

PUBLIC (REDACTED) VERSION



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July 21, 2014

Re: Case No. 12-3111-EL-RDR

Mr. Tom Stikeleather  
Public Utilities Commission of Ohio  
Energy & Environment  
180 East Broad Street  
Columbus, Ohio 43215

Dear Mr. Tom Stikeleather:

Please find enclosed this draft report on the Management/Performance and Financial Audit of the Alternative Energy Recovery Rider of Duke Energy Ohio, Inc. for the period of January 1, 2013 – December 31, 2013.

Once you have reviewed the report we would like to set up a conference call with you to discuss it. Please let us know a time that would work for you for a discussion. In the meantime, please contact Amanda Neuman (608 240 2529/[amanda.neuman@bakertilly.com](mailto:amanda.neuman@bakertilly.com)) or me (608 240 2361/[russ.hissom@bakertilly.com](mailto:russ.hissom@bakertilly.com)) with any questions you may have regarding the report.

We appreciate the opportunity to serve you.

Sincerely,

BAKER TILLY VIRCHOW KRAUSE, LLP

A handwritten signature in cursive script that reads "Russell A. Hissom".

Russell A. Hissom, Partner

Enclosures

**Public Utilities Commission of Ohio**

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**Management/Performance and Financial Audit  
of the Alternative Energy Resource Recovery  
Rider of Duke Energy Ohio, Inc.  
Case No. 12-3111-EL-RDR**

**For the period of  
January 1, 2013 – December 31, 2013**

**July 21, 2014**

**PUBLIC (REDACTED) VERSION**

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## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

#### Background Information

## 1.0 Background Information

### 1.1 Overview

Senate Bill 221 initiated an alternative energy portfolio standard (AEPS) that requires electric distribution utilities and electric service companies in Ohio to provide 25% of its electricity from alternative energy resources, including advanced energy resources and renewable energy generation. Renewable energy generation includes a specific "carve-out" for solar energy as shown in the table below:

Year	Renewable energy resources	Solar energy resources
2009	0.25%	0.004%
2010	0.50%	0.01%
2011	1.0%	0.03%
2012	1.5%	0.06%
2013	2.0%	0.09%
2014	2.5%	0.12%
2015	3.5%	0.15%
2016	4.5%	0.18%
2017	5.5%	0.22%
2018	6.5%	0.26%
2019	7.5%	0.30%
2020	8.5%	0.34%
2021	9.5%	0.38%
2022	10.5%	0.42%
2023	11.5%	0.46%
2024 and each year thereafter	12.5%	0.50%

Additionally, at least half of the annual renewable energy resources, including solar energy resources, shall be met through electricity generated by facilities located in Ohio.

The specific carve-out policy for solar energy generation is an influential market making activity, which greatly impacts the value of a solar renewable energy credit (S-REC) above and beyond a generic renewable energy credit (REC). This policy is further supported by the larger penalty / alternative compliance payment for solar requirements.

## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

#### Background Information (cont.)

#### **1.1 Overview** (cont.)

Resources that qualify as renewable energy resources and advanced energy resources are included below as follows:

<b>Renewable Energy</b>	<b>Advanced Energy</b>
Solar photovoltaic or solar thermal energy	Incremental energy (w/o CO <sub>2</sub> increase)
Wind energy	Distributed Co-Gen / CHP Units
Hydroelectric energy	Clean coal technology
Geothermal energy	Advanced nuclear energy technology
Solid waste energy	Energy from a fuel cell
Biomass energy	Advanced solid waste conversion
Energy produced by cogeneration technology	Demand side management / Energy efficiency

#### Duke Energy Ohio, Inc.'s (Duke Energy Ohio) Alternative Energy Resource Recovery (AER-R) Rider

Duke Energy Ohio's AER-R Rider enables the recovery of Duke Energy Ohio's cost (as a pass through to ratepayers) for complying with Ohio's renewable energy requirements under Section 4928.64 of Ohio Revised Code, including the acquisition costs of renewable energy credits.

The AER-R Rider is applicable to Duke Energy Ohio's retail customers that receive electric generation service from Duke Energy Ohio. Rider AER-R does not apply to customers taking generation service from a Competitive Retail Electric Service provider.

Because the Rider is a pass through cost to Duke Energy Ohio's ratepayers, it is of key importance that Duke Energy Ohio only includes in the Rider such costs that are "*reasonable and prudently incurred*" related to the acquisition of renewable energy credits to satisfy AEPS requirements. Pursuant to the Commission's Opinion and Order in Case No. 11-3549-EL-SSO et al., prudent costs in the Rider may include the following:

1. Actual market costs of RECs
2. Brokerage fees
3. REC tracking and market expenses
4. Gains and losses from REC trades and
5. Carrying costs of debt

## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

#### Executive Summary (cont.)

## 2.0 Executive Summary

### 2.1 Overview

The Ohio alternative energy portfolio standard (AEPS) requires electric utilities in Ohio to provide 25% of their electricity from alternative energy resources, including advanced energy resources and renewable energy generation. Renewable energy generation includes a specific “carve-out” for solar energy and at least half of the annual renewable energy resources, including solar energy resources, shall be met through electricity generated by facilities located in Ohio.

### 2.2 Objective

The objective of this project was to perform an audit of Duke Energy Ohio’s conformance with the management performance and financial aspects of the AER-R during the period January 1, 2013 – December 31, 2013.

