MANAGEMENT/PERFORMANCE AND FINANCIAL AUDIT OF THE ALTERNATIVE ENERGY RECOVERY RIDER OF DUKE ENERGY OHIO, INC. COVERING THE PERIOD JANUARY 1, 2017 THROUGH DECEMBER 31, 2018

Case No.19-0051-EL-RDR

August 28, 2019

Prepared for:
PUBLIC UTILITIES COMMISSION OF OHIO
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August 28, 2019

Mr. Stuart Siegfried
Public Utilities Commission of Ohio
180 East Broad Street, 6th Floor
Columbus, OH 43215

Dear Mr. Siegfried:

Attached is Larkin & Associates, PLLC's ("Larkin") report on the Management/Performance and Financial Audit of the January 1, 2017 through December 31, 2018 Alternative Energy Recovery Rider ("Rider AER-R").

The words audit and examination, as used in this report are intended, as commonly understood in the utility regulatory environment, to mean a regulatory compliance review or a means of determining the appropriateness of a utility's financial presentation for regulatory purposes. The term audit in this case does not refer to an analysis of financial statement presentation in accordance with the auditing standards established by the American Institute of Certified Public Accountants. The reader should distinguish the regulatory compliance review performed for this engagement from financial audits performed for the purposes of expressing an opinion on the fair presentation of a company's financial statements in accordance with accounting principles generally accepted in the United States of America. This report was prepared based in part on information not within the control of the consultant, Larkin. While it is believed that the information is reliable, Larkin does not guarantee the accuracy of the information relied upon. This document and the analyses, evaluations, and recommendations are for the sole use and benefit of the contracting parties. There are no intended third-party beneficiaries, and Larkin shall have no liability whatsoever to third parties for any defect, deficiency, error, or omission in any statement contained in or in any way related to this document or the services provided.

Sincerely,

Larkin & Associates PLLC

Larkin & Associates, PLLC

1 EXECUTIVE SUMMARY

Ohio revised code ("R.C.") 4928.64 through 4928.645 define a renewable portfolio standard ("RPS") which requires electric distribution utilities and electric service companies to acquire specific minimum percentages of electricity from renewable energy resources annually. The renewable energy requirements, which include specific solar requirements, were implemented through annual compliance obligations beginning in2009.

Rider AER-R Background

Duke Energy Ohio, Inc. ("DEO" or "Company") is a public utility as defined inR.C. 4905.02 and, as such, is subject to the jurisdiction of the Public Utilities Commission of Ohio ("PUCO" or “Commission”). Through an Opinion and Order dated November 22, 2011, the PUCO approved a stipulation and recommendation in Case No. 11-3549-EL-SSO et al, whereby an Alternative Energy Recovery Rider ("Rider AER-R" or "AER-R") was established for DEO, which authorized DEO to recover costs associated with RPS compliance. The Commission's Opinion and Order in that prior proceeding set forth the following regulatory framework:

> Duke will implement Rider AER-R, as proposed in its application, to recover the costs incurred in complying with the requirements of Section 4928.64, et seq., Revised Code. Rider AER-R shall not expire upon the termination of the ESP on May 31, 2015, but instead shall continue in order to enable recovery of all reasonable and prudently incurred costs for the acquisition of renewable energy credits (RECs), including brokerage fees, REC tracking participation expenses, gains and losses realized from the sale of RECs, and carrying costs at the long-term cost of debt, as approved in Duke's most recent distribution rate case. Rider AER-R shall remain avoidable for customers taking generation service from a CRES provider. Rider AER-R will be filed quarterly and will include true-up provisions, with annual audits conducted by Staff, or an independent auditor at the discretion of the Commission, in a manner similar to that employed with respect to Duke's current Rider PTC-FPP.

Rider AER-R commenced in January 2012. The Company makes quarterly filings with the Commission no later than March 1, June 1, September 1 and December 1 of each year, with the proposed rates becoming effective one month later (i.e., April 1, July 1, October 1 and January 1), unless otherwise ordered by the Commission.

On April 2, 2015, the Commission approved DEO's application to establish a standard service offer in the form of an Electricity Security Plan ("ESP") in Case No. 14-0841-EL-SSO, et al, for the period beginning June 1, 2015 through May 31, 2018. DEO's application described Rider AER-R with other riders continuing with no modifications.[1]

On December 19, 2018, the Commission approved and adopted a stipulation signed by Duke, Commission Staff, and others, that, among other things, approved Duke's ESP, which was originally proposed in Case No. 17-1263-EL-SSO, et al. As approved, the term of the ESP is from June 1, 2018 through May 31, 2025, and calls for the renewal of Rider AER-R.

Audit Approach

The PUCO solicited proposals to conduct both management/performance and financial audits of the Rider AER-R audits for the years 2017, 2018 and 2019. To achieve these goals, the PUCO defined two audits. The first audit ("Audit 1") was to cover Rider AER-R for the period January 1, 2017 through December 31, 2018. The second audit ("Audit 2") is to cover Rider AER-R for calendar year 2019.

Following a competitive solicitation, Larkin & Associates PLLC ("Larkin") was selected by the PUCO to perform the desired management/performance and financial[2] audits of Rider AER-R.DEO's Annual Alternative Energy Portfolio Status reports ("Ohio renewable compliance filings") for 2017 and 2018werefiled on April 12, 2018 and March 27, 2019, respectively.

This report covers the "Audit 1" period, January 1, 2017 through December 31, 2018.

Our review of DEO's Rider AER-R has followed the guidance provided for this work in Attachments 1 and 2 of RFP No. RA19-AER-1. Our report also addresses other specific items from previous audits that were identified by the PUCO or Staff. We used a combination of document review, interrogatories, site visit, and interviews. Larkin conducted interviews at the Company's offices and by telephone conference in Cincinnati, Ohio on May 20, 2019 with individuals with the position titles listed in Exhibit 1-1 below, and by telephone conference on May 30, 2019. DEO regulatory staff and PUCO Staff also participated in the interviews.

Exhibit 1-1. Interviews Conducted

Title	Department
Rates & Regulatory Strategy Manager	OH/KY Rate Recovery & Analysis
Business Development Mgr. III	Renewable Compliance & Origination
Director, DET Deal Struc Analytics & Res	DET Bus & Product Dvlmpt
Lead Load Forecasting Analyst	Load Forecasting & Fundamentals
Lead Accounting Analyst	OH/KYAccounting & Analysis
Wholesale Renewable Mgr IV	Strategy, Policy Advocacy
Product & Services Manager	Distributed Energy Technology
Senior Emissions Trader	Emissions Trading/Gas, Oil and Power

[1] Case No. 14-0841-EL-SSO, Direct Testimony of James E. Ziolowski, Attachment JEZ-4, page 2.
[2] This part of the review has in prior reports been referred to as the "Financial Audit", a term which could be misleading because the work does not involve an audit of financial statements, but rather is an engagement involving verification of DEO's Rider AER-R filings that we conducted in accordance with the guidance set forth in Attachment 2 from RFP No. RA19-AER-1.

Status of the Company's Implementation of Recommendations from the 2012, 2013, 2014/2015, and 2016 Audits

Rider AER-R was approved per the Commission's Opinion and Order dated November 22, 2011 in Case No. 11-3549-EL-SSO. Recovery through Rider AER-R commenced with the first billing cycle in 2012. Management and financial audits of DEO's Rider AER-R were conducted in Case Nos. 12-802-EL-RDR and 12-3111-EL-RDR for the 2012 and 2013 review periods, respectively.[3] In addition, Larkin conducted the management and financial audit of DEO's Rider AER-R for the 2014 and 2015 review periods in Case No. 15-1854-EL-RDR.

On December 21, 2016, the Commission issued its Finding and Order, which discussed (1) the recommendations of the 2012 and 2013 Rider AER review periods, and (2) the 2014 and 2015 review periods. On January 24, 2018, the Commission issued its Finding and Order, which discussed (1) the recommendations in the aforementioned audits covering review period 2012 through 2015, and (2) the 2016 review period.

As it relates to the previous auditor's recommendations for the 2012 through 2015 review periods, Section B, paragraph 15 of the Commission's Finding and Order dated January 24, 2018 states:

> Upon review, the Commission adopts the findings outlined in the audit report regarding the previous audits. In doing so, we find Duke should continue to consider the recommendations adopted in the previous Commission orders from the 2012 and 2013, and 2014-2015 audits on an ongoing basis and should continue to document its rationale.

For the 2016 review period, the Commission's Finding and Order stated that it found that Larkin's recommendations should be adopted in their entirety.

The listing below summarizes (1) key findings and reports on the status, (2) describes whether and how the Company implemented each recommendation, and (3) Larkin's conclusion with regard to the Company's assertions.

<u>Audit Recommendations - 2012 Audit</u>

1. Larkin had recommended that the Company should formally document its procurement strategy for clarity and limit the reliance on the expertise of specific traders, which will ensure that traders are buying at the best prices and least risk.

   Status: In response to LARKIN-DR-01-047(a), DEO stated:

   > DEO continues to comply with this requirement by annually updating the Duke Energy Ohio, Inc. Contracting Principles, Guidelines and Strategy, which the Company provided as confidential attachments in response to LARKIN-DR-01-033. Per Audit Report in Case No. 15-1854-EL-RDR,

[3] The 2012 and 2013 Management and Financial audits of Rider AER-R were conducted by Baker Tilly Virchow Krause, LLP.

Larkin concluded that the Company's procurement strategy document is comprehensive for the most part, but should include a description and illustrative calculation of the 3% cost cap. Following this recommendation, DEO added a description and illustrative calculation of the 3% cost cap to page 3 of the strategy document.

Larkin conclusion: Larkin reviewed the Company's Contracting Principles, Guidelines and Strategy documents for both 2017 and 2018, which were provided in the confidential response to LARKIN-DR-01-033 and confirmed that the description and calculation of the 3% cost cap was included and is consistent with the methodology adopted by the Commission in Case No. 11-5201-EL-RDR.

2. Larkin had made the recommendation that the Company should consider Pennsylvania's market when purchasing solar RECs as DEO may be able to buy solar RECs that are expired in Pennsylvania but valid in Ohio at lower rates.

   Status: In response to LARKIN-DR-01-47(a), DEO stated:

   > Duke Energy Ohio already employs this strategy. Duke Energy Ohio considers, and has for years considered, Pennsylvania RECs when looking for RECs to comply with the Ohio AEPS. For the Company's 2017 compliance obligation, the Company retired 6,507 S-RECs, of which [redacted] were from facilities located in Pennsylvania. For the Company's 2018 compliance obligations, the Company retired 7,553 S-RECs, of which [redacted] were from facilities located in Pennsylvania.
   >
   > The Company would like to note that Pennsylvania House Bill 118 was signed into law in October 2017, which closed Pennsylvania's borders on solar RECs, only allowing solar RECs created in Pennsylvania to qualify as a solar REC for Pennsylvania's RPS. This change increased the demand for Pennsylvania and correspondingly drove up the price of Pennsylvania solar RECs. Duke seeks the lowest cost RECs between Ohio, Pennsylvania and all other eligible markets when purchasing RECs.

   Larkin conclusion: Larkin confirmed that DEO retired [redacted] RECs and [redacted] RECs in 2017 and 2018, respectively, from facilities that are located in Pennsylvania. Larkin verified this by reviewing the Company's GATS retirement reports which were provided in response to LARKIN-DR-02-005. The issue of Pennsylvania House Bill 118 is discussed in a later section of this report.

3. Larkin had made a recommendation that DEO should develop policies and procedures with internal controls that specifically relate to RPS in order to help reduce the number of errors in the program.

Status: In response to LARKIN-DR-01-47(a), DEO stated:

> The Company has taken steps to increase its diligence when performing accounting procedures in order to ensure the errors involving timely recognition of cost are minimized and/or eliminated. The only cost not timely recognized in the past was the GATS subscription fee. The GATS subscription fees have been invoiced and recorded to the correct accounting.

Larkin conclusion: Larkin confirmed that the GATS subscription fees related to RPS for compliance years 2017 and 2018 were recorded to the correct accounting.

<u>Audit Recommendations - 2013 Audit</u>

4. Larkin had recommended that the Company should consider using competitive solicitations to purchase RECs to improve available prices and if DEO is to determine that the recommendations would not be cost-effective, the Company should document its analysis in making such a determination.

   Status: In its response to LARKIN-DR-01-47(b), DEO stated:

   > DEO did not conduct competitive solicitations during 2017 or 2018. DEO's analysis regarding competitive solicitations is documented in the Company's Contracting Principles, Guidelines and Strategy document, which the Company provided as a confidential attachment in response to LARKIN-DR-01-033. As noted in this document, DEO's preferred means of REC procurement is through bilateral agreements with REC owners, due to transactional efficiency and DEO's continued success with such purchases. DEO's desire to spread REC purchases over time to mitigate market timing risk, combined with its small market share of retail sales, severely limits the effectiveness and benefits of competitive solicitations. However, RFPs, or other formal means of competitive solicitations may be considered if FSO is unable to maintain a position through bilateral agreements, with the goal of covering at least 50% of the total approved risk limits shown below, or as Duke Energy Ohio's obligation increases over time.
   >
   > The Company has considered, and will continue to consider, additional compliance options such as RFP's or auctions. [redacted]

   Larkin conclusion: Larkin inquired about [redacted] he Company's preference for acquiring RECs for AEPS compliance in bilateral transactions. In its response to LARKIN-DR-04-004, the Company referred to the monthly compliance meeting minutes that were provided in DEO's response to

LARKIN-DR-02-007 [redacted]

5. Larkin recommended that DEO 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. In addition, if DEO determines that the recommendation would not be cost-effective, it should document its analysis in making that determination.

