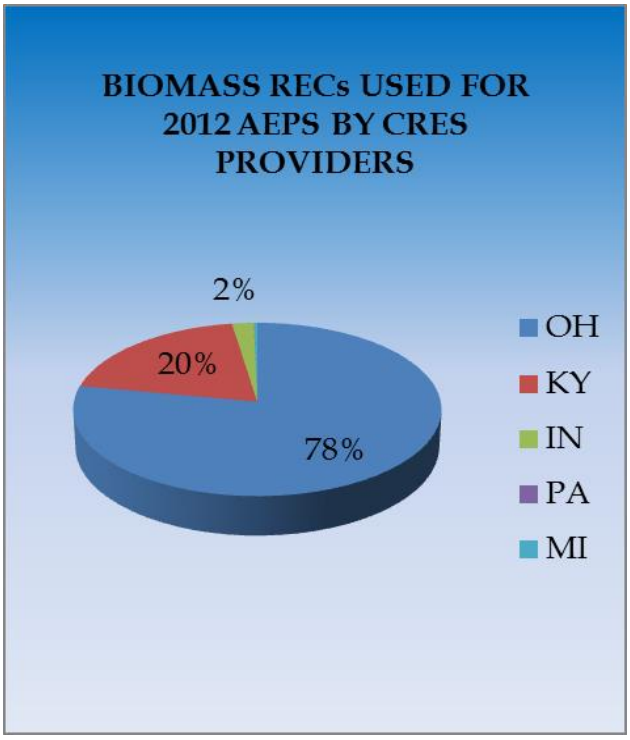
10. With respect to the hydroelectric RECs that were retired for 2012 AEPS compliance by CRES providers and EDUs, the charts below demonstrate that the majority of the hydroelectric RECs originated from Ohio facilities[13] with West Virginia facilities contributing to a lesser degree.

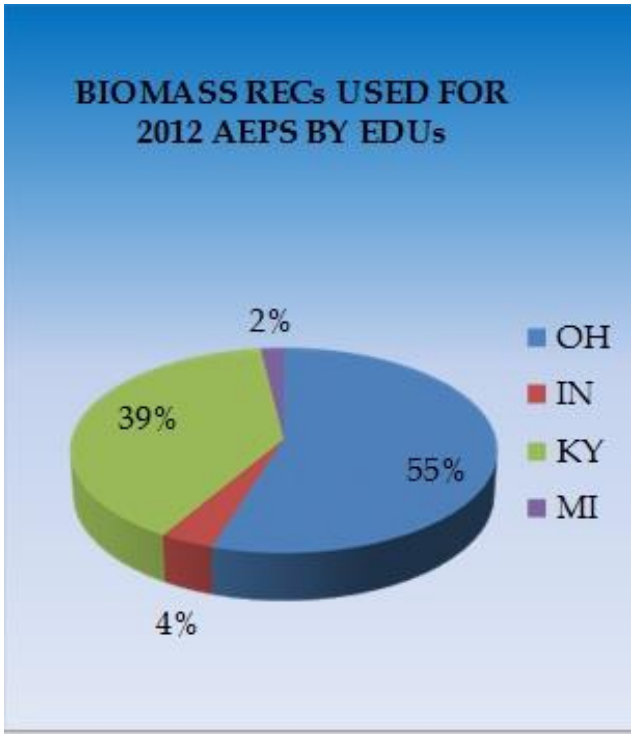




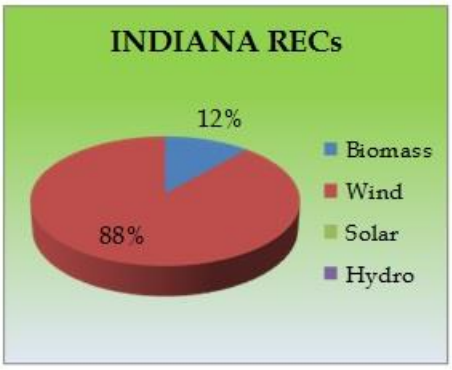
[13] Ohio Adm.Code 4901:1-40-03(A)(2)(a) Facilities located in the state shall include a hydroelectric generating facility that is located on a river that is within or bordering this state.