### 2.3 Observations and Recommendations

A Summary of observations and recommendations based on Baker Tilly’s review are below:

Report Section	Observation	Recommendation
<b>4.1 Compliance Management &amp; Strategies</b>	1. Duke Energy Ohio indicates that its overall requirement of renewable energy requirements relative to other investor-owned electric distribution utilities in Ohio is low. Hence, a competitive solicitation is not used for RECs and S-RECs procurement.	Duke Energy Ohio should consider a competitive solicitation process in the next few years as the renewable compliance targets increase. This may improve the REC prices available to Duke Energy Ohio and make purchasing decisions more transparent. If Duke Energy Ohio determines that a competitive solicitation would not be cost-effective, it should document its analysis in making this determination.
<b>4.2 REC and S-REC Transactions</b>	2. Similar to 2012, non-solar REC transactions that occurred in 2013 were from a small number of suppliers.	Duke Energy Ohio should consider purchasing RECs from a larger number of providers and in smaller blocks to help mitigate risk from default by a single provider or unexpected changes in REC prices. If Duke Energy Ohio considers this and determines that it is not cost-effective to purchase RECs from a larger number of providers, it should document its analysis in making this determination.

## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

#### Executive Summary (cont.)

Report Section	Observation	Recommendation
<b>4.3 REC Market Dynamics</b>	3. Forecasting future REC prices could be improved as the market is more mature and predictable.	Knowledge of new renewable projects being developed should be considered in forecasting. Although Duke Energy Ohio may not know its own SSO load to forecast its REC obligation into the future, it may have reasonable estimates of total load for Ohio which will allow it to calculate total REC demand from Ohio generators. Duke Energy Ohio should document its strategy used and market trends considered when purchasing RECs.
<b>4.4 Quarterly AER-R Calculations</b>	4. The over/under recovery of revenues from ratepayers are largely due to customers switching. This has the result of causing the forecasted kWh used in the calculation to be considerably different from the actual kWh. Since the over/under recovery is not trued up until 2 quarters later, the variance is being applied to a different customer base from when the costs were incurred.	<p>Although the Duke Electric Security Plan (ESP) requires these adjustments on a quarterly basis, Duke Energy Ohio and the Public Utilities Commission of Ohio should consider performing the AER-R calculations and applying the new AER-R monthly rather than quarterly in future AER-R filings to help ensure more accurate projections and more equitable recovery from customers. A more frequent adjustment could be based on a rolling average adjustment or other factors to smooth the impact on ratepayers.</p> <p>While our research does not show this currently being done for AER-R type riders, there are many examples of this approach towards over/under recovery of base fuel costs. Duke Energy Kentucky uses this approach for fuel costs – using a two month rolling average computed monthly for its fuel costs. An example of this is found at <a href="http://www.duke-energy.com/pdfs/Sheet.No.80.Rider.FAC.pdf">http://www.duke-energy.com/pdfs/Sheet.No.80.Rider.FAC.pdf</a></p>
<b>4.5 Costs Recovered Through AER-R</b>	5. Duke Energy Ohio does not have written policy and procedures with internal controls in place that specifically relate to the quarterly AER-R calculations and filings.	Written policies and procedures that specifically relate to quarterly AER-R calculations and filings should be developed as part of Duke Energy Ohio's overall controls documentation
<b>4.6 3% Provision</b>	6. Duke Energy Ohio follows the methodology detailed in the Public Utilities Commission of Ohio Case No. 11-5201-EL-RDR and its 2013 costs were well below the 3% cost cap.	Baker Tilly has no recommendations regarding the 3% provision.

## **Public Utilities Commission of Ohio**

Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of  
Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

### **Project Approach**

## **3.0 Project Approach**

### **3.1 Objective**

The objective of the project was to perform an audit of Duke Energy Ohio's compliance with the management performance and financial aspects of the AER-R during the period January 1, 2013 – December 31, 2013.

### **3.2 High Level Approach**

The project objectives and scope were agreed to by the Public Utilities Commission of Ohio and Baker Tilly and the detailed workplan steps were designed based on the project objectives.

### **3.3 Prior Year Findings**

Duke Energy Ohio accepted the recommendations of the 2012 audit on February 24, 2014 as part of Case No. 12-0802-EL-RDR. As this audit period was for January 1, 2013 – December 1, 2013 (before acceptance of the recommendations), we did not expect those recommendations to have been implemented for this audit period and did not comment on whether Duke Energy Ohio complied with those recommendations. We did, however, consider the findings from 2012 in determining our approach for the 2013 audit.



## Public Utilities Commission of Ohio

Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of  
Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

Detailed Procedures, Observations and Recommendations

### 4.0 Detailed Procedures, Observations and Recommendations

#### 4.1 Area Reviewed – Compliance Management and Strategies

##### **4.1.1 Baker Tilly Observations**

Duke Energy Ohio's REC portfolio is tracked through the PJM Generation Attribute Tracking System (GATS). Internally, Duke Energy Ohio tracks its REC transactions and inventory with the Commodity XL (CXL) system.

Per Baker Tilly's recommendations in the 2012 audit, Duke Energy Ohio now has a formal document stating its overall procurement guidelines as established by its Renewable Strategy and Compliance (RSC) and Fuels and Systems Optimization (FSO) groups. The FSO group engages the market and procures RECs with guidance from the RSC group in accordance with the following procurement guidelines:

1. Duke Energy Ohio purchases unbundled RECs from the market rather than producing its own.
2. Duke Energy Ohio purchases through bilateral agreements with sellers or brokers rather than competitive solicitation through a request for proposal (RFP) process.
3. Duke Energy Ohio purchases RECs for delivery within five years.
4. Duke Energy Ohio judges the purchase price of RECs against other RECs offered for sale at the same time rather than against an expectation of future REC prices.
5. Duke Energy Ohio uses the maximum allowable adjacent state RECs to comply with the AEPS as long as they are less expensive than Ohio RECs.
6. Duke Energy Ohio buys large blocks of RECs when they are available and meet other procurement criteria.
7. Duke Energy Ohio buys RECs for firm delivery when possible rather than buying RECs depending on unit output.
8. Duke Energy Ohio may utilize REC banking, unit contingent contracts, and firm contracts as appropriate to ensure enough RECs are available to meet its compliance obligations.