   Status: In its response to LARKIN2-DR-01-47(b), the Company stated that it carefully evaluates all of its options to secure RECs at the lowest cost. In addition, DEO stated that its position is that REC providers are more likely to charge competitive prices for large blocks of RECs rather than small volume purchases due to transactional inefficiencies. The Company stated that supplier default risk is minimal for the following reasons: (1) the Company has some supplier diversity; (2) the Company often secures RECs in the spot market or on a forward basis from operating facilities; and (3) the Company typically maintains a REC bank balance to mitigate noncompliance risk.

   DEO also noted that it did not make a large number of REC purchases in either 2017 or 2018 due to the legislative uncertainty associated with Ohio House Bill 114 and the future of Ohio's Alternative Energy Portfolio Standard.

   Larkin conclusion: Larkin recommends that the Company continue to evaluate and update its REC purchasing strategies and to seek out purchases from other suppliers and/or in smaller blocks if such purchases would result in a lower cost for AEPS compliance.

6. Larkin recommended that DEO should consider its knowledge of new renewable projects being developed in its forecasting process.

[4] See the response to LARKIN-DR-04-004.

Status: In its response to LARKIN2-DR-01-47(b), the Company, citing its Contracting, Principles, Guidelines and Strategy document, stated:

> Per these strategy and risk guidelines, DEO has decided to systematically purchase RECs for AEPS compliance. During 2017 and 2018, the AEPS legislation was under discussion in the Ohio legislature, with bills proposed to modify the compliance requirements. This proposed legislation led to increased uncertainty around future compliance needs.
>
> DEO does not create or maintain REC price forecasts, nor does it engage in speculative purchases or trading. Duke Energy Ohio interacts with developers of renewable energy projects, market participants, and facility owners on a regular basis to observe market dynamics and develop relationships with potential suppliers. Additionally, the Company engages in market research with a focus on REC market supply and demand. Duke Energy Ohio reiterates that REC purchases are made for compliance purposes and procurement strategies have been developed specifically to minimize market price risk.

Larkin conclusion: Larkin recommends that the Company continue to monitor and document changes in the REC markets and legislation that can be used to improve the Company's forecasting process and REC purchasing. Larkin concurs that DEO's process for systematically purchasing RECs in 2017 and 2018 for AEPS compliance, subject to the strategy and risk guidelines was prudent.

<u>Audit Recommendations - 2014 and 2015 Audits</u>

7. Larkin recommended that DEO continue to keep responsibility for program management and REC purchasing for (1) Ohio RPS compliance, and (2) the GoGreen Pricing Program separated to avoid the potential for cross-subsidization and/or double counting of RECs between the two programs.

Status: In its response to LARKIN2-DR-04-001, the Company stated:

> The GoGreen Pricing Program does not interact with the Alternative Energy Portfolio Standard ("AEPS") mandate. Program management responsibility for the two programs is overseen by two different individuals in two different departments within Duke. In addition, the Company purchases RECs for the GoGreen Pricing Program separately from RECs that are used for compliance with the AEPS. Purchases for the GoGreen program are retired by the counterparty in GATS on behalf of GoGreen participants and documentation proving such is sent to representatives of Duke. This way the REC transaction does not utilize Duke Energy GATS accounts, thereby eliminating the possibility for double-counting of RECs and cross-subsidization.

Larkin conclusion: As discussed later in this report, Larkin reviewed the PJM-GATS tracking system reports, which is the tracking system used for retiring the RECs associated with Ohio AEPS compliance. With regard to the RECs associated with the GoGreen program, in past years, such RECs were also retired through PJM-GATS, but in 2017 and 2018, the GoGreen related RECs were retired using the Midwest Renewable Energy Tracking System ("MRETS"). Based on the information reviewed in these tracking system reports as well as our interview with DEO's Product and Services Manager, Larkin concludes that DEO is still in compliance with this recommendation. It should be noted that the Company's Senior Emissions Trader communicates with and purchases RECs for both the Ohio renewables compliance program personnel and the GoGreen Power program manager. Separation is maintained by making REC purchases for these programs on different days as well as separate tracking of the RECs purchased for AEPS compliance and for GoGreen. As noted above for 2017 and 2018, RECs used in the GoGreen Power program were tracked and retired in MRETS whereas the RECs that were retired for AEPS compliance were tracked and retired in PJM GATS.

8. Larkin recommended that the Company should prepare its Renewable Energy Credit Position Summary reports ("REC summary reports") every month to ensure that it has adequate non-solar and solar RECs in inventory to be in compliance with Ohio renewables requirements.

   Status: In its response to LARKIN2-DR-04-001, the Company stated that it prepared REC summary reports for every month during 2016, 2017 and 2018.

   Larkin conclusion: Larkin confirmed that the Company maintained and provided monthly REC summary reports for each month of 2017 and 2018 in its response to LARKIN-DR-01-023. DEO had previously provided monthly REC summary reports for each month of 2016 during the audit of Rider AER-R for the 2016 review period. The Company is continuing to comply with this recommendation.

9. Larkin recommended that solar RECs from [redacted] should be reduced from [redacted]. Specifically, during 2014, DEO had contracted to purchase [redacted] and had included this amount in REC inventory. However, DEO received only [redacted] of the [redacted] RECs. DEO agreed with Larkin's recommendation and indicated that it would adjust the volume for [redacted] that were ultimately received.

   Status: In its response to LARKIN-DR-04-001, the Company stated that as part of the 2016 audit of Rider AER-R, it provided Larkin with a screenshot from its accounting system, which reflected that DEO made this change in an entry booked on April 21, 2016.

   Larkin conclusion: Larkin confirms that it reviewed the referenced screenshot during the 2016 audit.

10. Larkin recommended that the Company be diligent when performing the accounting procedures that were outlined in two internal control documents reviewed during the 2014/2015 review period in order to ensure that that errors involving the timely recognition of costs are minimized and/or eliminated on a going forward basis.

Status: In its response to LARKIN-DR-04-001, the Company stated that it continues to take steps when performing accounting procedures pursuant to Larkin's recommendation.

Larkin conclusion: Larkin agrees that DEO has taken steps to minimize and/or eliminate errors pursuant to the two referenced internal control documents that were reviewed during the 2014/2015 review period.

11. Larkin recommended that the Company should determine the projected weighted average cost of inventory ("WACI") in all of its quarterly Rider AER-R filings by using the WACI that calculated on its REC inventory worksheets.

    Status: In its response to LARKIN-DR-04-001, the Company stated that in its 2017 and 2018 Rider AER-R filings, it continued to use the WACI that was calculated on its REC inventory worksheets to determine the projected alternative energy costs.

    Larkin conclusion: This was confirmed by reviewing DEO's filings and the response to LARKIN-DR-04-10.

Audit Recommendations - 2016 Audit

12. Larkin recommended that going forward, DEO maintain a written record which memorializes all departmental meetings and/or conference calls in which discussions are held and decisions are made pertaining to things such as Ohio legislation (current and/or proposed) and prevailing market conditions as it relates to the purchase of solar and non-solar RECs for Ohio renewable compliance.

    Status: In response to LARKIN-DR-04-002, the Company referred to its response to LARKIN-DR-02-007, which requested that the Company identify and provide copies of the Monthly Meeting Minutes and related supporting documentation that was implemented starting in March 2017.

    Larkin conclusion: Upon reviewing the response to LARKIN-DR-02-007, Larkin confirmed that the Company provided the Monthly Meeting Minutes starting with March 2017, which is when the Company began maintaining such documentation. The Company should continue to maintain documentation of its monthly meetings including monitoring of market conditions, AEPS compliance requirements, REC inventory status, and pending legislation.

13. Larkin recommended that the Company's Contracting Principles, Guidelines and Strategy document be updated to include a passage which contains language which discusses Larkin's recommendation regarding the Company maintaining a written record of all departmental meetings and/or conference calls.

    Status: In response to LARKIN-DR-04-002, the Company referred to the response to LARKIN-DR-01-033, which included the Company's Contracting Principles, Guidelines and Strategy documents for both 2017 and 2018.

    Larkin conclusion: Upon reviewing the referenced documents for both 2017 and 2018, Larkin confirmed that item number 6 under the Market Engagement and Procurement section stated: "The RSO and FSO teams meet monthly to discuss any proposed legislation, compliance positions and prevailing market conditions as it relates to the purchase of solar and non-solar RECs for Ohio renewable compliance. Duke Energy Ohio maintains a written record of these discussions." This procedure is useful and should continue.

14. Larkin recommended that a written memo be maintained for REC purchases that briefly summarizes the reason for the purchase and the information available and considered at that time.

    Status: In response to LARKIN-DR-04-002, the Company stated that it documents any purchase decisions and market conditions in the monthly meeting minutes.

    Larkin conclusion: Upon reviewing the monthly meeting minutes provided in response to LARKIN-DR-02-007, Larkin confirmed that the Company documented REC purchases and market conditions.

15. As it relates to the audit fees that were charged to Rider AER-R during the 2016 review period, Larkin recommended that the amount of $34,026 that the Company included in Rider AER-R, which related to Larkin's billing invoice, be reduced by $7,026 to reflect the $27,000 amount that Larkin had billed and for which it was paid for the 2016 review.

    Status: In its response to LARKIN-DR-04-003, the Company stated that the adjustment to reduce audit fees by $7,026 was made in March 2017 and referred to the response to LARKIN-DR-01-002, Attachment 3.

    Larkin conclusion: Upon reviewing Attachment 3 to the response to LARKIN-DR-01-002 on the tab titled "2016 Sch. B-Recon Detail", Larkin confirmed that the line item "Audit Fees" was reduced by the $7,026, which then flowed through the Company's third quarter 2017 Rider AER-R filing.

16. Larkin recommended that [redacted] solar RECs from [redacted] that were associated with [redacted] which had been double-counted, be removed from the Company's solar REC inventory.

    Status: In response to LARKIN-DR-04-003, the Company stated that [redacted] was deleted from CXL and removed from solar REC inventory.

    Larkin conclusion: Larkin confirmed with the Company's removal of those double-counted solar RECs from the REC inventory.

17. An issue came up during the 2016 review in which there was a question as to whether the Company would receive [redacted] solar RECs from [redacted] with a cost of [redacted] each as identified by [redacted], which the Company had indicated at the time that it would investigate and determine if the transaction should be deleted. Larkin recommended that in the event the investigation into this transaction revealed that the Company did not receive the [redacted] solar RECs associated with this transaction, that such solar RECs, with a cost of [redacted] each, be removed from DEO's solar inventory.

    Status: In response to LARKIN-DR-04-003, the Company stated that it should not have recorded [redacted] because the [redacted] solar RECs were never received. As a result, [redacted] was deleted from CXL and therefore DEO never recorded the [redacted] RECs to solar REC inventory at a price of [redacted] each.

Larkin conclusion: Larkin confirmed that the Company removed the RECs from the REC inventory.

18. As it relates to [redacted] cost solar transactions, Larkin recommended that the Company update its system so that the "Start" and "End" dates related to these transactions coincide with the dates the RECs were actually received into PJM-GATS.

    Status: In response to LARKIN-DR-04-003, the Company stated that it has not recorded any new [redacted] cost REC transaction since the recording of [redacted] vintage purchases. However, the Company stated that if it had made such REC purchases, it would have made the "Start" and "End" dates coincide with the receipt date into DEO's PJM-GATS account.

    Larkin conclusion: Larkin reviewed the confidential response to LARKIN-DR-01-016, Attachment (b), which showed how the solar RECs were valued in 2017 and 2018. Larkin confirmed that of the [redacted] cost solar RECs listed, none had a vintage that was [redacted], which corresponds to the Company's response to LARKIN-DR-04-003 noted above.

Major Management Audit Findings

1) Rider AER-R was modified on April 2, 2018 to include the following language:

   > This Rider is subject to reconciliation, including, but not limited to, refunds or additional charges to customers, as ordered by the Commission as the results of audits by the Commission in accordance with the April 2, 2015, Opinion and Order in Case Nos. 14-841-EL-SSO, et al.[5]

2) On March 7, 2017, House Bill 114 was introduced to reform Ohio's energy efficiency, peak demand reduction and renewable energy mandates before the Ohio General Assembly. Among other AEPS-related issues, the bill proposed the following:

   - Eliminating the renewable energy mandate. Utilities and CRES providers **<u>may</u>** provide up to 12.5% of generation service from qualifying renewable sources, subject to a 3% cost cap (comparison to costs of other forms of generation).
   - Provided an opt-out for all customers, thereby burdening utilities with the risk of non-recovery of costs for any renewable generation supply.

   A substitute version of HB 114 (originally passed by the Ohio House of Representatives in March 2017) was accepted by the Senate Energy & Natural Resources Committee in mid-May 2018 and remained there throughout the rest of the year. Benchmarks must be mandatory for an indefinite time, but changes the benchmark percentages to stop

[5] See the response to LARKIN-DR-01-001.

increasing after 2022 when the overall requirement reaches 8.5% and the solar requirement reaches 0.34%. AEPS compliance requirements at that time included stair-step increases through 2016, increasing to a total requirement of 12.5%. Ultimately HB 114 was not signed into law.

3) DEO provided its 2017 Annual Alternative Energy Portfolio Status Report and Ten Year Advanced Energy and Renewable Energy Benchmark Compliance Plan that was filed with the PUCO on April 12, 2018 in Case No. 18-0522-EL-ACP. The Company's 2017 compliance report stated that DEO achieved compliance by meeting the 2017 benchmark for the Ohio Alternative Energy Portfolio Standard for both solar and non-solar renewables.

