



Public Utilities Commission

John R. Kasich, Governor
Andre T. Porter, Chairman

Commissioners

Asim Z. Haque
Lynn Slaby
M. Beth Trombold
Thomas W. Johnson

September 11, 2015

Senator Troy Balderson
Co-Chair, Energy Mandates Study Committee
1 Capitol Square, Ground Floor
Columbus, OH 43215

Representative Kristina Roegner
Co-Chair, Energy Mandates Study Committee
77 South High Street, 11th Floor
Columbus, OH 43215

Dear Senator Balderson and Representative Roegner:

Thank you for providing the Public Utilities Commission of Ohio (PUCO) with the opportunity to respond to the list of questions posed by the Energy Mandates Study Committee. As an Ex-officio member of the committee and Chairman of the PUCO, I value the opportunity to serve as a resource for all members of the General Assembly.

Below, please find a restatement of your information and data requests followed by my response. It is my hope that these responses assist the committee members and meet your expectations. As Chairman, I continue to focus on the reliability, cost effectiveness and safety of our energy grid. I look forward to engaging with you further on these issues.

1. Alternative/Renewable Energy Portfolio Report for 2014, as mandated by S.B. 221.

As our staff is currently reviewing the information provided by electric distribution utility (EDU) companies and competitive retail electric suppliers for the 2014 Alternative Energy Portfolio Standard Annual Report, we are providing you with the report for 2012 and a summary of the process for and status of the reports for 2013 and 2014.

- EDU companies and competitive retail electric suppliers (CRES) submit the information about their compliance with R.C. § 4928.64 alternative energy requirements no later than April 15th of each year. The information for 2014 was due April 15, 2015.
- Staff is currently reviewing the 2014 information recently submitted by the EDUs and CRES providers. Following staff review and evaluation, a draft report will then be issued for public comment.
- The 2012 report is currently available for review in the public docket on the PUCO's website in Case No. 13-1909-EL-ACP and also attached hereto.
- The 2013 report is currently being drafted and is expected to be issued for comment later this year in Case No. 14-2328-EL-ACP. At that time a copy will be provided to the Energy Mandates Study Committee.

2. Technical Resource Manual as up-to-date as possible.

Please find enclosed a copy of the most up-to-date technical resource manual (TRM). An electronic version can be found on the PUCO's website in Case No. 09-0512-GE-UNC. This manual serves as a safe harbor for Ohio's electric utilities, so that they can rely on the energy efficiency savings established in the TRM to compute their achievements towards their energy efficiency requirements. It was developed by a consultant¹ with expertise in energy efficiency, and reviewed by stakeholders through a public process.

3. The State of Ohio's cost of implementation of 111(D) with and without energy efficiency, renewable energy, and PDR mandates in place.

Along with the Ohio EPA, we are currently reviewing the final rule issued by the U.S. EPA on August 3, 2015. We look forward to sharing with you the outcome of our review.

Of note, the U.S. EPA received extensive comments on the proposed rule, which contained approximately 1,500 pages in total.

4. Energy Efficiency savings and costs savings data:

- a) Provide any analysis that has been performed that estimates customer cost savings, broken down by class, as a result of the implementation of energy efficiency measures required under S.B. 221. Break down any analysis on a year-by-year basis.**

Estimates of costs and savings associated with energy efficiency programs exist in several different types of energy efficiency cases that come before the PUCO. Electric utilities must submit portfolio plans, typically every three years, in which they provide their evaluation of the cost effectiveness of various energy efficiency programs that they intend to implement in order to achieve their energy efficiency requirements. On an annual basis, electric utilities must also provide status reports in which they show their actual energy efficiency achievements of the prior year. Further, electric utilities submit cost information in their energy efficiency riders, which are designed to recover the cost associated with implementation of their energy efficiency portfolio plans.

The data in Table 1, was compiled from the various above-referenced sources located in public dockets viewable on the PUCO website.