This strategy gives Duke Energy Ohio flexibility in changing REC purchase arrangements from month to month and year to year. By buying RECs in large blocks, Duke Energy Ohio has access to REC prices that are below the REC market price at the time. As long as Duke Energy Ohio has access to out-of-state RECs, Duke Energy Ohio's strategy of short term market purchases is likely to achieve compliance with the AEPS. If the supply of out-of-state RECs were limited by accelerated AEPS obligations, particularly in Pennsylvania, RECs may not be available on the market and Duke Energy Ohio may lose out to buyers with long-term contracts.

Duke Energy Ohio's strategy of buying RECs from the market for short-term delivery is appropriate provided RECs are available for short-term delivery. Depending on future prices, Duke Energy Ohio's strategy may or may not meet the REC obligation at the lowest cost. Purchasing RECs every year should dilute the risk from year-to-year price changes, but large purchases within a year may expose Duke Energy Ohio to risk from month-to-month price changes. Duke Energy Ohio relies on the knowledge and expertise of its traders to find REC offers at competitive prices.

## Public Utilities Commission of Ohio

Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of  
Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

Detailed Procedures, Observations and Recommendations

### **4.1 Area Reviewed – Compliance Management and Strategies** (cont.)

#### **4.1.1 Baker Tilly Observations** (cont.)

The FSO Senior Emissions Trader compares REC offer prices to current market prices<sup>1</sup>, buys RECs from the market, and tracks transactions in the CXL system. The FSO Senior Emissions Trader has authority for purchases up to \$8 million for both non-solar REC and S-REC delivery out as far as 2018.

The RSC Director is responsible for compliance with the AEPS. This individual works with the FSO group to develop strategy for procurement and to evaluate REC purchase opportunities against the strategy. Strategy development and evaluation of opportunities takes place informally between the RSC Director and the FSO Senior Emissions Trader. They prepare a quarterly REC market analysis for risk management, which applies the compliance strategy to current market dynamics.

Duke Energy Ohio compensates REC traders based on meeting REC obligations, not for procuring RECs at the best prices or reducing portfolio risk. While Duke Energy Ohio traders appeared to buy at competitive prices in 2013, the incentive to do so is not part of employee goals or the Duke Energy Ohio compensation structure.

Duke Energy Ohio indicates that its overall requirement of renewable energy requirements relative to other investor-owned electric distribution utilities in Ohio is low, hence why it prefers to enter into bilateral agreements with sellers or brokers rather than competitive solicitation through a RFP process.

#### **4.1.2 Recommendations**

Increasing the use of competitive solicitations to purchase RECs will make purchasing decisions more transparent. This may improve the REC prices available to Duke Energy Ohio. If Duke Energy determines that a competitive solicitation would not be cost-effective for complying with the AEP requirements, it should document its analysis in making this determination.

### **4.2 Area Reviewed – REC and S-REC Transactions**

#### **4.2.1 Baker Tilly Observations**

Four transactions comprised Duke Energy Ohio's non-solar REC purchases in 2013. Three of the four transactions were for out-of-state non-solar REC purchases and the other fourth transaction was for in-state non-solar REC purchases.

With the exception of purchases under the residential Solar Renewable Energy Credits Program (which no longer exists as of the end of 2012), all of Duke Energy's REC purchases were executed below the price prevailing in the market at that time based on broker price sheets. Per our interview with Duke Energy Ohio, it had indicated that it stopped enrolling new participants into its Solar Renewable Energy Credits at end of 2012, however, allowed customers to receive for 2012 S-RECs if they completed the program requirements by February 15<sup>th</sup>.

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<sup>1</sup> Duke Energy Ohio indicates that it analyzes current market prices through combination of publications, such as SNL and over-the-counter (OTC) pricing provided by brokers.

## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

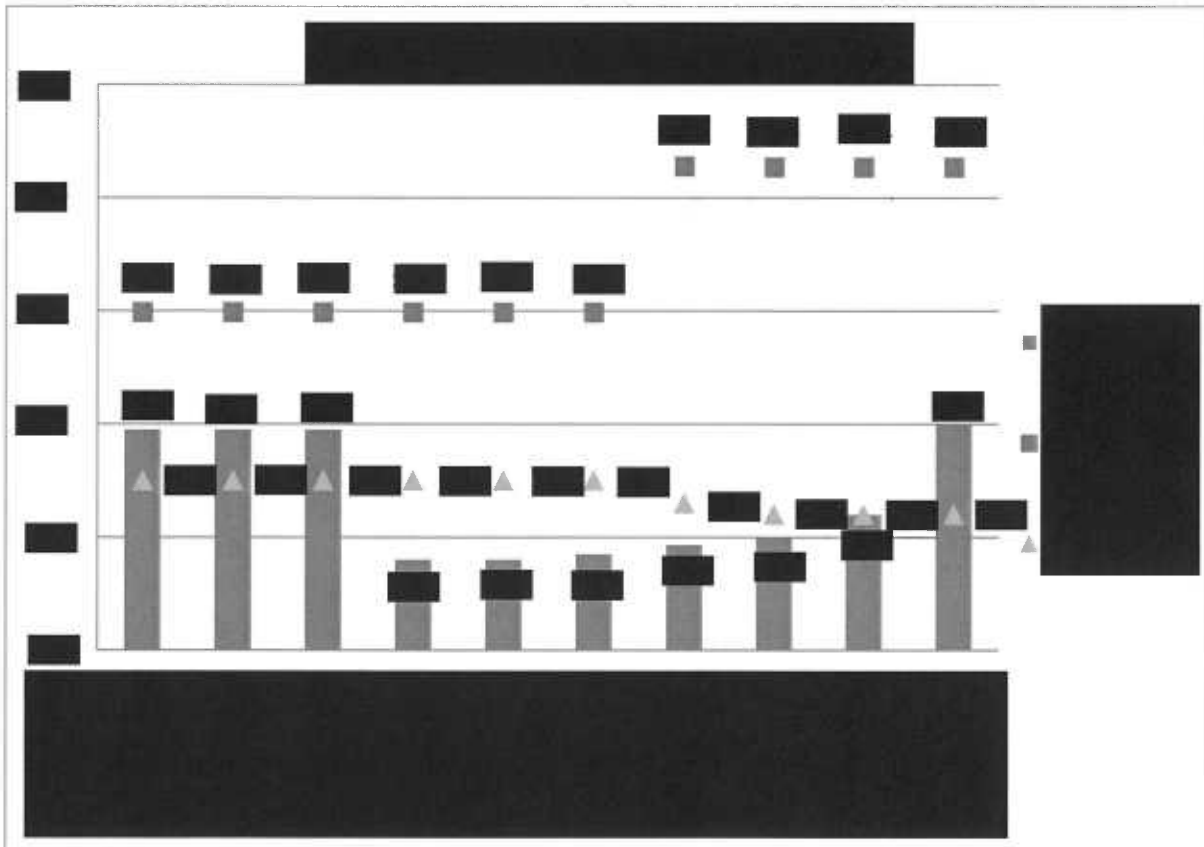
#### Detailed Procedures, Observations and Recommendations