4) DEO provided its 2018 Annual Alternative Energy Portfolio Status Report and Ten Year Advanced Energy and Renewable Energy Benchmark Compliance Plan that was filed with the PUCO on March 27, 2019 in Case No. 19-387-EL-ACP. The Company's 2018 compliance report stated that DEO achieved compliance by meeting the 2018 benchmark for the Ohio Alternative Energy Portfolio Standard for both solar and non-solar renewables.

5) For both 2017 and 2018, the Company did not obtain RECs through a renewable purchased power agreement, but rather DEO purchased RECs on the open market. Specifically, according to the Company's response to LARKIN-DR-01-033, [redacted]

6) The Company holds and uses all purchased RECs strictly for Ohio compliance purposes. DEO does not plan to sell any RECs on the open market, as it does not want to risk selling existing RECs in inventory only to have to potentially re-purchase them at different, possibly higher prices in the future.

7) DEO prepares REC Position Summary reports ("position reports") on a monthly basis. DEO uses these reports to determine whether it has adequate solar and non-solar RECs in inventory in order to be in compliance with Ohio renewable requirements. In the position reports, DEO evaluates its current REC inventories against its anticipated RPS requirements for nine years. For example, DEO's position reports for 2017 compared its solar and non-solar REC inventories with anticipated RPS compliance requirements for years 2017 through 2025.

8) DEO's monthly position report dated January 2, 2018 (for 2017) shows that the Company was [redacted]

9) DEO's monthly position report dated December 31, 2018 (for 2018) shows that the Company was [redacted]

[redacted]

10) During 2017, the Company made [redacted]

11) During 2018, the Company made [redacted]

12) DEO's REC purchases are limited to short-term purchases. There are no long-term contracts in place. Some of the RECs purchased by DEO are for renewable energy compliance for years subsequent to 2017 and 2018.

13) DEO held monthly meetings to discuss strategy as it relates to REC purchases going forward. Specifically, the subject of these meetings centered on monitoring the Ohio legislature with respect to renewables compliance, and asking those involved with these meetings what they were seeing in the market and whether anything had changed that would influence them to recommend purchasing RECs. Per Larkin's recommendation in the 2016 audit of Rider AER-R, beginning in March 2017, the Company began maintaining monthly meeting minutes which memorializes the compliance team's monthly meetings, which pertain to such issues as Ohio legislation (current and proposed) and prevailing market conditions relating to the purchase of solar and non-solar RECs for Ohio renewable compliance.

14) Throughout the course of the monthly meetings, there was no one decision maker, but rather, decisions were made on a joint basis based on the collective opinions of the meeting participants.

15) HB 6 was signed into law by Governor DeWine in July 2019 and becomes effective October 22, 2019. Among other things, HB 6 eliminates the distinction between solar RECs and other compliance RECs effective for the 2020 compliance year. Historically, the price for Ohio solar compliance RECs has been higher than non-solar compliance RECs. This could present an opportunity for DEO to sell solar RECs that are not needed for 2019 compliance and to credit the cost of the solar RECs that are no longer needed for compliance beyond 2019 against compliance costs.

16) HB 6 also eliminates the Ohio alternative energy compliance mandate after 2026 at 8.5%. This will presumably affect the number of RECs that DEO will need for future compliance.

17) HB 6 has the potential to impact the number of RECs that the Company would need to purchase going forward. Specifically, DEO stated that House Bill 6 has affected its decision to purchase RECs in the current market. [redacted]

18) DEO's compliance costs are limited to 3% of the cost of the non-renewable energy that is supplied to SSO customers, with a sales baseline matching that for the REC obligation. For 2017, the cost cap totaled [redacted]. The total costs of RECs was [redacted] million, which was well below the cost cap. For 2018, the cost cap totaled [redacted] million,

while the total costs of RECs in 2018 was [redacted] million, which was well below the cost cap.

19) For 2017, DEO's Renewable Strategy and Compliance ("RSC") team considers [redacted] to be a reasonable threshold for solar REC purchases, but any purchases are subject to continuous monitoring of market prices. During 2017, [redacted] Therefore, during 2017, DEO's solar threshold was [redacted] The Company's procedures required that the Fuel and System Optimization team shall seek the guidance and approval of the Renewable Strategy and Compliance team prior to purchasing solar and non-solar RECs that are above the solar and non-solar thresholds. These procedures provide an additional safeguard that the RECs to be purchased for RPS compliance will be made at a reasonable cost.

20) For 2018, DEO's RSC team still considered [redacted] to be a reasonable threshold for solar REC purchases, but any purchases are subject to continuous monitoring of market prices. During 2018, [redacted] Therefore, during 2018, DEO's solar threshold was [redacted] Similar to 2017, the Company's procedures required that the Fuel and System Optimization team shall seek the guidance and approval of the Renewable Strategy and Compliance team prior to purchasing solar and non-solar RECs that are above the solar and non-solar thresholds.

21) The [redacted] per solar REC in 2017 and 2018, respectively, was set as a reasonable limit by the Company as an internal check. The statutory amount per solar REC was $250 for 2017 and 2018 per the provisions of Senate Bill 310.

22) According to DEO's Contracting Principles, Guidelines and Strategy, [redacted]. For 2017, the Company's Alternative Energy Portfolio Status Report reflected a non-solar ACP of $50.24. For 2018, this amount was $51.31. DEO stated that [redacted] amounts are for internal management purposes only and represents the non-solar threshold and that the Company's Fuels and System Optimization group shall seek guidance and approval from the Renewable Strategy and Compliance group prior to purchasing RECs. As for the $50.24 and $51.31 amounts, the Company indicated that the non-solar ACP is adjusted annually by the PUCO.[6]

23) The solar and non-solar ACPs noted in the two prior findings had no impact on Rider AER-R in either 2017 or 2018 because all of the Company's purchases of RECs in 2017 and 2018 were at a cost that was less than the pre-determined thresholds.

24) The Company did not have any biomass fuel testing or biomass generation in 2017 or 2018.

[6] Refer to Case Nos. 17-0531-EL-ACP (2017) and 18-0730-EL-ACP (2018).

25) The Company did not have any biodiesel fuel testing or biodiesel generation during 2017 or 2018.

26) The Company did not self-generate any renewable power during 2017 or 2018 that produced RECs.

27) According to the response to LARKIN-DR-02-005, the Company retired 145,372 non-solar RECs and 6,509 solar RECs in the PJM-GATS tracking system for 2017 Ohio renewables compliance. These amounts are also reflected in the Company's 2017 Annual Alternative Energy Portfolio Status Report that was filed on April 12, 2018.

28) According to the response to LARKIN-DR-02-005, the Company retired 181,263 non-solar RECs and 7,553 solar RECs in the PJM-GATS tracking system for 2018 Ohio renewables compliance. These amounts are also reflected in the Company's 2018 Annual Alternative Energy Portfolio Status Report that was filed on March 27, 2019.

29) Staff asked Larkin to review the interaction of the Company's AEPS compliance program and its Green Pricing program, both of which involve the purchase of RECs, for regulatory issues such as potential double-counting of RECs and/or cross-subsidization between the two programs. On May 9, 2007, the Commission approved DEO's Green Pricing option, GoGreen Power, for a pilot program that began in July 2007 and was originally set to run through December 31, 2008. The pilot program was extended through 2011 per the Commission's Opinion and Order dated December 17, 2008 in Case Nos. 08-920-EL-SSO, et. al. Subsequent to the end of the pilot program, GoGreen Power was fully implemented by the Commission in its Opinion and Order dated November 22, 2011 in Case No. 11-3549-EL-SSO.

30) DEO's website www.duke-energy.com/ohio describes the GoGreen Power program as follows: "Purchase a minimum of two 100-kilowatt hour (kWh) blocks of green power for just $2 a month, reducing almost 400 pounds of carbon dioxide emissions per month into the atmosphere."

31) Although GoGreen Power is not a Green-e® certified product[7] per the response to LARKIN-DR-01-048,Larkin confirmed that DEO purchased the RECs for GoGreen from Green-e® certified suppliers in both 2017 and 2018.

32) Generally, different groups of personnel at DEO are responsible for (1) the Ohio renewables compliance requirements, and (2) the GoGreen Power program. However, Duke Energy's Senior Emissions Trader is responsible for executing orders for REC purchases for both Ohio RPS compliance and for the GoGreen Power program.

33) The GoGreen Power program had participation levels totaling 7,250,900 kWh in 2017 and 7,079,900 in 2018.

[7] When a renewable energy product is sold as Green-e® Energy Certified, it means that seller has a contract with Green-e® Energy and agrees to abide by all Green-e® Energy rules. The seller must undergo annual verification of its renewable energy supply and sales, and the product offered was generated by resources that are eligible under the Green-e® Renewable Energy Standard for Canada and the United States.

34) The GoGreen Power program related RECs are purchased on the open market by the Duke Energy Senior Emissions Trader via from third party suppliers that are Green-e certified, via a broker transaction. In each year 2017 and 2018, a GoGreen Power purchase of 21,000 wind RECs was made to cover Duke Energy GoGreen Power programs in Ohio, Kentucky and Indiana, and allocated 9,000 of those RECs in each year to the Ohio GoGreen program.

35) For both 2017 and 2018, the GoGreen Power RECs were retired in the MRETS tracking system.

36) According to the MRETS tracking system report which reflects the retired GoGreen Power RECs, 3 Degrees is the wholesale counterparty that retired RECs on behalf of DEO's GoGreen customers in 2017. Carbon Solutions Group LLC is the wholesale counterparty that retired RECs on behalf of DEO's GoGreen customers in 2018.

37) The Company's GoGreen Power program is a relatively low volume program whereby one bulk purchase of RECs is made on behalf of the Company's GoGreen customers for each year. The bulk purchase is tracked until the RECs are retired under the GoGreen program. Then additional blocks are purchased. DEO stated that REC purchases for the GoGreen Power program occur once a year on average. Purchases of RECs for the DEO Ohio GoGreen Power program are combined withREC purchases for Duke GoGreen Power programs in Kentucky and Indiana.

38) Per the responses to LARKIN-DR-01-051 and LARKIN-DR-01-052, the 2017 and 2018 GoGreen Power related RECs were retired through the MRETS tracking system whereas the RECs for Ohio AEPS compliance were retired through the PJM-GATS system, which provided an additional separation feature between GoGreen Power and Ohio renewables compliance (i.e., through the use of a different tracking system).

39) Larkin confirmed by a review of the specific generating facilities and the REC certificate serial numbers of the RECs retired for the Ohio renewables compliance requirement (through PJM-GATS) and the GoGreen Power REC retirements in MRETS that there was no duplication of RECs between the two programs nor was there any transfer of RECs between the two programs.

40) As discussed in Chapter 3, Larkin concludes that the Company's purchase of RECs in 2017 and 2018 for RPS compliance was reasonable.

41) As discussed in Chapter 3, Larkin concludes that the Company's management and procurement of RECs for RPS compliance during 2017 and 2018 has been reasonable.

Management Audit Recommendations

1. The Company should continue to monitor market compliance, REC inventory, and RPS compliance requirements and to maintain documentation such as it has been doing in its monthly RPS compliance meetings.

   Duke response: Agree

2. We recommend that DEO evaluate the impacts of the HB 6 legislation that was signed into law by Governor DeWine on July 23, 2019. Specifically, we recommend that DEO evaluate its current REC inventory for compliance in 2019 and for the 2020 through 2026 period in terms of sufficiency to meet the revised requirements. The Company should evaluate whether Ohio solar RECs for RPS compliance in years 2020 are contained in the current inventory and, if so, whether those could be sold and replaced with lower-cost RECs to meet revised compliance requirements. DEO should prepare and retain documentation of its evaluation of HB 6, including adjustments to its strategies for maintaining a REC inventory and for purchasing RECs in 2019 for 2019 and 2020-2026 RPS compliance. The documentation prepared and maintained by DEO should be reviewed in conjunction with the phase 2 (2019) audit.

    Duke response: Agree

3. For its 2020 through 2026 RPS requirements, after considering the impacts of HB 6 the Company should evaluate and consider whether a dollar cost averaging approach[8] could result in overall systematic cost savings in periods in which REC market based costs are increasing or fluctuating in a manner that is difficult to accurately forecast.

    Duke response: *In response to LARKIN-DR-06-001, the Company stated that it has considered dollar cost averaging for meeting its compliance needs and indicated that the pros of using this approach is that dollar cost averaging helps protect the Company from market fluctuations and that it can keep traders from making emotional decisions. However, DEO also discussed the following cons with using this approach:*

    - *Dollar cost averaging requires a robust set of willing buyers and sellers in the market. Ohio seems to only have periodic buyers and trading can be light on most days. For example, Duke Energy Ohio has only had a handful of purchases over the past year. The market is still very much a bilateral market which most of the time requires an OTC broker to match up buyers and sellers. If a regular buyer were to utilize dollar cost averaging and purchase a set amount of RECs each month, they may purchase all of the cheap/reasonable offers and have to pay well above market for the next block of RECs.*
    - *The lack of regulatory certainty around Ohio RPS rules has triggered Duke Energy Ohio and other compliance buyers to focus on near term markets. Dollar cost averaging is a longer term purchasing strategy and a way to build a portfolio in a liquid market. Due to the uncertainty*

[8] Dollar cost averaging is generally a strategy in which an investor places a fixed dollar amount into a given investment (usually common stock) on a regular basis. As it relates to DEO's REC purchases, a dollar cost averaging type approach to acquiring RECs for compliance would be where DEO would buy a set dollar amount or a specified number of RECs each month to reach the quantities needed for compliance.

around the future of Ohio RPS rules, Duke Energy Ohio has an interest in keeping their commitments relatively short term.