The EDUs do not report customer cost savings by customer class to the PUCO. Total annual portfolio costs by EDU and total first-year energy savings are quantifiable and depicted in Table 1. First-year energy savings is the amount of energy efficiency and peak demand savings achieved in a single year by undertaking the energy projects. In addition, the percentage of annual compliance achieved for both energy efficiency and demand are

¹ In Case No. 09-512-GE-UNC, July 8, 2009, the Commission issued request for proposal (RFP) No. EE-09-TRM-1 in order to obtain qualified engineering consulting services for the purposes of creating a TRM. On September 30, 2009, the Commission selected Vermont Energy Investment Corporation to proceed with Phases 1 and 2, as defined in their response to the RFP.

included in this table. S.B. 221 mandates began in 2009, therefore, there are no energy savings for 2008. The PUCO receives from the EDUs the energy savings that have been achieved but the EDUs do not report the cost of the energy displaced and thus we do not have an accurate estimate of the cost of the energy savings.

Table 1

Company Name	Program Portfolio Year	Total Program Costs (\$Million)	Annual or Cumulative	Energy Efficiency Compliance Requirement (Mwh)	Energy Efficiency Achieved (Mwh)	Percent of Compliance Achieved	Peak Demand Reduction Compliance Requirement (MW)	Peak Demand Reduction Achieved (MW)	Percent of Compliance Achieved
<i>Columbus Southern Power</i>	2009		Annual	60,120	121,000		40	101	
<i>Ohio Power</i>	2009		Annual	77,130	132,000		46	174	
TOTAL		\$14.5	Annual	137,250	253,000	184%	86	275	321%
<i>Columbus Southern Power</i>	2010		Annual	104,000	198,000		71	121	
<i>Ohio Power</i>	2010		Annual	124,000	167,000		81	389	
TOTAL		\$33.0	Annual	228,000	365,000	160%	152	510	336%
<i>AEP Ohio</i>	2011	\$63.0	Annual	307,000	528,000	164%	218	577	265%
<i>AEP Ohio</i>	2012	\$64.0	Annual	340,700	593,300	174%	287	610	213%
<i>AEP Ohio</i>	2013	\$78.0	Annual	387,900	632,700	163%	359	692	193%
<i>AEP Ohio</i>	2014	\$77.0	Annual	431,800	678,700	157%	425	665	156%
Duke	2009	\$61.0	Cumulative	68,233	293,023	429%	45	97	218%
	2010		Cumulative	109,536	341,755	312%	32	40	125%
	2011		Cumulative	151,431	215,699	142%	111	35	32%
	2012	\$21.0	Cumulative	167,149	262,437	157%	33	50	151%
	2013		Cumulative	185,577	144,102	78%	33	26	78%
	2014		Cumulative	200,066	152,269	76%	32	25	79%
Dayton Power & Light	2009	\$7.6	Annual	43,919	115,279	262%	30	176	595%
	2010		Annual	71,717	179,206	250%			
	2010	\$12.2	Cumulative	115,636	294,485	255%	50	75	148%
	2011	\$14.0	Annual	98,700	179,586	182%			
	2011		Cumulative	214,336	474,071	221%	71	122	173%
	2012	\$14.0	Annual	111,139	186,526	168%			
	2012		Cumulative	325,475	660,597	203%	90	123	137%
	2013	\$18.0	Annual	124,506	203,491	163%			
	2013		Cumulative	449,981	864,088	192%	111	142	128%
	2014	\$18.2	Annual	138,203	182,014	132%			
2014		Cumulative	588,184	1,046,939	178%	133	173	130%	
<i>CEI</i>	2009	\$3.2	Annual		207,795		42	72	
<i>Ohio Edison</i>	2009	\$2.9	Annual		102,933		53	74	
<i>Toledo Electric</i>	2009	\$3.0	Annual		39,921		20	150	
First Energy Total*		\$9.1	Annual	0	350,649		115	296	258%
<i>CEI</i>	2010	\$7.6	Annual		164,365		72	72	
<i>Ohio Edison</i>	2010	\$8.9	Annual		273,076		90	73	
<i>Toledo Electric</i>	2010	\$7.0	Annual		129,964		35	149	
First Energy Total		\$24	Annual	429,739	567,405	132%	197	294	149%
<i>CEI</i>	2011	\$33.1	Annual		317,629		100	156	
<i>Ohio Edison</i>	2011	\$24.8	Annual		75,301		124	173	
<i>Toledo Electric</i>	2011	\$10.7	Annual		88,971		49	161	
First Energy Total		\$68.6	Annual	362,308	481,901	133%	272	491	180%
<i>CEI</i>	2012	\$37.4	Annual		274,273		135	190	
<i>Ohio Edison</i>	2012	\$29.7	Annual		299,375		170	233	
<i>Toledo Electric</i>	2012	\$12.2	Annual		85,959		67	187	
First Energy Total		\$79.3	Annual	407,717	659,907	162%	372	610	164%
<i>CEI</i>	2013	\$16.5	Annual		227,172		167	203	
<i>Ohio Edison</i>	2013	\$25.1	Annual		318,174		218	321	
<i>Toledo Electric</i>	2013	\$9.2	Annual		130,294		87	219	
First Energy Total		\$50.8	Annual	479,411	675,640	141%	472	744	178%
<i>CEI</i>	2014	\$14.9	Annual		260,551		198	171	
<i>Ohio Edison</i>	2014	\$25.6	Annual		377,514		262	209	
<i>Toledo Electric</i>	2014	\$10.9	Annual		136,304		106	108	
First Energy Total		\$51.4	Annual	526,259	774,368	147%	566	487	86%