#### **4.2 Area Reviewed – REC and S-REC Transactions** (cont.)

##### **4.2.1 Baker Tilly Observations** (cont.)

Most trades complied with Duke Energy Ohio's strategic procurement goals discussed in 4.1 above, but Duke Energy Ohio exercised flexibility with the strategy when RECs were available at an attractive price.

Transactions in the following charts are shown in chronological order. Different vintage dates for RECs account for some of the variation in price. Baker Tilly did not review broker price sheets for the dates of every REC transaction, but rather selected a sample of broker price sheets as identified in the following charts.



\*Note: The first three listed transactions reflect purchases made through Duke Energy Ohio's residential S-REC program.

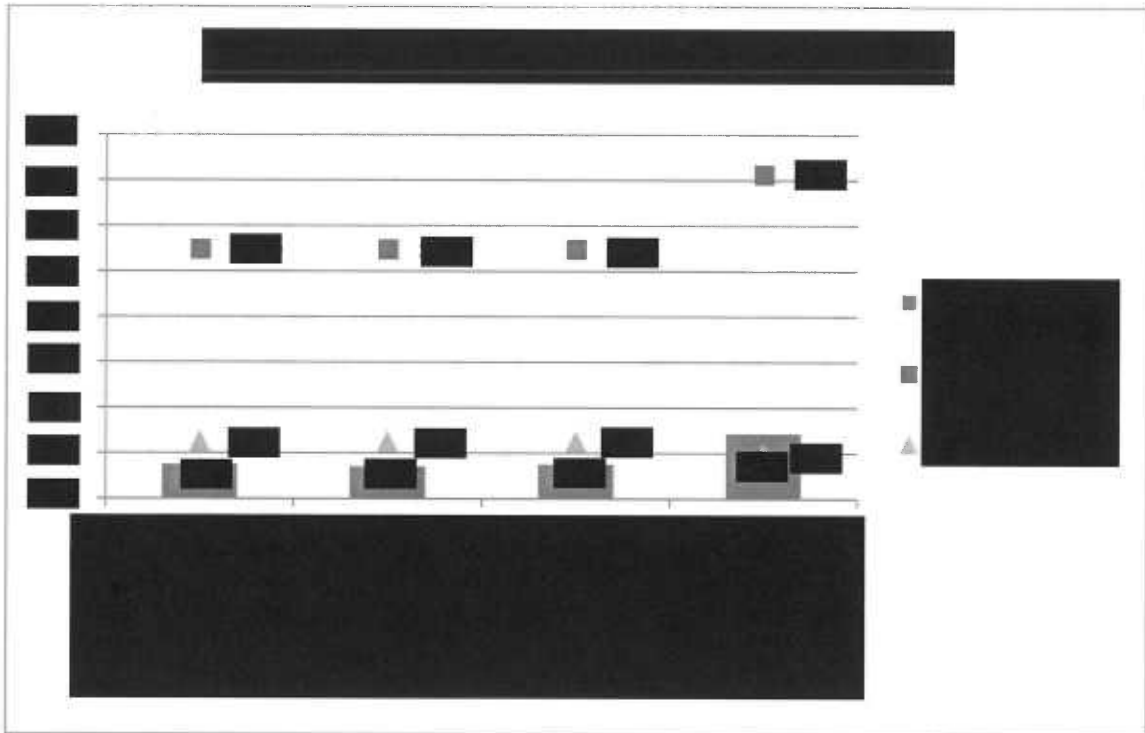
## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

#### Detailed Procedures, Observations and Recommendations

#### 4.2 Area Reviewed – REC and S-REC Transactions (cont.)

##### 4.2.1 Baker Tilly Observations (cont.)



##### 4.2.2 Recommendations

While Duke Energy Ohio's traders procured an appropriate number of RECs in 2013 at competitive prices, they purchased RECs primarily from a small number of providers without a competitive solicitation process. Reliance on a small number of non-solar REC generators, particularly [REDACTED] and [REDACTED], potentially exposes Duke Energy Ohio to a shortfall in its REC portfolio or pricing issues if [REDACTED] and [REDACTED] are not able to deliver the promised credits. The [REDACTED] transactions carry less risk because the RECs had already been created at the time of the transactions. Further, while contracts with these generators contain damage provisions in the event of default, it does not appear that generators will provide comparable quantities from other sources to help Duke Energy Ohio meet its AEPS compliance requirements. Duke Energy Ohio should consider purchasing non-solar RECs in smaller blocks from a larger number of providers. A larger number of transactions throughout the year will protect Duke Energy Ohio from default by a single provider or unexpected changes in REC prices. If Duke Energy Ohio considers this and determines that it is not cost-effective to purchase RECs from a larger number of providers, it should document its analysis in making this determination.

## Public Utilities Commission of Ohio

Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of  
Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

### Detailed Procedures, Observations and Recommendations

#### **4.2 Area Reviewed – REC and S-REC Transactions** (cont.)

##### **4.2.3 Procedures Performed**

Baker Tilly performed the following procedures related to REC transaction testing.