- *Purchasing via a dollar cost averaging approach would increase the overall number of transactions that the Company must make to reach compliance. This in turn would increase the amount of broker fees and administration expenses.*
- *The Company is happy with its current success in procuring sufficient RECs to cover compliance requirements via short term spot transactions. Utilizing market knowledge and relationships with market participants to purchase RECs as needed has helped DEO put together a solid, low cost compliance portfolio.*

In terms of whether the Company believes that adopting a dollar cost averaging approach could help mitigate the impact of REC price volatility, DEO stated that it believes that given a long-term time horizon, any consistent buying program, whether daily, monthly or yearly helps to mitigate price volatility. However, the regulatory uncertainty over the last five years causes the Company to continue to buy shorter term fixed price spot supplies until a more certain regulatory environment exists. DEO asserts this would also result in a more quantifiable annual volume requirement

4. For both years 2017 and 2018 the Company's year-end adjustment for RPS compliance resulted in putting RECs that had been accounted for as a cost of RPS compliance during the years back into the REC inventory. The response to LARKIN-DR-02-017 indicates that this was due to over-estimating RPS compliance requirements during the year attributable to over-forecasting retail load and the impact of customer switching.

   The add back is a consequence of forecasts for non-switched load that have been higher than what has occurred during the years mentioned. Within each customer class, fixed allocations are used to apportion the MWH forecast between switched- and non-switched customers, and it's clear that the allocation % for residential customers of 50.9% is much higher than what has recently occurred. In the graph below-which presents the share of residential sales that are to non-switched customers over time-it can be seen that a very sudden drop occurred in later 2017 after several years of apparent stability around that 50.9% figure. During preparation of the most recent forecast, that drop appeared transitory because of a subsequent rebound, but that rebound now appears to have been inadequate.

> One method to mitigate the problem going forward would be to use a lower fixed allocation percentage for residential sales, perhaps one based on an average of the most recent one or two years. An alternative method--one that is much more difficult and subject to greater uncertainty-would be to employ modeling to attempt to forecast the continued decline of this share over time.

The Company should evaluate ways in which its forecasting can be improved to address RPS compliance needs for future years and avoid the forecast bias noted above that resulted in adjustments to put REC cost back into inventory in 2017 and 2018 after noting that the actual quantities of RECs needed for compliance at year-end were less than were recorded as REC consumption cost during the year.

It should be noted that the quarterly Rider AER-R filings include a reconciliation component to account for the adjustments to add back REC costs into inventory. However, improved forecasting could lead to a more stable Rider AER-R rate.

5. For the Ohio GoGreen Program, we recommend that the Company consider implementing (or continuing) the following:

   - Record the difference between program revenue and cost into a regulatory liability (or asset) account. We noted in 2017 and 2018 that there was an amount left after subtracting program costs from revenue. This accounting will ensure that all of the money collected via the GoGreen tariff is used for the program, and not applied for some other purpose (such as increasing shareholder profit).

- Evaluate the allocation of the annual GoGreen REC purchases for the Ohio program. GoGreen REC purchases have been made once per year for the Ohio, Kentucky and Indiana programs. The allocations to the Ohio GoGreen (9,000 RECs per year, were more than needed in each year 2017 and 2018).
- Continue to make GoGreen REC purchases separately from Ohio RPS compliance purchases and at different times.
- Continue to purchase GoGreen RECs that are Green-e® Certified and which can be retired specifically for the GoGreen program in M-RETS. This will help continue the separation of GoGreen RECs from those purchased for Ohio RPS compliance (which are retired in PJM-GATs). The Green-e® Certification provides confidence that the RECs come from a "green" source (such as wind) and the chain of transfer has been documented. In recent years, the GoGreen RECs have been purchased from a Green-e® Certified supplier. DEO's program manager has noted that there is a slight premium but not much difference from purchasing Green-e® Certified RECs for the program. Should a large premium begin to manifest, DEO should at that point re-examine this strategy.

Financial Audit Findings

1) Larkin reviewed DEO's quarterly Rider AER-R filings, which covered the quarterly forecast periods, for calendar years 2017and 2018 as well as the first and second quarters of 2019.[9] Our review also included DEO's calculations of the reconciliation components that relate to its prior quarterly filings. Specifically, Larkin's review of DEO's reconciliation calculations included verification to actual recorded results for the months of January through December 2017 as well as January through December 2018.
2) Larkin traced the monthly 2017 and 2018 Rider AER-R related revenues and expenses from the Rider AER-R reconciliation schedules to the general ledger detail that was imported from the Company's Peoplesoft accounting system. No exceptions were noted.
3) For 2017, DEO reported total REC expense of $1,982,608 and overall compliance administrative expenses of $18,994. The administrative expense consisted of brokerage fees totaling $1,770 tracking system participation expenses totaling $1,500, and audit fees totaling $15,724.

[9]The forecasted rates for Rider AER-R for the first and second quarters of 2019 are beyond the scope of this audit. However, the first quarter 2019 Rider AER-R filing contains the reconciliation for the third quarter of 2018 and the second quarter 2019 Rider AER-R filing contains the reconciliation for the fourth quarter of 2018, which were reviewed because they relate to actual costs for 2018.

4) For 2018, DEO reported total REC expense of $1,587,743 and compliance expense of $1,500, which related to tracking system participation expense. The Company did not include any brokerage fees or audit fees in Rider AER-R during 2018.

5) For 2017, Larkin traced the audit fees to invoices provided by DEO. In addition, DEO provided a copy of its brokerage expenses and PJM GATS tracking system subscription fee related invoices in its responses to LARKIN-DR-01-036 and LARKIN-DR-02-002.

6) For 2017 and 2018, Larkin traced the PJM GATS tracking system subscription fees to the related invoices, which were provided in the response to LARKIN-DR-01-036. No exceptions were noted.

7) For 2017, DEO included audit fees of $8,023 and $7,701 in March and May, respectively for total audit fees of $15,724 in Rider AER-R during 2017. DEO provided a copy of an invoice that Larkin had submitted to DEO pursuant to the 2016 review of Rider AER-R in response to LARKIN-DR-01-003. This invoice, which is dated May 4, 2017 reflects the $7,701 of audit fees shown in the exhibit above. With regard to the $8,023 recorded in March 2017, this amount results from the Company implementing Larkin's recommendation from the 2016 audit to remove $7,026 of audit fees that were not actually billed to DEO for that prior audit. In other words, Larkin submitted an invoice in March 2017 in the amount of $15,049 and subtracting the $7,026 noted in the 2016 audit reduces this amount to the $8,023 that is shown on Schedule B of the Company's Excel workbook.

8) The Company calculated 2017 and 2018 Rider AER-R related carrying costs by taking the average of the beginning and ending combined monthly solar and non-solar REC inventory balances and multiplying the result by 1/12 of the cost of debt of 5.32%, which had been approved by the Commission in Case No. 12-1682-EL-AIR, et. al. There are no carrying costs calculated on the over/under collection amounts that resulted from the Company's reconciliation adjustments.

9) For 2017, DEO calculated Rider AER-R carrying costs totaling $198,795, using the cost of debt of 5.32%. Larkin recalculated DEO's Rider AER-R carrying charges for 2017. No exceptions were noted.

10) For 2018, DEO calculated Rider AER-R carrying costs totaling $138,913, using the cost of debt of 5.32%. Larkin recalculated DEO's Rider AER-R carrying charges for 2018. No exceptions were noted.

11) The Company maintains the following two REC inventories, at weighted average cost:

    1. Non-Solar RECs
    2. Solar RECs

12) Only REC purchase costs are included in the REC inventory. The Company did not use renewable purchased power agreements to meet its 2017 or 2018 RPS requirements, and instead used unbundled REC purchases to fulfill its obligation.

13) The Company does not self-generate any RECs for Ohio RPS compliance.

14) The Company reports the retirement of its RECs for Ohio RPS compliance through the PJM-GATS tracking system.

15) For accounting purposes, RECs are consumed monthly and the cost is included in Rider AER-R. RECs consumed for Ohio compliance are retired in PJM-GATS for the annual compliance filing generally in April of the following year, e.g., RECs consumed for 2017 RPS compliance were retired in PJM-GATS in April 2018, which corresponds with the annual RPS compliance filings. However, RECs consumed for 2018 RPS compliance were retired in PJM-GATS in March 2019, which is when DEO filed its annual RPS compliance filing for 2018.

16) Larkin obtained and reviewed the invoices related to the Company's purchase of RECs from third party suppliers during 2017 and 2018, which we traced back to DEO's REC third party supplier workpapers. No exceptions were noted.

17) The Company contracted to purchase [redacted] non-solar RECs and [redacted] solar RECs during 2017. Of the solar RECs, there were [redacted] transactions in which DEO paid [redacted] per REC for a total of [redacted] RECs that it contracted to purchase from [redacted] In response to LARKIN-DR-02-011, DEO stated that the [redacted] cost solar RECs were related to [redacted]

18) Larkin obtained copies of the Company's PJM-GATS 2017 and 2018 tracking system reports in the response to LARKIN-DR-02-005. Larkin tied the 2017 and 2018 RECs retired for Ohio compliance to the Company's Annual Alternative Energy Portfolio Status Reports for 2017 and 2018. No exceptions were noted.

19) There were no changes to the GoGreen Power Program during 2017 or 2018.

20) During both 2017 and 2018, 21,000 RECs were purchased on behalf of Duke Energy for the GoGreen Power program for Ohio, Kentucky and Indiana. The responses to LARKIN-DR-01-049 and LARKIN-DR-01-050 stated that of the 21,000 RECs, 9,000 were purchased on behalf of DEO while the remaining 12,000 RECs were purchased on behalf of Duke Energy GoGreen Power customers in Indiana and Kentucky.

21) The MRETS tracking system report provided in the response to LARKIN-DR-01-049 indicates that the account is owned by 3Degrees, the wholesale counterparty who retired the 21,000 GoGreen Power RECs on behalf of Duke Energy's GoGreen customers for 2017. As noted above, 9,000 of the 21,000 GoGreen Power RECs were retired on behalf of DEO.

22) The MRETS tracking system report provided in the response to LARKIN-DR-01-050 indicates that the account is owned by Carbon Solutions Group LLC, the wholesale counterparty who retired the 21,000 GoGreen Power RECs on behalf of Duke Energy's GoGreen customers for 2018. As noted above, 9,000 of the 21,000 GoGreen Power RECs were for DEO. The quantities of GoGreen RECs needed for 2017 and 2018 were lower than the 9,000, as noted below in paragraph 25. The excess is rolled forward to the next calendar year.

23) The tracking and retirement of the GoGreen Power RECs through a tracking system depends on the location of the third-party suppliers from which DEO purchases its GoGreen Power RECs. The responses to LARKIN-DR-01-049 and LARKIN-DR-01-050, confirmed by Larkin’s review, indicates that the 2017 and 2018GoGreen RECs were retired through the MRETS tracking system.

24) Larkin obtained and reviewed Company-generated Excel workpapers which track the GoGreen Power related RECs that were retired in 2017 and 2018 on a monthly aggregated basis. According to these workpapers, MRETS, on behalf of DEO, retired 7,251 GoGreen Power related RECs in 2017 and 7,080 GoGreen Power related RECs in 2018.

25) The GoGreen Power RECs were retired through MRETS and the RECs retired for Ohio RPS requirements were retired through the PJM-GATS tracking system in 2017 and 2018. Despite the two sets of RECs being retired in two different systems, Larkin compared the facility locations and certificate serial numbers of the GoGreen Power RECs that were retired in MRETS to those RECs retired for Ohio compliance purposes that were retired in PJM-GATS to confirm that no double counting of RECs occurred in 2017 or 2018 between the two programs. This comparison confirmed that distinct specific RECs with different serial numbers were used, i.e., there was no double-counting.

26) A Duke Energy senior emissions trader executes the orders for GoGreen Power REC purchases and such RECs are purchased on the open market by a separate broker who then sells the RECs to DEO. The same senior emissions trader communicates with and executes trades for the DEO Ohio renewables compliance program.

27) Larkin noted some minor errors when reviewing the Company’s GoGreen accounting data. However, we consider the errors to be immaterial.

28) The third party suppliers that provide the RECs on behalf of DEO for GoGreen are Green-e certified.

29) During 2017 and 2018, DEO did not record any impairment on its REC inventory.

30) In its Rider AER-R quarterly filings, the Company determines the projected Weighted Average Cost of Inventory (“WACI”) by taking the value of its non-solar and solar REC inventory balances from three months prior and then divides those values by the quantities. For example, the projected WACI in the second quarter 2017 Rider AER-R filing (April-June) was calculated using the non-solar and solar REC inventory balances from January 2017. Larkin tested these calculations for the 2017 and 2018 review periods. No exceptions were noted.

31) The Company provided a final reconciliation between the per books REC inventory and the PJM-GATS REC inventory that related to the 2017 and 2018 annual compliance

filings. The reconciliation between the Company's per books REC inventory and the PJM-GATS REC inventory netted no differences. Larkin tied the per books REC inventory amounts to the inventory worksheets provided in LARKIN-DR-01-010.

32) DEO has historically accounted for its portfolio of emissions allowances as intangible assets, and concludes that it is appropriate to account for RECs in a similar manner. Larkin concurs with DEO's conclusion.

Financial Audit Recommendations

1. As noted above under the Management Audit Recommendations, for the Ohio GoGreen Program, we recommend that the Company consider implementing (or continuing) the following:

   - Record the difference between program revenue and cost into a regulatory liability (or asset) account. We noted that in 2017 and 2018,there was $30,732 and $30,636, respectively (a total of $61,368), remaining after subtracting program costs from revenue. This accounting will ensure that all of the money collected via the GoGreen tariff is used for the program, and not applied for some other purpose (such as increasing shareholder profit).

2. Compliance with the prior audit financial recommendations related to RPS compliance should continue. We have no new financial audit recommendations based on the review of 2017 and 2018 DEO RPS compliance revenue and cost information.