² Data compiled from various sources available on PUCO Docket.

Energy Efficiency savings and costs savings data, continued:

- b) Provide an analysis of what the energy efficiency savings (in MWh) would be under the standards set under S.B. 221 prior to the freeze established under S.B. 310. This analysis should be on a year-by-year basis for all companies to comply and include an estimate of all costs required to achieve those savings. Also provide a year-by-year projection of the savings and costs if after implementation the annual efficiency requirement were held constant at the 2014 rate.**

S.B. 310 gave Ohio's EDUs the option of continuing with their existing energy efficiency portfolio plans, or amending their portfolio plans. Annually increasing energy efficiency requirements were to continue to be applied during 2015 and 2016 for those utility companies that chose to continue with their existing plans. For those utility companies that chose to amend their plans, their energy efficiency requirements were to remain frozen at the 2014 level and not escalate during 2015 and 2016.

Summaries of the energy efficiency portfolio plans of Ohio's EDUs are attached. AEP, Duke and DP&L chose to continue with their existing portfolio plans, so that the energy efficiency requirements for those companies remained as if the freeze established under S.B. 310 had not been enacted. The attached document provides these utilities' estimated savings for achieving the mandate under S.B. 221. The FirstEnergy companies (consisting of Ohio Edison, Cleveland Electric Illuminating, and Toledo Edison), however, amended their portfolio plan as allowed under S.B. 310. Attached is a summary of FirstEnergy's portfolio plan prior to their amendment allowed by S.B. 310 and a summary of their portfolio plan after the amendment.

The PUCO currently does not have the capability to independently forecast the costs of implementing the energy efficiency mandates in future years with a high level of significance. However, please note that the EDUs are required to show that their energy efficiency portfolio plans are cost effective, meaning that for the period of time to be covered by their plans, the benefits achieved by the plan must be shown to exceed its costs. The EDUs current portfolio plans are only updated through 2017. There are independent studies that show the potential achievable energy efficiency nationally and by region, with some going out to 2035. According to Electric Power Research Institute's (EPRI), *U.S. Energy Efficiency Potential Through 2035, Final Report* from April 2014, "an ample supply of cost effective energy efficiency" is available to utilities through 2035.³ EPRI is an independent, nonprofit with a membership of more than 1,000 organizations worldwide including many of the utilities in Ohio.⁴

³ U.S. Energy Efficiency Potential Through 2035, Final Report, April 2014, EPRI, <vi>

⁴ Chairman Andre Porter is an Advisory Council Member of EPRI appointed by NARUC to serve from August 2, 2015 to 2018.

5. Provide a cost estimate for each year as follows:

- **Scenarios 1 through 3 [asking for energy efficiency cost estimates based on specific energy efficiency mandates per year]**

The PUCO currently does not have the capability to independently forecast the costs of implementing the energy efficiency mandates in future years with a high level of significance. However, please note that the EDUs are required to show that their energy efficiency portfolio plans are cost effective, meaning that for the period of time to be covered by their plans, the benefits achieved by the plan must be shown to exceed its costs. The EDU's current portfolio plans are only updated through 2017.