Category	Procedure
REC Transactions	1. Interviewed key personnel responsible for REC procurement and documented roles and processes
	2. Analytically reviewed REC transactions by size, counterparty, term, and location for appropriateness and necessity of transactions
	3. Compared REC transactions against delegation of authority to ensure transactions had appropriate approval
	4. Compared REC transactions to Duke Energy Ohio procurement strategy
	5. Compared transaction prices to publicly available PJM average prices, broker offer prices, and alternative compliance payments
	6. Compared REC transaction counterparties to a list of Duke Energy Ohio affiliates

#### **4.3 Area Reviewed – REC Market Dynamics**

##### **4.3.1 Baker Tilly Observations**

#### **Market risks and opportunities created by market trends**

The risks and opportunities for Duke Energy Ohio created by market trends are:

##### Risks

1. Lead time of renewable projects makes supply slow to adjust to changes in demand.
2. Uncertain regulatory environment and possible changes to REC obligations in other states.
3. Lack of transparent, efficient REC market.

##### Opportunities

1. S-REC oversupply in Pennsylvania gives Duke Energy Ohio access to inexpensive S-RECs.
2. Ohio continues to add solar capacity, which may bring down S-REC prices.
3. Improving technology may decrease future REC prices.

Duke Energy Ohio's strategy of short term purchase from the REC market allows it to react to REC market changes within a reasonable amount of time, approximately one to three years. However, the REC markets in Ohio and Pennsylvania are not fully-developed. Little price information is publicly available, and RECs meeting Duke Energy Ohio's procurement goals are not always available. Based on the bid-ask spreads in the REC market, there is friction within the market place that reduces the efficiency with which it brings buyers and sellers together. Duke Energy Ohio uses the expertise of its traders to navigate the complexity of the REC market.

## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

#### Detailed Procedures, Observations and Recommendations

#### **4.3 Area Reviewed – REC Market Dynamics** (cont.)

##### **4.3.1 Baker Tilly Observations** (cont.)

Duke Energy Ohio's procurement strategy appears appropriate to meet these risks and opportunities, as long as Duke Energy Ohio continues to have knowledgeable and experienced traders.

#### **Comparison to other states**

Renewable energy development in Ohio is progressing faster than development in contiguous states, such as Kentucky, which does not have a mandatory AEPS, and Indiana and West Virginia, which only have voluntary AEPS requirements.

These states may have similar capacity for renewable energy, but Ohio's AEPS helps it use its in-state capacity. Pennsylvania has a similar AEPS to that of Ohio, but it has had much more rapid development driven by state grants for renewable projects. Development was encouraged by the grant programs, but now that programs are no longer available, renewable development in Pennsylvania slowed dramatically.

Pennsylvania's AEPS can be met with RECs from anywhere in the PJM market. Because REC sellers in Pennsylvania need to compete with all sellers within PJM, Pennsylvania's REC prices are projected to remain at or near the lowest within the PJM market. RECs in Pennsylvania expire after two years, but REC holders can sell these RECs into Ohio where they are valid for five years.

Michigan also has an AEPS that requires electric providers in the state to meet a 10 percent renewable energy standard based on retail sales by the end of 2014 with interim compliance steps for 2012-2014. In 2012, all electric providers in the state of Michigan met their first interim compliance step towards meeting their overall AEPS requirements.<sup>2</sup> Ninety-two percent of the energy credits used for 2012 compliance in the state were from renewable energy generated in Michigan. However, Michigan's AEPS places a preference on in-state resources, thus limiting opportunities for purchase of RECs into Ohio.

All electric distribution companies and electric generation suppliers subject to Pennsylvania's AEPS achieved full compliance with their AEPS requirements in 2012.<sup>3</sup>

All electric distribution utilities in Ohio achieved compliance with their AEPS requirements in 2012.<sup>4</sup> However, not all competitive retail electric service (CRES) providers met their AEPS compliance requirements.

New Jersey, Washington DC, and Maryland have more aggressive solar credit requirements than Ohio and a more aggressive AEPS overall. These higher targets support higher REC prices. However, states in PJM not contiguous to Ohio generally do not impact Ohio's REC market because there currently are no certified renewable energy resource generating facilities from these states. Among non-adjacent PJM states with mandatory portfolio standards,

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<sup>2</sup> [http://www.michigan.gov/documents/mpsc/pa295report\\_447680\\_7.pdf](http://www.michigan.gov/documents/mpsc/pa295report_447680_7.pdf)

<sup>3</sup> [http://www.puc.pa.gov/electric/pdf/AEPS/AEPS\\_Ann\\_Rpt\\_2012.pdf](http://www.puc.pa.gov/electric/pdf/AEPS/AEPS_Ann_Rpt_2012.pdf)

<sup>4</sup> <http://dis.puc.state.oh.us/ViewImage.aspx?CMID=A1001001A14A14B02242C15874>

## Public Utilities Commission of Ohio

### Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

#### Detailed Procedures, Observations and Recommendations

#### **4.3 Area Reviewed – REC Market Dynamics** (cont.)

##### **4.3.1 Baker Tilly Observations** (cont.)

Maryland as a state-as-a-whole achieved full compliance in 2012<sup>5</sup>. Due to increased challenges with reporting as a result of changes to New Jersey's RPS resulting from the enactment of the Solar Energy Advancement and Fair Competition Act (SEAFCA), it is unclear whether New Jersey achieved compliance with its RPS in Energy Year (EY) 2013<sup>6</sup>. As New Jersey has the most aggressive solar carve-out for its AEPS of any PJM state, its market provides a benchmark reference point for S-REC market prices for PJM states.