Audit Review

A draft of the audit report was provided to the Company for review. The auditors appreciated the Company’s efforts and every factual issue raised by the Company was addressed. The Company in its comments noted that it did not verify every number in the report and reserved its rights regarding any future process with respect to the report. If additional issues concerning the report that have not been identified to date are subsequently raised by the Company, the auditors reserve the opportunity to respond.

Audit Outline

The outline of the remainder of this audit report is as follows:

- Section 2 Duke Energy Ohio Background
- Section 3 Management/Performance Audit of Rider AER-R
- Section 4 Financial Audit of Rider AER-R
- Section 5 GoGreen Power Pricing Program

2 DUKE ENERGY OHIOBACKGROUND

Overview

Duke Energy, which is headquartered in Charlotte, North Carolina, is one of the largest electric power holding companies in the United States, supplying and delivering energy to approximately 7.7 million customers in the United States. The Company has approximately 50,880 megawatts of electric generating capacity in the Carolinas, Midwest, and Florida as well as natural gas distribution services serving more than 1.6 million customers in Ohio, Kentucky, Tennessee, and the Carolinas. In addition, Duke Energy's commercial and international businesses own and operate diverse power generation assets in North America and Latin America, which includes a portfolio of renewable energy assets.

On February 18, 2016, Duke Energy announced it had initiated a process to divest its International Energy business segment with the exception of its investment in National Methanol Company, in which International Energy holds a 25% interest. In December 2016, Duke Energy completed its divesture through two transactions: (1) a sale of Duke Energy’s remaining Latin American assets in Peru, Chile, Ecuador, Guatemala, El Salvador, and Argentina to I Squared on December 20, 2016 and (2) a sale of assets in Brazil to CTG on December 29, 2016.

In October 2016, Duke Energy completed its acquisition of Piedmont. Piedmont is an energy services company whose main business is the distribution of natural gas to over 1 million residential, commercial, industrial, and power generation customers in portions of North Carolina, South Carolina, and Tennessee.

Duke Energy Renewables develops wind and solar energy solutions for customers throughout the United States. The Company's wind and solar farms, which are located in 12 states, account for more than 2,000 megawatts of emission-free electricity.

DEO is an electric distribution utility ("EDU") as defined by R.C. 4928.01(A)(6)and a public utility as defined in R.C. 4905.02, and is subject to the jurisdiction of the PUCO.

On December 17, 2008, the Commission approved DEO's Electric Security Plan Standard Service Offer ("ESP-SSO") which replaced the Market-Based Standard Service Offer, which was in effect from January 1, 2005 through December 31, 2008. The ESP-SSO was DEO's plan for the supply and pricing of electric generation service for the referenced three-year period, including the recovery of costs for fuel used to generate electricity, electricity purchased wholesale, emission allowances and federally mandated carbon taxes.

On January 1, 2012, the Standard Service Offer - Electric Security Plan ("SSO-ESP") was implemented and was in effect through May 31, 2015. The SSO-ESP assessed customer rates based upon fully competitive auctions and provided DEO with a non-bypassable stability charge from 2012 through 2014. The non-bypassable stability charge required DEO to transfer its generation assets at net book value to an affiliate or subsidiary by December 31, 2014.

On April 2, 2015, the Commission approved DEO's application to establish a standard service offer in the form of an Electricity Security Plan ("ESP") in Case No. 14-0841-EL-SSO, et al, for the period beginning June 1, 2015 through May 31, 2018.

On December 19, 2018, the Commission approved and adopted a stipulation signed by Duke, Commission Staff, and others, that, among other things, approved Duke's ESP, which was originally proposed in Case No. 17-1263-EL-SSO, et al. As approved, the term of the ESP is from June 1, 2018 through May 31, 2025, and calls for the renewal of Rider AER-R as detailed on Attachment C to the stipulation.

3 MANAGEMENT/PERFORMANCE AUDIT OF RIDER AER-R

Alternative Energy Portfolio Requirements

S.B. 221 included an Alternative Energy Portfolio Standard (R.C. 4928.64-65) which required 25 percent of all kilowatt hours of electricity sold by electric distribution utilities and electric services companies to retail electric consumers to be obtained from “alternative energy sources” by 2025. Alternative energy sources were defined as “advanced energy resources” and “renewable energy resources” that satisfy the applicable placed in-service requirement. The final Commission rules implementing the Alternative Energy Portfolio Standard were issued December 10, 2009. At least half of the alternative energy requirement must be satisfied from “renewable energy sources”, a specified portion of which must include solar.

The requirements were modified by S.B. 310 which was passed in May 2014 by the Ohio General Assembly. Pursuant to S.B. 310's passage, several provisions of the Ohio Revised Code, including those referenced above, were amended.[10] S.B. 310 does the following[11]:

- Froze for 2015 and 2016, the renewable and solar energy benchmarks (required of electric distribution utilities ("EDUs") and electric services companies ("ESCs") at the 2014 level required under prior law, and required the annual escalations to the benchmarks to resume in 2017 starting at the 2015 levels of prior law;
- Eliminated the option that EDUs and ESCs provide, by 2025, up to 12.5% of the former 25% alternative energy requirement from advanced energy;
- Extended the benchmark period by which EDUs and ESCs must provide 12.5% of their electricity supply from renewable energy resources by two years to 2027;
- Eliminated the requirement that at least one-half of the renewable energy resources implemented to meet the benchmarks must be met through facilities located in Ohio.
- Permits the renewable energy resources implemented to meet the benchmarks to be met either through facilities in Ohio or with resources shown to be deliverable into Ohio;

[10]Prior to the passage of S.B. 310, the Ohio compliance requirement was referred to as Alternative Energy Portfolio Standard ("AEPS"). However, subsequent to the passage of S.B. 310, the Ohio compliance requirement was changed to the Renewable Portfolio Standard ("RPS").
[11]The bullet points listed are from the S.B. 310 Bill Analysis for renewable energy and advanced energy requirements.

- Froze the solar energy compliance payment at $300 for 2014, 2015, and 2016 and resumed, in 2017, the gradual reduction of the payment amounts to a minimum of $50 in 2026 and thereafter;
- Required that recovery from customers of ongoing costs that are associated with EDUs' contracts to procure renewable energy resources, entered into before April 1, 2014, continue on a bypassable basis until the prudently incurred costs are fully recovered;
- Stated that renewable energy resources do not need to be converted to electricity in order to be eligible to receive RECs;
- Required that rules of the PUCO specify that for RECs, one megawatt hour of energy derived from biologically derived methane gas equals 3,412,142 British Thermal Units;
- Repealed the Alternative Energy Advisory Committee and its duty under prior law to study the alternative energy resources requirements and to submit a semiannual report to the PUCO;
- Permitted EDUs and ESCs to use a baseline of the compliance-year's sales to measure compliance with the renewable energy benchmarks, rather than the most recent three-year average of sales; and
- Required EDUs and ESCs that switch back to the three-year baseline to use that baseline for at least three consecutive years before again using the compliance year baseline.

The percentages required by year are provided in Exhibit 3-1 below.

Exhibit 3-1. Renewable Energy Benchmark Requirements as Amended by SB 310

Year	Renewable Energy	Minimum Solar
2009	0.25%	0.00%
2010	0.50%	0.01%
2011	1.00%	0.03%
2012	1.50%	0.06%
2013	2.00%	0.09%
2014	2.50%	0.12%
2015	3.50%	0.15%
2016	4.50%	0.18%
2017	5.50%	0.22%
2018	6.50%	0.26%
2019	7.50%	0.30%
2020	8.50%	0.34%
2021	9.50%	0.38%
2022	10.50%	0.42%
2023	11.50%	0.46%
2024	12.50%	0.50%
2025	12.50%	0.50%
2026	12.50%	0.50%

On July 23, 2019, Governor DeWine signed into law Amended Sub HB6. This legislation does not appear to have retroactively affected the 2017 or 2018 compliance years, which are the focus of the immediate audit. Moreover, the Company's monthly meetings indicate that the Company had been actively monitoring this legislation and had postponed purchasing RECs for future RPS compliance based on the uncertainty. The legislation does appear to change the RPS going forward in a number of ways. We therefore expect these changes to impact the Company’s practices moving forward and to therefore require review in phase 2 (i.e., 2019 compliance year) of the audit cycle.

Based on an initial review of Amended Sub HB6, the following are some examples of how this legislation alters the RPS:

1. It terminates the RPS program following the 2026 compliance year.
2. It alters (reduces) the annual benchmarks beginning with 2020, including the elimination of the solar carve-out.
3. It calls for a baseline reduction, if the company served any self-assessing purchasers
4. It calls for proportional reductions to the overall obligations, based on output from specific utility-scale solar projects.

These legislative changes would appear to impact DEO's planning of REC purchases and the Company's REC inventory strategy and purchases particularly for RECs to meet compliance requirements in the 2020 through 2026 period.

To ensure compliance with the alternative energy standards, utilities are required to file an annual report which details their performance. If the utility has failed to meet its requirements in any year and such under-compliance is deemed to have been avoidable, the utility will be assessed a monetary penalty referred to as the “alternative compliance payment” (“ACP”). The non-solar ACP was initially set at $45 per MWh and is adjusted annually by the PUCO according to changes in the Consumer Price Index. The solar ACP was initially set at $450 per MWh and is reduced by $50 every two years until it hits $50 per MWh in 2024.[12] ACPs are deposited into the Ohio Advanced Energy Fund which provides funding for renewable and energy efficient projects within the state.

Utilities can obtain relief from certain requirements and avoid paying the ACP if it demonstrates that compliance with the portfolio standard is “reasonably expected” to increase generating costs by three percent or more. In addition, a utility can obtain relief through the force majeure provisions which state that the PUCO has the ability to waive compliance if the utility can demonstrate that sufficient renewable energy products were not reasonably available in the market place.

DEO met the compliance in 2017 and 2018 with the alternative energy standards with purchased RECs and did not need to avail itself of the ACP.

[12]As noted above, with the passage of S.B. 310, the solar ACP was frozen at $300 for 2014, 2015, and 2016. Starting in 2017, the reduction of the solar ACP is to resume with the gradual reduction in payment amounts leveling off at $50 in 2026 and thereafter.

2016 Substitute House Bill 554

On May 19, 2016, legislation was introduced to the Ohio General Assembly to revise the requirements for renewable energy, energy efficiency, and peak demand reduction.

On December 27, 2016, Ohio Governor John Kasich vetoed SHB 554 in its entirety.

Because of the timing of the veto of Substitute HB 554, this did not affect DEO's decision to purchase compliance RECs in 2017 or 2018; however, other legislation was subsequently introduced which created uncertainty, as described below.

2017 House Bill 114 and Substitute House Bill 114

In March 2017 the Ohio House introduced legislation HB 114. Among other AEPS-related issues, the bill proposed the following:

- Eliminates the renewable energy mandate. Utilities and CRES providers **may** provide up to 12.5% of generation service from qualifying renewable sources, subject to a 3% cost cap (comparison to costs of other forms of generation).
- Provides an opt-out for all customers, thereby burdening utilities with the risk of non-recovery of costs for any renewable generation supply.

Substitute version of HB 114 (originally passed in March 2017) was accepted by the Senate Energy & Natural Resources Committee in mid-May 2018 and remained there throughout the rest of the year. Benchmarks must be mandatory for an indefinite time, but changes the benchmark percentages to stop increasing after 2022 when the overall requirement reaches 8.5% and the solar requirement reaches 0.34%. Current law includes stair-step increases through 2016, increasing to a total requirement of 12.5%.

As noted above, in late December 2016, Governor Kasich vetoed a bill that would have made renewable energy voluntary. Kasich was in office until January 14, 2019 and had vowed to keep the program and escalation in place through his tenure. The veto effectively removed the freeze and let compliance mandates escalate beginning in 2017.

Management Audit

Scope and Objectives

To accomplish the review of DEO's 2017/2018 Rider AER-R, the audit RFP guidelines provide that the management audit shall include the following items:

1) A review of the Company's RPS compliance planning activities during the audit period, including the schedule and process for evaluating compliance options;
2) A review of the REC and S-REC transactions entered into by the Company during the audit period, with an assessment as to the reasonableness of the transactions;
3) An assessment of the applicable REC and S-REC markets during the audit period;

4) A review of the Company’s compliance with recommendations from the prior audit, if applicable; and
5) A review of any other specific items as identified by the Commission or Staff.

Each of these items is discussed in the sections below.

1) A Review of the Company's RPS Compliance Planning Activities during the Audit Period, Including the Schedule and Process for Evaluating Compliance Options

The response to LARKIN-DR-01-005 stated that DEO does not purchase RECs under a purchase power agreement. During the interviews that were conducted at the Company's offices on May20, 2019, the Company stated that it purchases RECs on the open market. In its confidential response to LARKIN-DR-01-033, the Company provided the "Duke Energy Ohio, Inc. Contracting Principles, Guidelines, and Strategy documents for both 2017 and 2018.[13] In this document, the Company stated that its procurement strategy was established by the Renewable Strategy and Compliance ("RSC") team, in conjunction with the Company's Fuel and Systems Optimization ("FSO") team. Specifically, DEO stated that its procurement strategy is generally embodied in the following guidelines and principles:

<u>Overview</u>

1) DEO procures all energy and capacity for serving generation customers via an auction process and does not engage in power purchases outside of the auction process. [redacted]
2) The FSO team engages the market and purchases RECs under the direction of the RSC team.

<u>Market Engagement and Procurement Principles</u>

1) DEO seeks to comply with the AEPS while minimizing cost and risk borne by customers' unfettered ability to switch among different competitive energy service providers. [redacted]
2) [redacted]
3) [redacted]

[13] Except as noted elsewhere in this report, the DEO Contracting Principles, Guidelines and Strategy documents for 2017 and 2018 were identical.