6. Renewables Data:

- a) Breakdown of costs of procuring renewables on an annual basis – per utility, per source. (Example: If Public Utility X bought renewables from 3 wind farms, how much did the public utility pay to each wind farm for 1 MW of renewable energy each year?)**

The renewable portfolio standard (RPS) requirements set under S.B. 221 include requirements for both Ohio's EDUs and CRES. Ohio's EDUs and CRES typically achieve compliance with the renewable requirements by procuring and retiring renewable energy credits (RECs). A REC represents one megawatt hour of electricity that has been created by an Ohio-certified renewable energy generating facility. Because of the specific solar carve-out included in S.B. 221, EDUs and CRES also transact and retire solar renewable energy credits (S-RECs). This allows a separate tracking of solar renewable energy generation for compliance purposes. By procuring and retiring such RECs and S-RECs, the utility company can show that it has taken part in the generation of the requisite renewable energy, and thus can show compliance with Ohio's renewable portfolio standard requirements.

The PUCO historically has not disclosed the costs of individual REC or S-REC transactions. Pursuant to requirements of S.B. 221, the PUCO prepares reports to the General Assembly in which REC and S-REC costs are discussed. However, REC and S-REC cost information that is presented in these public reports has been aggregated and reported as summary information for EDUs and CRES as groups. A copy of the most recently finalized report to the General Assembly has been enclosed in response to question 1.

Table 2, below, is from a DRAFT Alternative Energy Portfolio Standard Report that will be issued for public comment in Case No. 14-2328-EL-ACP. It summarizes the average cost data, as reported by the EDUs and CRES, for the 2013 compliance year.⁵ The cost data for the 2014 compliance year is currently under review. S.B. 310 removed the requirement that a specific portion of the RECs and S-RECs come from Ohio specific sources.

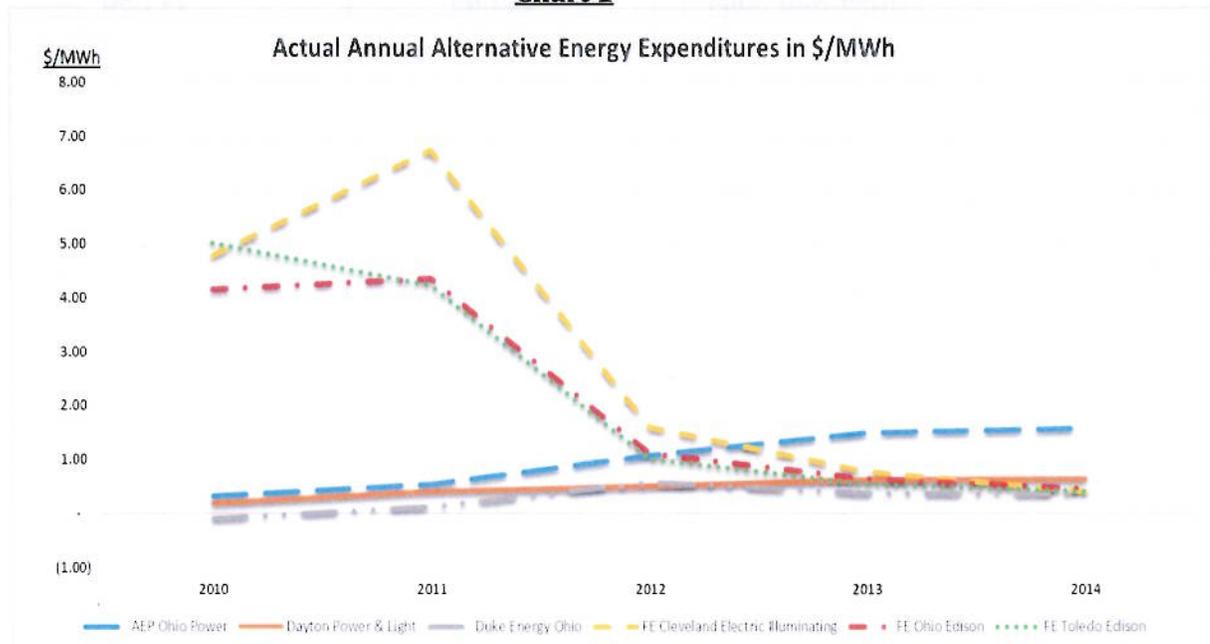
Table 2 (DRAFT)

<u>2013 Compliance Year</u>	<u>Ohio Electric Distribution Utilities</u>	<u>Certified Retail Electric Service Providers</u>
<u>Category</u>	<u>Avg. \$/REC</u>	<u>Avg. \$/REC</u>
Ohio Solar	\$188.66	\$173.61
Other Solar	\$37.01	\$94.39
Ohio Non-Solar	\$16.97	\$19.05
Other Non-Solar	\$31.89	\$11.50

⁵ The DRAFT report includes the following caution with respect to the data in Table 2: “The compliance markets continue to evolve, so the prices in Table 2 should not be interpreted as indicative of current market prices.”