##### **4.3.2 Recommendations**

Although Duke Energy Ohio correctly pointed out that in the past the REC market was not mature and unpredictable, the REC market is maturing and price trends throughout 2013 were relatively uniform. As Duke Energy Ohio knows its future AEPS statutory benchmarks and has information on renewable projects in development that will produce RECs, and renewable projects take from six to nine months to construct, it could develop a forecast of new REC generation. Although Duke Energy Ohio may not know its Standard Service Offer load to its forecasted REC obligation, it should have reasonable estimates of the total load for Ohio. This will allow calculation of the total REC demand from Ohio generation sources.

Adjacent states present a difficulty in REC price forecasting. Pennsylvania REC buyers are unlikely to buy Ohio RECs in the near future due to the current price differential with Ohio resources as made evident in the lower S-REC prices in the previous two figures in Section 4.2. Indiana and Kentucky do not have mandatory portfolio standards, so RECs generated in Ohio are unlikely to be sold outside Ohio. As Duke Energy Ohio stated in its interview, it also generally examines S-REC market trends in New Jersey due to the proliferation of the solar market in that state in recent years to get a sense of the impact of oversupply of S-RECs will affect prices in other states in the PJM. Duke Energy Ohio should document its strategy used and consideration of market trends when purchasing RECs.

##### **4.3.3 Procedures Performed**

Baker Tilly performed the following procedures related to REC market dynamics.

Category	Procedure
REC Market Dynamics	1. Reviewed current state of REC and S-REC markets in Ohio, adjacent states, and other states within the PJM interconnection territory
	2. Evaluated RPS context in each state and its effect on REC pricing and procurement for Duke Energy Ohio
	3. Provided overview of trends in RPS compliance markets

<sup>5</sup> <http://webapp.psc.state.md.us/intranet/Reports/2014%20Renewable%20Energy%20Portfolio%20Report.pdf>

<sup>6</sup> New Jersey's reporting year for EY2013 occurs between June 1, 2012 and May 31, 2013



## Public Utilities Commission of Ohio

Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of  
Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

### Detailed Procedures, Observations and Recommendations

#### **4.4 Area Analyzed or Reviewed – Quarterly AER-R Calculations**

##### **4.4.1 Baker Tilly Observations**

Duke Energy Ohio performs a quarterly calculation of the AER-R to be applied to customers taking electric generation from Duke Energy Ohio. This calculation includes the following components:

1. Projected Alternative Energy Costs
2. Projected Brokerage Expense
3. Projected Tracking participation Expense
4. Projected Realized Gains and Losses
5. Carrying Costs of Alternative Energy Inventory
6. Prior Period Over/Under Recovery
7. Forecasted Non-switched sales
8. CAT Tax

As noted from the inputs above, the AER-R is estimated based on projected expenses and forecasted non-switched sales (Duke Energy Ohio generation). Any over/under recovery is then trued-up in a subsequent calculation (2 quarters later).

The quarterly AER-R rates applied to customer bills in 2013 were as follows:

Quarter	AER-R Rate
1	\$ 0.000469 per kWh
2	\$ (0.000108) per kWh
3	\$ (0.000011) per kWh
4	\$ 0.000171 per kWh

Baker Tilly selected a sample of customer bills from the first and last quarter of 2013 and determined the impact of the AER-R on the customer's bill. The table below shows the average AER-R applied to a customer bill for various size bills.

Average Bill	AER-R applied	AER-R (as % of total bill)
\$47	\$0.09	0.20%
\$175	\$0.59	0.34%
\$1,600	\$1.96	0.12%
\$62,700	\$554.58	0.88%
\$260,700	\$2,163.32	0.83%

As shown in the table above, the AER-R has a minimal impact to the customers overall monthly bill (less than 1%).



## Public Utilities Commission of Ohio

Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of  
Duke Energy Ohio, Inc. January 1, 2013 – December 31, 2013

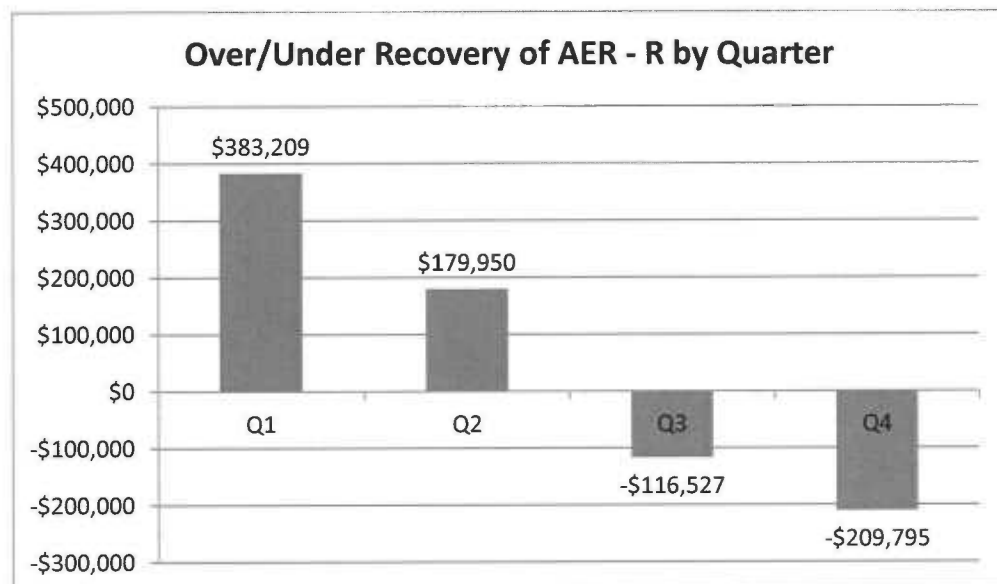
Detailed Procedures, Observations and Recommendations

### **4.4 Area Analyzed or Reviewed – Quarterly AER-R Calculations** (cont.)

#### **4.4.1 Baker Tilly Observations**

##### **Over/Under REC Recovery:**

When Duke Energy Ohio over or under recovers revenues from ratepayers through the AER-R, the over/under recovery is included in the calculation of the AER-R in a trailing two quarter period. Baker Tilly verified that Duke Energy Ohio correctly adjusted the AER-R calculation to include the true-up amount for over/under recovery; however, we noted that the trend in the over/under recovery was progressively more significant as shown below.