4) [redacted]

5) [redacted]

6) The RSC and FSO teams meet monthly to discuss any proposed legislation, compliance positions and prevailing market conditions as it relates to the purchase of solar and non-solar RECs for Ohio renewable compliance. DEO maintains a written record of these discussions.

With regard to the sixth market engagement and procurement principle listed, pursuant to Larkin's recommendation in the 2016 audit whereby DEO should maintain a written record which memorializes all departmental meetings and/or conference calls related to compliance matters, beginning in March 2017, DEO started logging the minutes of these meetings so there is now a record of the discussions held and the decisions reached pursuant to those discussions.[14]

[redacted]

Exhibit 3-2. [redacted]

[redacted]

[redacted]

[redacted]

[14] The Company provided copies of the compliance meeting minutes dating back to March 2017 in its response to LARKIN-DR-02-007.

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

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- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Audit Period Compliance

According to the Company’s Annual Compliance Plan Status Reports for 2017 and 2018, DEO achieved compliance by meeting the 2017 and 2018 benchmarks for the Ohio RPS.

Annual Alternative Energy Portfolio Status - 2017

DEO provided its confidential Annual Alternative Energy Portfolio Status Report for 2017that was filed with the PUCO on April 12, 2018 in Case No. 18-0522-EL-ACPin its response to LARKIN-DR-01-044. The Company's 2017 compliance report stated that DEO achieved compliance by meeting the 2017 benchmark for the Ohio Renewable Portfolio Standard for both solar and non-solar renewables.

R.C. 4928.64(B) specifies that the baseline for a utility's compliance with the alternative energy resource requirements may be based upon the total kilowatt hours sold to the applicable consumers in the applicable compliance year, except that the Commission may reduce a utility's baseline to adjust for new economic growth in the utility's territory. Specifically, the Company's Renewable Energy requirement was calculated by applying the renewable energy standard multiplied by DEO's 2017 retail sales sold under its standard service offer.

To comply with this requirement, companies must surrender RECs from qualified resources (Note: 1 REC = 1 MWh) equal to the renewable obligation. Given that RECs have a five-year lifetime following their acquisition, surplus unused credits can be carried over and consumed in a following year.

The Company's 2017 renewable requirement and compliance is summarized in the following exhibit:[15]

[15] From Appendix B of DEO's 2017 Alternative Energy Portfolio Status Report filed on April 12, 2018 in Case No. 18-0522-EL-ACP.

Exhibit 3-3. 2017 Renewables Compliance Summary

Line	(A) Description	(B) MWh Sales
1	Baseline (2017 Sales)	4,339,477
2	2017 Statutory Compliance Obligation	
3	Non-Solar Renewable Benchmark	3.35%
4	Solar Renewable Benchmark	0.15%
5	2017 Compliance Obligation	
6	Non-Solar RECs Needed for Compliance	145,372
7	Solar RECs Needed for Compliance	6,509
8	2017 Retirements (Per GATS Data)	
9	Acquired Non-Solar RECs	145,372
10	Acquired Solar RECs	6,509
	2017 Alternative Compliance Payments	
11	Non-Solar, per REC (Case No. 17-0531-EL-ACP)	$ 50.24
12	Solar, per S-REC - per 4928.64(C)(2)(a)	$ 250.00
	2017 Payments, if applicable	
13	Non-Solar Total	$ -
14	Solar Total	$ -

As shown in the above Exhibit, DEO asserts that it met each of the 2017 alternative energy compliance obligations with 145,372non-solar RECs and6,509solar RECs.[16] DEO calculated its 2017non-solar and solar compliance obligations by multiplying its compliance year megawatt-hours of 4,339,477 by the non-solar and solar compliance obligation benchmarks of 3.35% and 0.15%, respectively. DEO indicates that it satisfied its 2017 renewable energy requirements through REC purchase transactions that were short-term in nature. However, the Company stated in its compliance report that it plans to employ any and all reasonable methods to assure ongoing compliance and that such tactics may be adjusted as necessary. In addition, DEO believes that maintaining flexibility with regard to its compliance strategies is necessary to provide the greatest certainty of compliance and to assure that the most cost-effective methods are implemented for the benefit of customers.

In its response to LARKIN-DR-02-005, DEO provided copies of the PJM-GATS tracking system reports, which provide the detail for the retirement of the solar and non-solar RECs associated with Ohio renewable compliance for 2017 and 2018. The PJM-GATS report for 2017 (Attachment a to the response to LARKIN-DR-01-044) provides a breakout of the non-solar and solar RECs, including certificate serial numbers, which ties out to the 145,372 non-solar RECs and 6,509 solar RECs that were needed for DEO's 2017 compliance obligation as reported in the

[16]The Commission Staff reviewed the Company's RPS compliance filing for 2017 and filed a report in Case No. 18-0522-EL-ACP.

Company's annual alternative portfolio status report that was filed on April 12, 2018.No exceptions were noted.

In accordance with Ohio Administrative Code Section (“O.A.C.”) 4901:1-40-03(C), whereby the Commission requires electric utilities and electric service companies to file a plan for compliance with future advanced and renewable energy benchmarks, the Company also submitted its Ten Year Baseline and Benchmark Forecast as Appendix A in its 2017 Annual Alternative Energy Portfolio Status Report. DEO's renewable energy and solar benchmarks for the next ten years are summarized in the exhibit below:

Exhibit 3-4. DEO's Forecasted 10-Year Retail Sales and Renewables Requirements from 2017 Annual Alternative Energy Portfolio Status Report

[redacted]

O.A.C. 4901:1-40-03(C) also requires that DEO include a discussion of any perceived impediments to achieving compliance with required benchmarks as well as suggestions for addressing any such impediments. In its 2017 annual compliance filing, DEO stated the following as it relates to impediments:

> Any impediments to achieving compliance in the near term are currently modest because the REC markets are well-supplied. Over the longer term, the bigger concern is with the uncertainty of future obligations, given the Company's continually-shifting load obligation (which, in turn, maintains the Company's bias towards short-term REC purchase contracts).

<u>Annual Alternative Energy Portfolio Status - 2018</u>

DEO provided its confidential Annual Alternative Energy Portfolio Status Report for 2018 that was filed with the PUCO on March27, 2019 in Case No. 19-387-EL-ACP in its response to LARKIN-DR-01-045. The Company's 2018 compliance report stated that DEO achieved compliance by meeting the 2018 benchmark for the Ohio Renewable Portfolio Standard for both solar and non-solar renewables.

R.C. 4928.64(B) specifies that the baseline for a utility's compliance with the alternative energy resource requirements may be based upon the total kilowatt hours sold to the applicable consumers in the applicable compliance year, except that the Commission may reduce a utility's baseline to adjust for new economic growth in the utility's territory. Specifically, the Company's Renewable Energy requirement was calculated by applying the renewable energy standard multiplied by DEO's 2018 retail sales sold under its standard service offer.

To comply with this requirement, companies must surrender RECs from qualified resources (Note: 1 REC = 1 MWh) equal to the renewable obligation. Given that RECs have a five-year lifetime following their acquisition, surplus unused credits can be carried over and consumed in a following year.

The Company's 2018 renewable requirement and compliance is summarized in the following exhibit:[17]

Exhibit 3-5. 2018 Renewables Compliance Summary

Line	(A) Description	(B) MWh Sales
1	Baseline (2018 Sales)	4,195,899
2	2018 Statutory Compliance Obligation	
3	Non-Solar Renewable Benchmark	4.32%
4	Solar Renewable Benchmark	0.18%
5	2018 Compliance Obligation	
6	Non-Solar RECs Needed for Compliance	181,263
7	Solar RECs Needed for Compliance	7,553
8	2018 Retirements (Per GATS Data)	
9	Acquired Non-Solar RECs	181,263
10	Acquired Solar RECs	7,553
	2018 Alternative Compliance Payments	
11	Non-Solar, per REC (Case No. 18-0730-EL-ACP)	$ 51.31
12	Solar, per S-REC - per 4928.64(C)(2)(a)	$ 250.00
	2018 Payments, if applicable	
13	Non-Solar Total	$ -
14	Solar Total	$ -

As shown in the above Exhibit, DEO asserts that it met each of the 2018 alternative energy compliance obligations with 181,263non-solar RECs and7,553solar RECs.[18] DEO calculated its 2018 non-solar and solar compliance obligations by multiplying its compliance year megawatt-hours of 4,195,899 by the non-solar and solar compliance obligation benchmarks of 4.32% and 0.18%, respectively. DEO indicates that it satisfied its 2018 renewable energy requirements through REC purchase transactions that were short-term in nature. However, the Company stated in its compliance report that it plans to employ any and all reasonable methods to assure ongoing compliance and that such tactics may be adjusted as necessary. In addition, DEO believes that maintaining flexibility with regard to its compliance strategies is necessary to

[17]From Appendix A of DEO's 2018 Alternative Energy Portfolio Status Report filed on March 27, 2019 in Case No. 19-387-EL-ACP.
[18]The Commission Staff reviewed the Company's RPS compliance filing for 2018 and filed a report in Case No. 19-387-EL-ACP.

provide the greatest certainty of compliance and to assure that the most cost-effective methods are implemented for the benefit of customers.

As noted above, in its response to LARKIN-DR-02-005, DEO provided copies of the PJM-GATS tracking system reports, which provide the detail for the retirement of the solar and non-solar RECs associated with Ohio renewable compliance for 2017 and 2018. The PJM-GATS report for 2018 (Attachment b to the response to LARKIN-DR-01-044) provides a breakout of the non-solar and solar RECs, including certificate serial numbers, which ties out to the 181,263 non-solar RECs and 7,553 solar RECs that were needed for DEO's 2018 compliance obligation as reported in the Company's annual alternative portfolio status report that was filed on March 27, 2019.No exceptions were noted.

In accordance with Ohio Administrative Code Section ("O.A.C.") 4901:1-40-03(C), whereby the Commission requires electric utilities and electric service companies to file a plan for compliance with future advanced and renewable energy benchmarks, the Company also submitted its Ten Year Baseline and Benchmark Forecast as Appendix B in its 2018 Annual Alternative Energy Portfolio Status Report. DEO's renewable energy and solar benchmarks for the next ten years are summarized in the exhibit below:

Exhibit 3-6. DEO's Forecasted 10-Year Retail Sales and Renewables Requirements from 2018 Annual Alternative Energy Portfolio Status Report

[redacted]

O.A.C. 4901:1-40-03(C) also requires that DEO include a discussion of any perceived impediments to achieving compliance with required benchmarks as well as suggestions for addressing any such impediments. In its 2018 annual compliance filing, DEO stated the following as it relates to impediments:

> Any impediments to achieving compliance in the near term are currently modest because the REC markets are well-supplied. Over the longer term, the bigger concern is with the uncertainty of future obligations, given the Company's continually-shifting load obligation (which, in turn, maintains the Company's bias towards short-term REC purchase contracts). In addition, uncertainty remains on the future of Ohio House Bill 114 and its impact on future compliance requirements.

2) A Review of the REC and S-REC Transactions Entered into by the Company during the Audit Period, with an Assessment as to the Reasonableness of the Transactions

RECs purchased generally are usable within a five-year period. Any RECs held by DEO at December 31, 2017 that were in excess of its 2017 Benchmarks will be applied to future year benchmarks.DEO uses the "First-In, First-Out" or FIFO method of accounting for its REC inventory whereby the Company applies its older RECs first for compliance purposes. DEO recovers the cost of its RECs throughout the year, but the RECs are not retired through PJM-GATS until the end of the compliance year.

DEO stated that it was not in a short position (i.e., needing to purchase additional RECs) in either 2017 or 2018with respect to its solar and non-solar RECs.[19] In order to determine whether DEO had adequate non-solar and solar RECs to be compliance during 2017 and 2018, Larkin requested that DEO provide the detail of its monthly positions for each month of 2017 and 2018. In its response to LARKIN-DR-01-023, the Company provided its monthly position reports, which are titled "Duke Energy Ohio - Renewable Energy Credit Position Summary" ("position reports"). In the position reports, DEO evaluated its current REC inventories against anticipated RPS requirements for nine years. For example, DEO's position reports compared its solar and non-solar REC inventories and contracted REC purchases with anticipated RPS compliance requirements for years 2017 through 2025.

According to the monthly position reports Larkin reviewed, [redacted]

The April and May 2019 meeting minutes that were discussed earlier in this report [redacted] However, as also previously discussed, HB 6 has the potential to impact the number of RECs that the Company would need to purchase going forward. We asked DEO whether and how HB 6 discussions affected the Company's decisions to purchase or not purchase RECs during the audit period and in its response to LARKIN-DR-02-009 DEO stated:

> House Bill 6 has affected Duke Energy Ohio's decision to purchase RECs in the current market. As discussed in the April and May 2019 Meeting Minutes [redacted] This legislation has the potential for utilities to opt out of the AEPS by paying a charge that would subsidize nuclear facilities. [redacted]

[19] See the responses to LARKIN-DR-01-025 and LARKIN-DR-01-026.