Chart 1, below, represents the actual cost incurred by the EDUs annually on a dollar per MWh basis. The actual annual cost is not a direct reflection of what consumers would pay due to the rider rate development. In setting a rate to charge, EDUs project their compliance costs and their anticipated level of standard service offer sales. The standard service offer is the offer available to customers who choose not to shop for generation. After the rate has been in place for a period of time, the EDUs compare the revenue received to their actual costs, and adjust the rate so that over-recoveries are refunded to customers or under-recoveries are charged to customers. While the actual rates are assessed as described above over the course of the requirements the customers will only be charged the prudently incurred actual cost of alternative energy. Chart 1 reflects the costs that the EDUs spent and that would/will need to be recovered over time through the alternative energy rider.

Chart 1



b) Most current data showing the monthly costs of compliance for the RPS for each customer class of each utility.

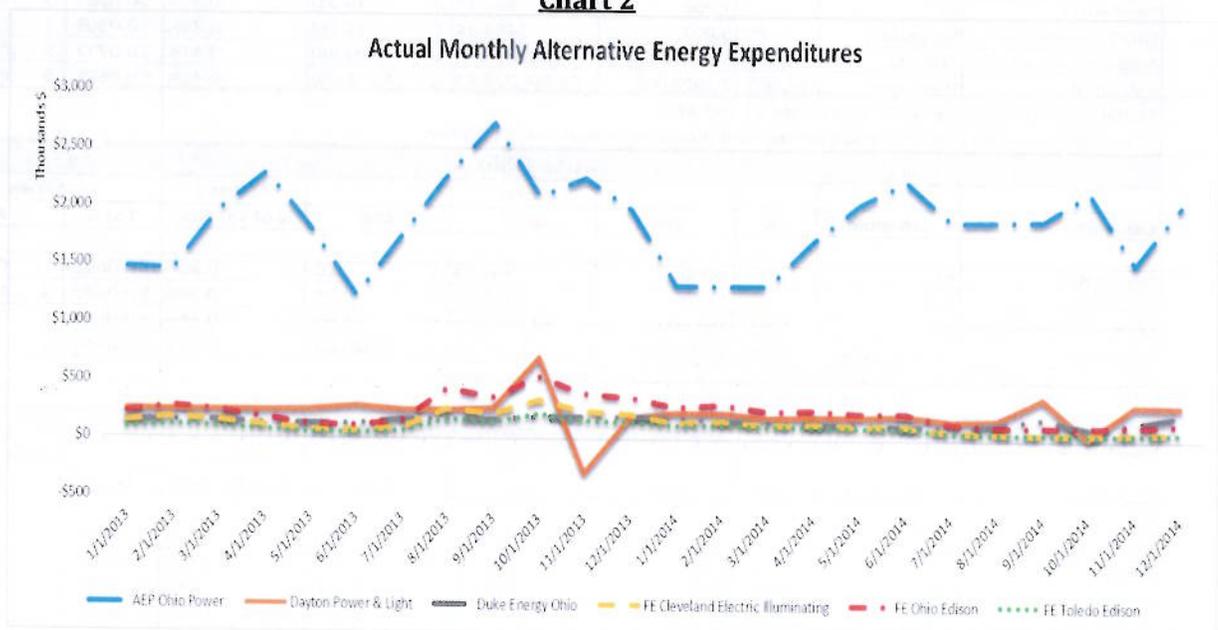
As previously mentioned, compliance with Ohio’s renewable portfolio standards is required for both Ohio’s EDUs and Ohio’s CRES providers. However, the PUCO does not regulate the costs of CRES providers, and thus is unable to provide the cost of compliance, if any, that a customer may pay in their monthly bill if they are served by a CRES provider. The traditional EDUs, however, have the ability to collect their compliance costs through a by-passable alternative energy rider (AER).

Table 3, below, shows the July 1, 2015, AER rates. As you can see, the AER for a couple of the EDUs is negative. This result can sometimes occur through the rider rate development.