A driver in this variance is due to the difference in the actual kWh the rider was applied to as compared to the projected kWh used in calculating the AER-R. The chart below shows the comparison of actual kWh per quarter compared to the projected kWh per quarter which was used in the quarterly AER-R calculation.

## Public Utilities Commission of Ohio

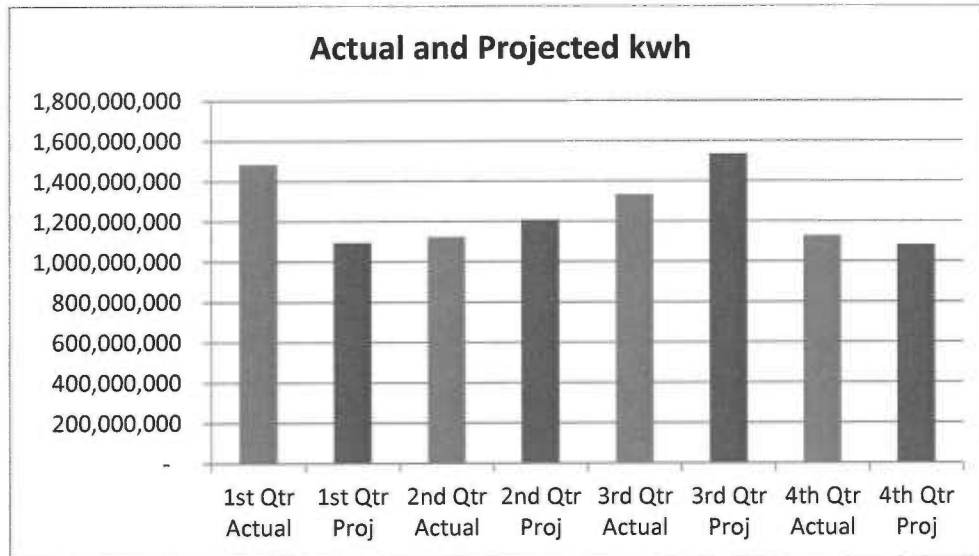
Management/Performance and Financial Audit of the Alternative Energy Resource Recovery Rider of  
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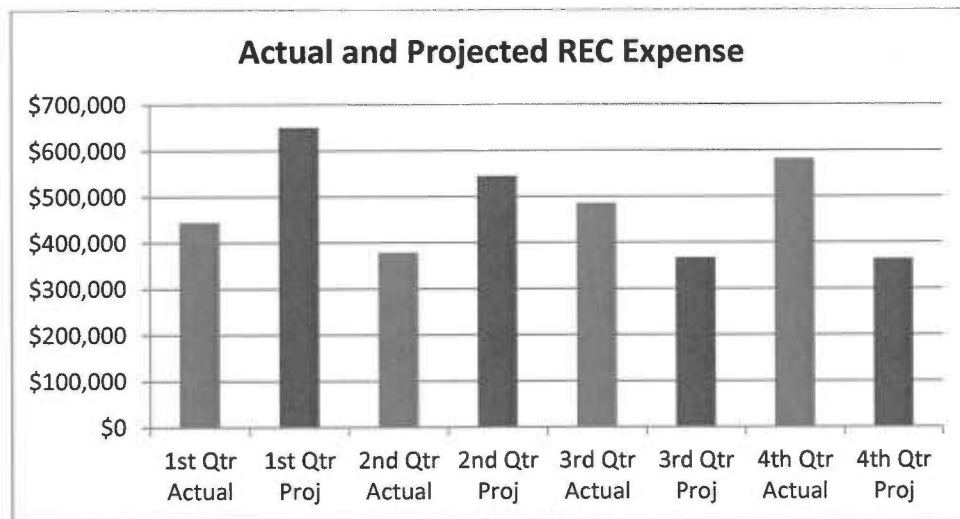
### 4.4 Area Analyzed or Reviewed – Quarterly AER-R Calculations (cont.)

#### **4.4.1 Baker Tilly Observations** (cont.)

Over/Under REC Recovery (cont.):



Another driver in the over/under recovery amounts is due to the difference in projected versus actual REC expenses. The chart below shows the actual versus projected REC expenses for each quarter in 2013:



As shown in the chart above, there are variances in the actual expenses incurred for the quarter compared to the projected expenses. The main reason for the difference in the first quarter is due to price estimates of the RECs. The projected price for Non-Solar Ohio RECs and Solar Ohio RECs for the first quarter was \$15.61 and \$255.22 per REC, respectively, while the actual prices were \$10.81 and \$183.13, per REC, respectively. Other quarters had similar variances in REC prices.

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#### **4.4 Area Analyzed or Reviewed – Quarterly AER-R Calculations** (cont.)

##### **4.4.1 Baker Tilly Observations** (cont.)

##### **Over/Under REC Recovery:** (cont.)

Per Duke Energy Ohio, it is difficult to estimate the kWh that the rate will be applied to because their customers often switch to non-Duke generation and Duke Energy Ohio does not presently forecast these changes. As to the price of RECs is difficult to estimate, Duke Energy Ohio uses the weighted average cost of inventory as the projected REC price in its quarterly AER-R calculations.

##### **4.4.2 Recommendations**

Although the correct amount of credits is given to customers through the true-up process, timing differences may cause customers that recently changed their status from switched to non-switched to receive credits from prior periods when they were not a Duke Energy Ohio customer. We recommend that Duke Energy Ohio develop procedures to forecast costs and kWh, factoring historical trends in customers changing electric service providers. Although the current Duke Electric Security Plan (ESP) requires the rider to be applied quarterly, Duke Energy Ohio and the Public Utilities Commission of Ohio should consider performing the AER-R calculations and applying the new AER-R monthly rather than quarterly in future AER-R filings to help ensure more accurate projections and more customer equitability. A more frequent adjustment could be based on a rolling average adjustment or other factors to smooth the impact on ratepayers.