Audit Period Purchases

During the interviews, DEO's Senior Emissions Trader stated that his communications related to REC purchases, price discovery and/or broker queries were in the form of the monthly meetings with the compliance team and emails between the Company and its brokers. Upon reviewing the compliance meeting minutes, which were provided in response to LARKIN-DR-02-007, Larkin noted that the prices listed in those minutes for solar RECs indicated price volatility between the period July 2017 and May 2019 as shown in the exhibit below:

Exhibit 3-7. Ohio Solar REC Prices July 2017 - May 2019

	Range of Market Prices	
Month	Bid	Offer
March 2017	None Stated	None Stated
April 2017	None Stated	None Stated
May 2017	None Stated	None Stated
June 2017	None Stated	None Stated
July 2017	$ 3.75	$ 3.75
August 2017	$ 4.25	$ 4.25
September 2017	$ 4.50	$ 4.50
October 2017	$ 4.50	$ 4.50
November 2017	$ 3.50	$ 4.25
December 2017	$ 5.00	$ 5.00
January 2018	$ 3.50	$ 4.50
Februrary 2018	$ 5.00	$ 5.25
March 2018	$ 5.00	$ 5.00
April 2018	$ 5.00	$ 5.25
May 2018	$ 5.50	$ 5.50
June 2018	$ 6.00	$ 6.00
July 2018	$ 8.00	$ 8.00
August 2018	$ 7.00	$ 7.00
September 2018	$ 8.00	$ 8.00
October 2018	$ 6.50	$ 6.50
November 2018	$ 6.50	$ 6.50
December 2018	$ 10.00	$ 13.00
January 2019	$ 10.00	$ 10.50
Februrary 2019	$ 10.50	$ 20.00
March 2019	$ 22.00	$ 28.00
April 2019	$ 22.75	$ 29.25
May 2019	$ 27.50	$ 32.50

Source: LARKIN-DR-02-007, Attachments 01 - 27

Larkin asked the Company whether it had any insights as to why the prices for Ohio solar RECs became so volatile (i.e., increased) so much during the period indicated in the exhibit above. In its response to LARKIN-DR-06-001, the Company stated that the market volatility was due to a combination of factors including:

- The lifting of the deferral in the escalation of the Ohio solar REC requirement (2015-2016) is showing up in buying interest for the 2019 and forward vintage Ohio solar RECs.

- Pennsylvania closed its state borders for local utilities to utilize RECs from other states for compliance. This action caused Pennsylvania REC prices to spike over Ohio prices, thus putting upward pressure on the Ohio market.

- General uncertainty around the future of the RPS requirement for the state of Ohio. Buyers may be taking a short-term compliance approach, which would push up prices as utilities purchase their RECs in the months prior to filings.

Larkin asked DEO whether it has considered utilizing a "dollar cost averaging" type approach to acquiring RECs for compliance whereby DEO would buy a set dollar amount or a specified number of RECs each month to reach the quantities needed for compliance. In response to LARKIN-DR-06-001, the Company stated that it has considered dollar cost averaging for meeting its compliance needs and indicated that the pros of using this approach is that dollar cost averaging helps protect the Company from market fluctuations and that it can keep traders from making emotional decisions. However, DEO also discussed the following cons with using this approach:

- Dollar cost averaging requires a robust set of willing buyers and sellers in the market. Ohio seems to only have periodic buyers and trading can be light on most days. For example, [redacted]. The market is still very much a bilateral market which most of the time requires an OTC broker to match up buyers and sellers. If a regular buyer were to utilize dollar cost averaging and purchase a set amount of RECs each month, they may purchase all of the cheap/reasonable offers and have to pay well above market for the next block of RECs.

- The lack of regulatory certainty around Ohio RPS rules has triggered Duke Energy Ohio and other compliance buyers to focus on near term markets. Dollar cost averaging is a longer term purchasing strategy and a way to build a portfolio in a liquid market. Due to the uncertainty around the future of Ohio RPS rules, Duke Energy Ohio has an interest in keeping their commitments relatively short term.

- Purchasing via a dollar cost averaging approach would increase the overall number of transactions that the Company must make to reach compliance. This in turn would increase the amount of broker fees and administration expenses.

- The Company is happy with its current success in procuring sufficient RECs to cover compliance requirements via short term spot transactions. Utilizing market knowledge and relationships with market participants to purchase RECs as needed has helped DEO put together a solid, low cost compliance portfolio.

In terms of whether the Company believes that adopting a dollar cost averaging approach could help mitigate the impact of REC price volatility, DEO stated that it believes that given a long-term time horizon, any consistent buying program, whether daily, monthly or yearly helps to mitigate price volatility. However, the regulatory uncertainty over the last five years causes the Company to continue to buy shorter term fixed price spot supplies until a more certain regulatory environment exists. DEO asserts this would also result in a more quantifiable annual volume requirement.[20]

With regard to the Company's non-solar REC purchases in 2017 and 2018, DEO provided an attachment in response to LARKIN-DR-01-016, which listed the third party suppliers from which it purchased non-solar RECs during 2017 and 2018, which are summarized in Exhibit 3-8 below.

Exhibit 3-8. Non-Solar REC Purchases During 2017 and 2018 Period

[redacted]

As shown in the exhibit above, the Company contracted to purchase [redacted] non-solar RECs during 2017 and 2018, respectively, for a grand total of [redacted] non-solar RECs. As discussed below, the Company did not purchase all of the non-solar RECs during the 2017-2018 review period.

With regard to the Company's solar REC purchases in 2017 and 2018, DEO provided an attachment in response to LARKIN-DR-01-016, which listed the third party suppliers from which it purchased solar RECs during 2017 and 2018, which are summarized in Exhibit 3-9 below:

[20] See the response to LARKIN-DR-06-001(c).

Exhibit 3-9. Solar REC Purchases During 2017 and 2018 Period

[redacted]

As shown in the exhibit above, the Company contracted to purchase [redacted] and [redacted] solar RECs during 2017 and 2018, respectively, for a grand total of [redacted] solar RECs. Similar to the non-solar RECs and as discussed below, the Company did not purchase all of the solar RECs during the 2017-2018 review period.

Of the 2017 solar RECs shown in Exhibit 3-9, the Company's Confidential attachment to LARKIN-DR-01-16(b) indicated [redacted] in the confidential response to LARKIN-DR-01-016(b). Larkin inquired about these transactions and in response to LARKIN-DR-02-011, DEO stated the following:

[redacted]

> [redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

> [redacted]

[21] The Company made a similar statement in its responses to LARKIN-DR-02-019 and LARKIN-DR-02-020.

[redacted]

In order to verify non-solar and solar REC purchases listed in the exhibits above, Larkin requested copies of the third party supplier invoices which relate to the non-solar and solar REC purchases listed. In response to Larkin's inquiry, the Company provided a Confidential Attachment in response to LARKIN-DR-07-003, which contained several invoices and related support. Upon reviewing the invoices and related support, Larkin traced the amounts back to DEO's REC third party supplier workpapers. No exceptions were noted.

3) An Assessment of the Applicable solar and non-solar REC Markets during the Audit Period

DEO's non-solar REC purchases during 2017 are summarized in Exhibit 3-8. The exhibit below shows a comparison of the price DEO paid for then on-solar RECs it purchased in 2017 (for delivery in 2018) as compared to the market prices that were compiled by Platts Megawatt Daily[22] for the same time period.

Exhibit 3-10. Comparison of DEO's Non-Solar REC Purchase During 2017-2018 to Market Prices

[redacted]

[redacted]

[22] Platts Megawatt Daily provides the North American power market's leading source of daily news and price information including 34 daily on-peak indexes, 29 daily off-peak indexes, spark spreads, daily market commentary and generation unit outages.

[23] [redacted]

Exhibit 3-11. Comparison of DEO's solar REC Purchase During 2017-2018 to Market Prices

DEO's solar REC purchases during 2017 and 2018 are summarized in Exhibit 3-9. The exhibit below shows a comparison of the prices DEO paid for the solar RECs it purchased in 2017 and 2018 as compared to the market prices that were compiled by Platts Megawatt Daily for the same time period.

[redacted]

It is important to note that the DEO solar and non-solar REC purchases shown in Exhibits 3-10 and 3-11 above reflect only those solar RECs that were purchased in 2017 and 2018 whereas the solar and non-solar RECs shown in Exhibits 3-8 and 3-9 include RECs that were purchased in years prior to 2017 and 2018, but for which DEO took delivery during the review period.

The chart in Exhibit 3-12 below reflects the trend in solar REC prices during 2017 and 2018 based on the market prices reflected in the Platts Megawatts Daily publications that coincided with DEO's solar REC purchases during 2017 and 2018.

Exhibit 3-12. [redacted]

[redacted]

The chart above shows that the solar REC market prices (per the Platts Megawatts Daily)fluctuated throughout the course of 2017 and 2018 and the [redacted].

The chart in Exhibit 3-13 below reflects an upward trend in non-solar REC prices during 2017 based on the market prices reflected in the Platts Megawatts Daily publications that [redacted]

Exhibit 3-13. [redacted]

[redacted]

The chart above shows that non-solar REC market prices (per Platts Megawatts Daily)increased throughout the course of 2017, [redacted]

During the interviews, the Company's Senior Emissions Trader stated that he uses brokerage pricing sheets as a measure for comparing current REC prices on the open market to the prices DEO pays for its REC purchases. Larkin requested copies of the brokerage sheets for 2017-2018, which were provided in response to LARKIN-DR-03-003. The brokerage pricing sheets provided are titled North American REC Markets and were published by Amerex Brokers, LLC. ("Amerex").[24] Among other things, the pricing sheets include information related to solar and non-solar REC prices for Ohio compliance for 2017 and 2018.

The chart in Exhibit 3-14 below reflects the trend in solar REC prices during 2017 and 2018 based on the market prices reflected in the Amerex publications that coincided with DEO's solar REC purchases during 2017 and 2018.

[24]Amerex Brokers, LLC is a leading energy brokerage and offers services in electricity, natural gas, emission credits and allowances, renewable energy credits, retail energy procurement, energy consulting, and energy data services.

Exhibit 3-14. [redacted]

[redacted]

The chart above shows that the solar REC market prices (per the Amerex publications) fluctuated throughout the course of 2017 and 2018 and that, similar to comparison shown above with respect to the Platts Megawatts Daily market prices, [redacted]

The chart in Exhibit 3-15 below reflects an upward trend in non-solar REC prices during 2017 based on the market prices reflected in the Amerex publications that [redacted]

Exhibit 3-15. [redacted]

[redacted]

The chart above shows that non-solar REC market prices (per the Amerex publications) increased throughout the course of 2017, [redacted]

Comparison of DEO AER-R Rates with AER Rates of Other Ohio Electric Utilities

Larkin obtained information from the Commission's Renewable Energy Portfolio Standard web site[25] and from the PUCO Staff concerning how DEO's AER-R rates during recent quarterly periods have compared with the other Ohio electric utilities' AER rates. The following exhibit shows the comparison for 2017 through 2Q2019:

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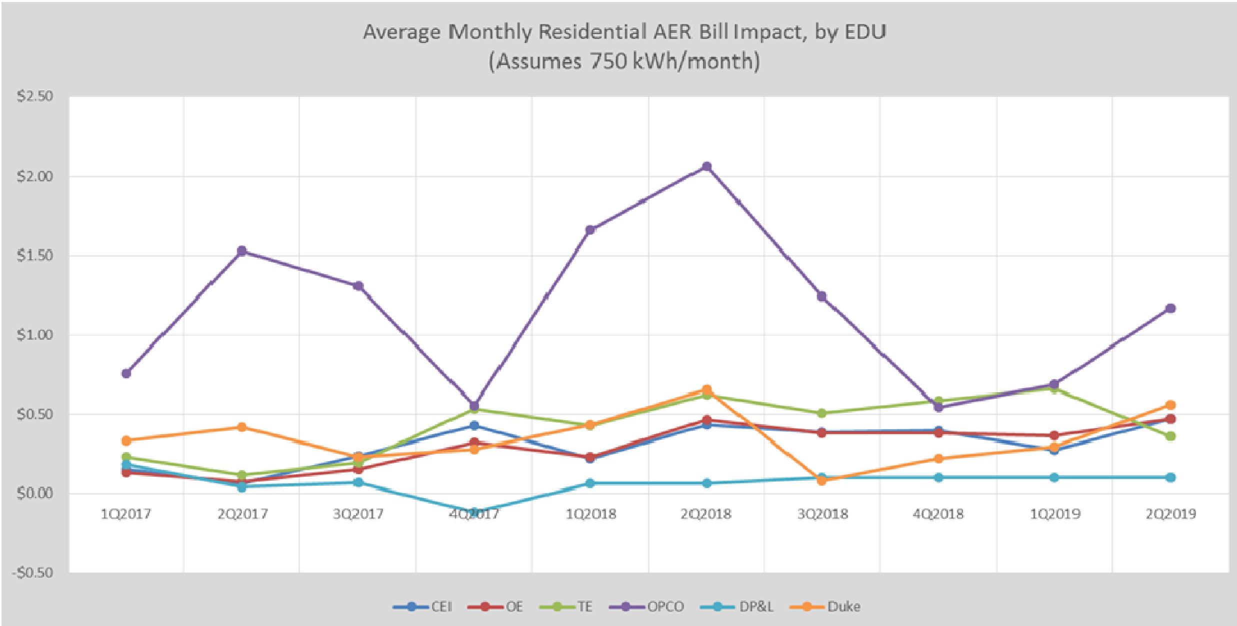
[25] See, e.g., https://www.puco.ohio.gov/industry-information/industry-topics/ohioe28099s-renewable-and-advanced-energy-portfolio-standard/renewable-portfolio-standard-rate-impacts-2nd-quarter-2019/

Exhibit 3-16. Rate Impact for 2017 through 2Q2019



DEO's AER rates during this period were notably lower than Ohio Power's but were higher than the rates for some of the other Ohio utilities during some of the quarterly periods.