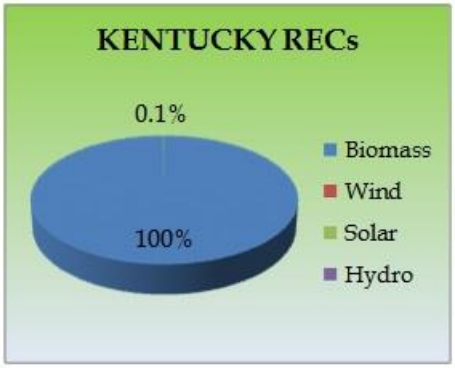
11. When evaluating the biomass RECs that were retired for 2012 AEPS compliance by CRES providers and EDUs, the following charts show that biomass resources in several states contributed to the compliance portfolios.

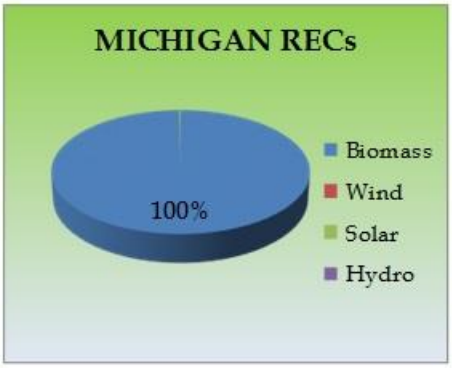


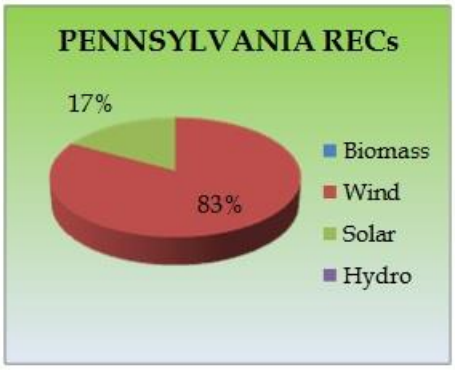


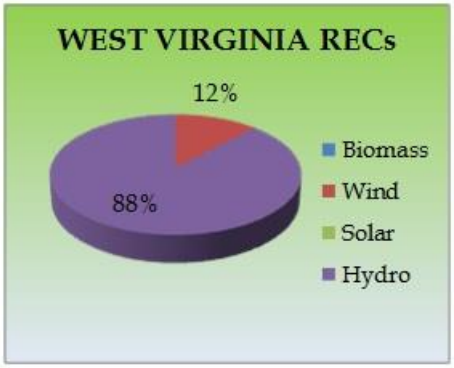
12. The charts below analyze the different renewable resource RECs that were retired by EDUs and CRES providers from each of the states contiguous to Ohio for 2012 AEPS compliance. As the charts detail, every state has one main renewable resource that dominated their supply. Wind energy dominated Indiana and Pennsylvania, biomass dominated Kentucky and Michigan, and hydroelectric dominated West Virginia.











APPENDIX B

to the Alternative Energy Portfolio Standard Report by the Public Utilities Commission to the General Assembly of the State of Ohio for the 2012 Compliance Year pursuant to Ohio Revised Code 4928.64(D)(1) in Case No. 13-1909-EL-ACP

Perceived Impediments

Ohio Adm.Code 4901:1-40-03(C), requires affected companies to submit a report annually that describes their non-binding compliance plans over a 10-year planning horizon. Included within this rule is a requirement to address perceived impediments to achieving compliance with the AEPS requirements and to suggest means for addressing such impediments.

Potential impediments listed in the 2012 compliance status reports included, but were not limited to, the following concerns:

- Potential future supply constraints, particularly related to in-state renewable energy resources and solar energy resources;
- Changes in Ohio law or PUCO rules that may limit the supply of qualified resources or expands the amount of qualified resources required could create supply constraints that could impede a company's ability to achieve compliance;
- Compliance obligations based on historical sales volumes, which given customer migration, may require companies to "over-comply" relative to current sales base; and
- Uncertainty associated with customer choice and variable sales volumes creates some unwillingness by companies to enter longer-term contracts, while developers may prefer or require the longer-term contracts prior to proceeding with project development.

To address the perceived impediments, the following suggestion was offered by the companies:

- Allowing companies to switch to an obligation based upon actual load in the given compliance year.

The Public Utilities Commission of Ohio
John R. Kasich, Governor
Andre T. Porter, Chairman

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in

Case No(s). 13-1909-EL-ACP

Summary: Report regarding Alternative Energy Portfolio Standards By the Public Utilities Commission To the General Assembly of the State of Ohio For the 2012 Compliance Year - electronically filed by Debra Hight on behalf of Richard M. Bulgrin, Attorney Examiner.