While our research does not show this currently being done for AER-R type riders, there are many examples of this approach towards over/under recovery of base fuel costs. Duke Energy Kentucky uses this approach for fuel costs – using a two month rolling average computed monthly for its fuel costs. An example of this is found at <http://www.duke-energy.com/pdfs/Sheet.No.80.Rider.FAC.pdf>.

##### **4.4.3 Procedures Performed**

Category	Procedure
AER-R Calculations	1. Reviewed PUCO orders related to the AER-R filing processes
	2. Reviewed policies and procedures in AER-R calculations and in developing quarterly AER-R filings
	3. Interviewed key personnel involved in the quarterly calculations of the AER-R and the quarterly filings
	4. Performed walkthrough of AER-R calculations and tested the mathematical accuracy of the AER-R calculations in 2012
	5. Reviewed the over/under recovery of costs and ensured proper true-up mechanism is in place

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### **4.5 Area Analyzed or Reviewed – Costs Recovered Through AER-R**

#### **4.5.1 Baker Tilly Observations**

Per review of the Commission's Opinion and Order in Case No. 11-3549-EL-SSO dated 11/22/2011, Duke Energy Ohio is allowed to recover the costs incurred in complying with the requirements of Section 4928.64 of the revised code which includes the following costs:

1. All reasonable and prudently incurred costs for the acquisition of RECs
2. Brokerage Fees
3. REC tracking participation expenses
4. Gains and losses realized from the sale of RECs
5. Carrying costs at the long term cost of debt
6. Any audit fees paid to 3<sup>rd</sup> parties as requested by PUCO

#### **Internal Control Review:**

In the 2012 AER-R audit, Baker Tilly discovered that Duke Energy Ohio does not have any written policy and control procedures which relate directly to the quarterly AER-R calculations and filings. Baker Tilly confirmed that the policies and procedures around the AER-R calculations did not change for the 2013 audit year.

#### **4.5.2 Recommendations**

Baker Tilly recommends that Duke Energy Ohio develop some detailed written policy and control procedures around the quarterly AER-R calculations and filings to ensure proper recording of transactions in the future.

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#### Detailed Procedures, Observations and Recommendations

#### **4.5 Area Analyzed or Reviewed – Costs Recovered Through AER-R** (cont.)

##### **4.5.3 Procedures Performed**

Category	Procedure
AER-R Costs Recovered Through AER-R	1. Reviewed PUCO orders related to AER-R to determine the costs allowed to be recovered through the AER-R
	2. Reviewed documentation and performed interviews to determine key systems used to track allowable costs
	3. Verified no changes were made to the policies and procedures in place for performing the AER-R calculations, systems used, and recording of allowable costs
	4. Traced all actual costs used in the AER-R calculations to accounting system support
	5. Selected sample of costs recovered through AER-R and traced to supporting documentation
	6. Reviewed calculations of the carrying charge used in the AER-R calculation for appropriateness
	7. Selected 2 months to view support for REC inventory activity (purchases and sales of RECs)
	8. Ensured RECs consumed in inventory account agrees with RECs retired in GATS and that obligation was met.
	9. Traced kwh for which AER-R was applied to system support (RAC39 report)
	10. Ensured rate was accurately applied to ratepayers through sample selection of customer bills
	11. Verified that all customers in our sample selection received their generation from Duke Energy Ohio
	12. Ensured rate was not applied to customers who do not receive generation from Duke Energy Ohio through sample selection of customer bills

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#### Detailed Procedures, Observations and Recommendations

#### **4.6 Area Analyzed or Reviewed – “3% Provision”**

##### **4.6.1 Baker Tilly Observations**

In the Public Utilities Commission of Ohio Case No. 11-5201-EL-RDR, the Commission determined a methodology that should be used for calculating the 3% cost cap. The 4 step method developed by the commission is as follows:

1. Determine the sales baseline in MWhs for the applicable compliance year consisting of an average of each electric distribution utility's annual Ohio retail electric sales from the three preceding years
2. Calculate a "reasonably expected" dollar per MWh figure for the compliance year, consisting of a weighted average of the cost of SSO supply for the delivery during the compliance year, net of distribution system losses
3. Calculate the total cost by multiplying the Step 2 dollar per MWh figure by the baseline calculated in Step 1; and
4. Multiply the total cost from Step 3 by three percent with the result representing the maximum funds available to be applied toward compliance resources for that compliance year.

Duke Energy Ohio used the above methodology in their calculation of the 3% cost cap. The 2013 calculation for Duke Energy Ohio is below:

7,607,109 MWh (based on 3 year rolling average SSO sales)
<u>\$52.93 (weighted average price per MWh for 2013)</u>
\$402.6 million
<u>3% (provision threshold)</u>
\$12.1 million

The 2013 cost cap for Duke Energy Ohio is \$12.1 million. The total cost of RECs retired for 2013 compliance was \$1,643,604 which is well below the cost cap calculated above.

##### **4.6.2 Recommendations**

We have no recommendations for Duke Energy Ohio regarding the 3% provision.

##### **4.6.3 Procedures Performed**

Category	Procedure
3% Provision	1. Interviewed key individuals involved in the 3% cost cap calculation to understand methodology used
	2. Reviewed the 3% cost cap methodology determined by the PUCO in order 11-5201-EL-RDR
	3. Ensured Duke Energy Ohio's 2013 cost cap calculation followed the methodology in the PUCO order 11-5201-EL-RDR
	4. Traced the inputs in the 2013 calculation to supporting documentation

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Summary: Audit of the Alternative Energy Resource Recovery Rider of Duke Energy Ohio, Inc. for the period of January 1, 2013 – December 31, 2013 electronically filed by Mr. Thomas E Stikeleather on behalf of Baker Tilly Virchow Krause, LLP