In setting a rate to charge, EDUs project their compliance costs and their anticipated level of standard service offer sales. After the rate has been in place for a period of time, the EDUs compare the revenue received to their actual costs, and adjust the rate so that over-recoveries are refunded to customers or under-recoveries are charged to customers. When dealing with relatively low levels of costs, the over-recoveries may occasionally be greater than the forecasted costs for the next period, and a negative rate can result.

Chart 2, below, shows the monthly cost for the EDUs over the last two years for alternative energy requirements. The chart is in real dollars and does not account for the differences between the EDUs load requirements. As discussed previously, the actual monthly cost is not a direct reflection of what consumers would pay due to the rider rate development.

Chart 2



c) Most Current data showing the monthly cost of the RPS rider for each customer class, as a percentage of each of the respective customers' generation bills.

CRES do not recover their RPS costs through a separate rider and do not provide the PUCO the means in which they recover their RPS. For Ohio's EDUs, the requested percentages are provided as a column in Table 3, showing the AER rate as a percentage of the customers' generation bill. These percentages are based on an average customer bill only, and will vary somewhat on a customer-by-customer basis.

Table 3

AEP Ohio

Customer	Schedule	kW	kWh	Total Gen*	AER**	AER as a % of Tot Gen	\$/kwh	
							Tot G	AER
Residential	RR		1,000	\$59.98	\$ (0.63)	-1.04%	\$0.0600	\$ (0.000626)
Small Commercial	GS-2 (Sec)	25	5,000	\$286.85	\$ (3.13)	-1.09%	\$0.0574	\$ (0.000626)
Medium Commercial	GS-3 (Pri)	1,000	350,000	\$18,896.92	\$ (211.47)	-1.12%	\$0.0540	\$ (0.000604)
Industrial	GS-4 (Trans)	50,000	20,000,000	\$943,866.00	\$ (11,842.00)	-1.25%	\$0.0472	\$ (0.000592)

* Total Gen includes GENE, GENC, ACCR, and AER

** Includes a negative reconciliation component due to prior year over collection

Dayton Power & Light

Customer	Schedule	kW	kWh	Total Gen*	AER	AER as a % of Tot Gen	\$/kwh	
							Tot G	AER
Residential	RS		1,000	\$80.15	\$ (0.31)	-0.39%	\$0.0802	\$ (0.000313)
Small Commercial	Secondary	25	5,000	\$454.44	\$ (1.56)	-0.34%	\$0.0909	\$ (0.000313)
Medium Commercial	Primary	1,000	350,000	\$25,094.14	\$ (109.48)	-0.44%	\$0.0717	\$ (0.000313)
Industrial	High -Volt	50,000	20,000,000	\$1,369,329.60	\$ (6,256.00)	-0.46%	\$0.0685	\$ (0.000313)

*Total Gen includes Base G, CB, RPM,Fuel,CBT and AER

** Includes a negative reconciliation component due to prior year over collection

Duke Ohio

Customer	Schedule	kW	kWh	Total Gen*	AER	AER as a % of Tot Gen	\$/kwh	
							Tot G	AER
Residential	RS		1,000	\$69.54	\$ 0.20	0.28%	\$0.0695	\$ 0.000196
Small Commercial	DM	25	5,000	\$273.27	\$ 0.98	0.36%	\$0.0547	\$ 0.000196
Medium Commercial	DS	1,000	350,000	\$22,063.10	\$ 68.60	0.31%	\$0.0630	\$ 0.000196
Industrial	Transmission	50,000	20,000,000	\$1,232,507.50	\$ 3,920.00	0.32%	\$0.0616	\$ 0.000196

*Total Gen includes RE,RC, SCR and AER (Does not include LFA)

Cleveland Illuminating Company

Customer	Schedule	kW	kWh	Total Gen*	AER	AER as a % of Tot Gen	\$/kwh	
							Tot G	AER
Residential	RS		1,000	\$81.51	\$ 1.14	1.39%	\$0.0815	\$ 0.001137
Small Commercial	GS	25	5,000	\$414.96	\$ 5.69	1.37%	\$0.0830	\$ 0.001137
Medium Commercial	GP	1,000	350,000	\$26,955.25	\$ 384.30	1.43%	\$0.0770	\$ 0.001098
Industrial	GT	50,000	20,000,000	\$1,443,660.00	\$ 21,320.00	1.48%	\$0.0722	\$ 0.001066

*Total Gen includes Gen C, Gen E, GCR and AER

Ohio Edison

Customer	Schedule	kW	kWh	Total Gen*	AER	AER as a % of Tot Gen	\$/kwh	
							Tot G	AER
Residential	RS		1,000	\$80.18	\$ 0.93	1.16%	\$0.0802	\$ 0.000932
Small Commercial	GS	25	5,000	\$412.97	\$ 4.66	1.13%	\$0.0826	\$ 0.000932
Medium Commercial	GP	1,000	350,000	\$25,595.50	\$ 314.65	1.23%	\$0.0731	\$ 0.000899
Industrial	GT	50,000	20,000,000	\$1,384,140.00	\$ 19,460.00	1.41%	\$0.0692	\$ 0.000973

*Total Gen includes Gen C, Gen E, GCR and AER

Toledo Edison

Customer	Schedule	kW	kWh	Total Gen*	AER	AER as a % of Tot Gen	\$/kwh	
							Tot G	AER
Residential	RS		1,000	\$80.39	\$ 0.68	0.85%	\$0.0804	\$ 0.000683
Small Commercial	GS	25	5,000	\$409.69	\$ 3.42	0.83%	\$0.0819	\$ 0.000683
Medium Commercial	GP	1,000	350,000	\$26,826.80	\$ 230.65	0.86%	\$0.0766	\$ 0.000659
Industrial	GT	50,000	20,000,000	\$1,379,920.00	\$ 12,800.00	0.93%	\$0.0690	\$ 0.000640

*Total Gen includes Gen C, Gen E, GCR and AER

Based on July 1, 2015 Rates as contained in Tariffs on PUCO website

6. Renewables Data, continued:

d) A cost estimate for each year as follows:

- i. Scenarios 1 and 2 [Asking for RPS cost estimates based on specific RPS mandates per year]**

The PUCO currently does not have the capability to independently forecast the costs of RPS mandates under various percentage-based scenarios for future years with a high level of significance. The PUCO notes that any cost projection should take into consideration the 3% cost limitation that currently exists pursuant to R.C. 4928.64(C)(3).

7. A cost-benefit analysis of the PDR mandates, including projected costs on electric customers if the mandates were to remain at the percentage levels required under the law as amended by S.B. 310. Please break down the costs by year and PDR mandate as follows: [scenario provided]

The energy savings mandates established by S.B. 221 included specific requirements for peak demand reduction (PDR) to be achieved by Ohio's EDUs through the year 2018. S.B. 310 halted the increases in PDR requirements during 2015 and 2016 for EDUs that amended their portfolio plans but did not halt the increases in PDR requirements for EDUs that did not amend their portfolio plans. S.B. 310 also extended the PDR requirements for all Ohio EDUs through the year 2020.

The amount of PDR saved annually for each EDU is displayed in Table 1.

The PUCO currently does not have the capability to independently forecast the cost of PDR mandates in the future with a high level of significance. However, please note that the EDUs are required to show that their energy efficiency portfolio plans are cost effective, meaning that for the period of time to be covered by their plans, the benefits achieved by the plan must be shown to exceed its costs.

8. Please provide the status of implementation of disclosing for renewable energy resources, energy efficiency savings, and PDR requirements on the customer's monthly bill.

S.B. 310 established a requirement, in section R.C. 4928.65, that all EDUs and CRES providers disclose on customer bills the costs to customers of the renewable energy resource, energy efficiency savings, and peak demand reduction statutory requirements. Prior to the effective date of S.B. 310 on September 12, 2014, the PUCO opened Case No. 14-1411-EL-ORD in order to develop rules to implement these customer disclosure requirements. The PUCO held a workshop on August 26, 2014, which was prior to the effective date of S.B. 310, to receive input from interested stakeholders, and issued draft rules for comment on October 15, 2014. After a series of comments and reply comments, the PUCO issued a decision adopting rules on December 17, 2014. Since then, applications for rehearing have been filed. The Commission issued its Second Entry on Rehearing in this case on July 1, 2015. Following the rehearing process, these rules will be filed with the Joint Committee on Agency Rule Review.

As noted within these responses, you will also find attached to this letter the most current report available regarding alternative/renewable energy standards, a copy of the most up-to-date technical resource manual, and summaries of the energy efficiency portfolio plans of Ohio's EDUs.

Please do not hesitate to contact me with further questions or requests as you continue your work on this important subject matter.

Thank you,

Andre T. Porter
Chairman

Enclosure