A comparison of AER rates for the fourth quarter of 2018 is shown in Exhibit 3-17 below:

Exhibit 3-17. Comparison of AER Rates for Fourth Quarter 2018

Ohio Electric Distribution Utility AER Rates, 4th Quarter 2018

EDU	Source	AER Rate ($/kWh)	Average Monthly Bill Impact
Cleveland Electric Illuminiating	AER Filing	0.000527	$ 0.40
Dayton Power & Light [Note]	Revised Tariff Filing	0.000135	$ 0.10
Duke Energy - Ohio	AER Filing	0.000297	$ 0.22
Ohio Edison Company	AER Filing	0.000505	$ 0.38
Ohio Power Company	AER Filing	0.000725	$ 0.54
Toledo Edison Company	AER Filing	0.000785	$ 0.59

Source:

https://www.puco.ohio.gov/industry-information/industry-topics/ohioe28099s-renewable-and-advanced-energy-portfolio-standard/renewable-portfolio-standard-rate-impacts-4th-quarter-2018/

Note: Per 16-0395-EL-SSO, Dayton Power & Light's alternative energy component charge has been included as a component of the Standard Offer Rate instead of as a separate AER Tariff. The alternative energy component charge will be updated and reconiled on an annual basis. See Eighteenth Revised Tariff Sheet No. G-10, effective June 1, 2018.

A comparison of AER rates for the second quarter of 2019 is shown in Exhibit 3-18 below:

Exhibit 3-18. Comparison of AER Rates for Second Quarter 2019

Ohio Electric Distribution Utility AER Rates, 2nd Quarter 2019			
Electric Distribution Utility	**Source**	**AER Rate ($/kWh)**	**Average Monthly Bill Impact**
Cleveland Electric Illuminating	AER Filing	0.000621	$0.47
Dayton Power & Light [Note]	Revised Tariff Filing	0.0001354	$0.10
Duke Energy – Ohio	AER Filing	0.000743	$0.56
Ohio Edison Company	AER Filing	0.000627	$0.47
Ohio Power Company	AER Filing	0.0015599	$1.17
Toledo Edison Company	AER Filing	0.000483	$0.36
Source:			
https://www.puco.ohio.gov/industry-information/industry-topics/ohioe28099s-renewable-and-advanced-energy-portfolio-standard/renewable-portfolio-standard-rate-impacts-2nd-quarter-2019/			
Note: Per 16-0395-EL-SSO, Dayton Power & Light's alternative energy component charge has been included as a component of the Standard Offer Rate instead of as a separate AER Tariff. The alternative energy component charge will be updated and reconciled on an annual basis. See Eighteenth Revised Tariff Sheet No. G10, effective June 1, 2018.			

Conclusion: DEO's AER rate decreased notably from 2Q 2018 to 3Q 2018 when it was the lowest AER rate of the Ohio electric distribution utilities. DEO's AER rate has climbed steadily in the subsequent and most current three quarterly filings, 4Q 2018 through 2Q 2019. DEO's strategy of purchasing RECs to meet AER compliance requirements has consistently resulted in DEO having lower AER rates than Ohio Power Company, which has used a different strategy for compliance that has included renewable purchase power agreements.

Internal Audits

As previously noted, Rider AER-R commenced in 2012. The Company stated in its response to LARKIN-DR-01-046 that it had not conducted any internal audits related to Rider AER-R related revenues, costs, or purchases during the 2017-2018 review period.[26] Pursuant to the Finding and Order dated December 21, 2016, Larkin did not recommend that an internal audit of Rider AER-R be conducted for the 2017 review period. As part of the 2014/2015 audit of Rider AER-R, Larkin had recommended that an internal audit of Rider AER-R be conducted in 2016 and biennially thereafter to review the Rider AER-R processes and calculations. DEO's response to Larkin's recommendation was that the Company did not believe that a biennial internal audit of Rider AER-R was necessary since it has been ordered by the Commission that Rider AER-R be audited annually by Staff, or an independent auditor. In addition, DEO stated that the processes related to the recording of costs, purchases and revenues associated with Rider AER-R in DEO's financial records are part of the Company's normal SOX testing. In its Finding and Order dated December 21, 2016 in Case No. 15-1854-EL-RDR, the Commission concurred with the Company and therefore, Larkin did not make a similar recommendation for the 2016 review period nor is such a recommendation being made for the 2017-2018 review period.

4) A Review of Any Other Specific Items as Identified by the Commission or Staff

To our knowledge, no other items were identified by the Commission or Staff.

Conclusion

Based on our discussions with Company personnel and reviewing the information provided pursuant to those discussions coupled with the uncertainty that DEO faced with respect to HB 6, Larkin concludes that the Company's management and procurement of RECs for Ohio compliance during 2017 and 2018 was reasonable. Consequently, Larkin concludes that DEO's purchases of solar and non-solar RECs in 2017 and 2018 for Ohio compliance were reasonable.

[26] The response to LARKIN-DR-02-006 indicates that there also no internal audits conducted during the periods 2017, 2018 or 2019 to date concerning REC inventories nor the accounting procedures for REC inventory that was provided in response to LARKIN-DR-01-013.

4 FINANCIAL AUDIT OF RIDER AER-R

Financial Audit

Scope and Objectives

To accomplish the review of DEO's 2017 and 2018 Rider AER-R, the following aspects were included in the verification and testing:

1) Review the Company's AER-R quarterly filings during the audit periods to verify the accuracy of the information and calculations;
2) A review of the individual components (including, but not limited to, transactions of RECs or S-RECs and costs of implementing associated RFPs) that may have been included within the Company's Rider AER-R information and calculations in order to verify that the costs were appropriately included;
3) A review to verify the accuracy of information and calculations related to any carrying charges included in the Company's quarterly Rider AER-R calculations;
4) A sample of invoices for costs included in Rider AER-R to assure that only appropriately incurred costs were included in the rider;
5) Review the Company's status related to the 3% provision contained within R.C. 4928.64(C)(3);
6) Compare the costs recovered through Rider AER-R during the review period to the costs incurred;
7) A review of the Company's compliance with recommendations from the prior audit, if applicable; and
8) A review of any other specific items as identified by the Commission or its Staff.

Each of these items is discussed in the sections below.

Limited review of the components associated with DEO's GoGreen Power program that Larkin performed at the request of Staff is described in Chapter 5.

Minimum Review Requirements

Larkin referred to the objectives and procedures outlined in Attachment 2 of the RFP as guidance for the review requirements of this project. The Financial Audit Program Standards are intended to be used as a guide for the auditor in conformance with the specific requirements of the Rider AER-R and should not be used to the exclusion of the auditor's initiative, imagination, and thoroughness.

The information included here was used as guidance, in addition to appropriate discretion on the part of the auditor, in order to conduct the regulatory verification of DEO's renewables costs and REC inventory accounting in conformance with the specific requirements of the Company's Rider AER-R that applied for the 2017 and 2018 review periods. Larkin reviewed and applied relevant criteria in review of the Company's decisions and actions related to its RPS compliance activities.

The Alternative Energy Rider is intended to compensate DEO for compliance costs realized in meeting the renewable portfolio standards prescribed by R.C. 4928.64.

As part of its review of renewable energy resources, Larkin asked DEO a series of questions pertaining to its renewable energy purchases and RECs from an initial set of data requests LARKIN-DR-01-01 through LARKIN-DR-01-056 as well as eight sets of data requests in total (seven sets of follow up requests).

Period for Review of Renewables Cost and Rider AER-R

The audit period for DEO's renewables is the period January 1, 2017 through December 31, 2018. We reviewed the Company's renewables costs for 2017 and 2018. DEO's Rider AER-R was in effect for both years.

1) A Review of the Company's Rider AER-R Quarterly Filings during the Audit Period to Verify the Accuracy of the Information and Calculations

Larkin's review of DEO's quarterly AER filings covered the periods encompassing calendar years2017 and 2018.

Larkin noted that unlike some other Ohio utilities that have similar AER riders, DEO's quarterly filings are comprised of a cover letter and the tariff sheet which states the Rider AER-R rate and do not include details showing how the Rider AER-R rates were calculated. The following exhibit summarizes DEO's quarterly Rider AER-R filings covering both the forecast period as well as the actual renewables related costs and revenues (i.e., reconciliation) during the review period of January 1, 2017 through December 31, 2018.

Exhibit 4-1. Summary of DEO's Quarterly Filings for Rider AER-R During the 2017 and 2018 Review Periods

2017/2018 Rider AER-R Rates per Quarterly Filings			
Filing Date	**Forecasted Period**	**Rider AER-R Charge per kWh**	**Reconciliation Period**
November 29, 2016	1st Quarter 2017	$ 0.000444	3rd Quarter 2016
February 23, 2017	2nd Quarter 2017	$ 0.000559	4th Quarter 2016
May 25, 2017	3rd Quarter 2017	$ 0.000308	1st Quarter 2017
August 25, 2017	4th Quarter 2017	$ 0.000373	2nd Quarter 2017
November 21, 2017	1st Quarter 2018	$ 0.000581	3rd Quarter 2017
February 26, 2018	2nd Quarter 2018	$ 0.000876	4th Quarter 2017
May 24, 2018	3rd Quarter 2018	$ 0.000108	1st Quarter 2018
August 16, 2018	4th Quarter 2018	$ 0.000297	2nd Quarter 2018
November 29, 2018	1st Quarter 2019	$ 0.000398	3rd Quarter 2018
February 22, 2019	2nd Quarter 2019	$ 0.000523	4th Quarter 2018
February 28, 2019	2nd Quarter 2019	$ 0.000743	4th Quarter 2018

As discussed in detail below, the Company provided the workpapers which support the Rider AER-R rates that are reflected in DEO's quarterly filings.

2) A Review of the Individual Components (including, but not limited to, transactions of RECs or S-RECs and costs of implementing associated RFPs) that may have been Included within the Company's Rider AER-R Information and Calculations in Order to Verify that the Costs were Appropriately Included

Larkin reviewed DEO's Rider AER-R workpapers for the 2017 and 2018 review periods, which the Company provided in its response to LARKIN-DR-01-002. Because DEO's Rider AER-R costs are trued-up to actuals, for 2017, Larkin's review focused on the workpapers for the second quarter 2018 forecast since this quarterly filing contained the final reconciliation calculation for2017.Similarly, for 2018, Larkin's review also focused on the workpapers for the second quarter of 2019 since this quarterly filing contained the final reconciliation for 2018.

As noted above, the Company's quarterly Rider AER-R filings reflect the forecast Rider AER-R rate for the quarterly period in question, which is then reconciled in a subsequent quarterly filing. For example, the quarterly filing for the first quarter of 2017 reflects the forecasted AER rate for the January through March 2017 period. However, the Company's reconciliation for the first quarter of 2017 was not reflected in the calculated Rider AER-R rate until the third quarter 2017 Rider AER-R quarterly filing. For purposes of illustrating how DEO calculated its forecasted Rider AER-R rate, the exhibit below replicates Attachment 2 from the response to LARKIN-DR-01-002, which is the Company's quarterly filing for the second quarter of 2017.

Exhibit 4-2. Calculation of Rider AER-R Rate for the Second Quarter 2017

Line No.	Description	April - June 2017 Projection	Source	
	Weighted Average Cost of Inventory ($/REC[a])			
1	Non-Solar REC Cost	$ 9 59	Projection	January 2017 WACI 358,647 RECs in inventory
2	Solar REC Cost	$ 61 90	Projection	January 2017 WACI 8,420 RECs in inventory
	Quarterly Alternative Energy Requirement			
3	Non-Solar Requirement (MWh's)	46,305		Case No. 16-707-EL-ACP
4	Solar Requirement (MWh's)	2,073		Case No. 16-707-EL-ACP
	Alternative Energy Costs			
5	Non-Solar REC Cost	$ 444,065	Line 1 x Line 3	
6	Solar REC Cost	$ 128,319	Line 2 x Line 4	
7	Total REC Cost	$ 572,384	Sum of lines 5 through 6	
8	Brokerage Expense	$ -		based on 12 months ended 12/31/2016
9	Tracking participation expenses	$ -		
10	Realized Gains and Losses	$ -		
11	Carrying Costs on the REC Inventory balance for 3 months	$ 63,753		based on average of Jan - Dec 2016 * 3
12	Projected REC cost including carrying charge	$ 636,137	Sum of lines 7 through 11	
13	Prior Period (Over) / Under Recovery (per Schedule B)	$ (24,301)	Line 21 Schedule B	
14	Total REC expense	$ 611,836		
15	Total Forecasted Non-switched Sales	1,095,742,760	kWh	
16	Calculated AER-R Rate	$ 0.000558	per kWh	
17	AER-R Rate including CAT tax	$ 0.000559	per kWh	

As shown in the exhibit, the calculation of the Rider AER-R rate includes the following components:

- Projected WACI;
- Projected Quarterly Alternative Energy Requirement;
- Projected alternative energy costs;
- Brokerage expense, if any;
- Tracking participation expense, if any;
- Realized gains and losses, if any;
- Carrying costs on the REC inventory;
- Prior period over/under recovery (reconciliation);
- Forecasted non-switched sales; and
- CAT Tax

The Company determines the projected WACI in its quarterly Rider AER-R filings by taking the WACI from its inventory worksheets, which were calculated by dividing the value of the REC inventory balance by the quantity from the prior two months. For example, the projected WACI in the second quarter 2017 Rider AER-R filing was calculated using the non-solar and solar REC inventory balances from January 2017. Specifically, referencing Exhibit 4-2 above, for the projected solar WACI of $61.90, the Company divided the January 2017 consumption (dollars) by the quantity of January 2017 solar RECs from the inventory sheets that were provided in response to LARKIN-DR-01-010 to derive the WACI of $61.90. The non-solar WACI of $9.59 was calculated in a similar manner.

The Company's response to LARKIN-DR-01-002 included Attachment 6, which reflected the Company's actual 2017 Rider AER-R reconciliation activity for the period January through December 2017on Schedule B of the workpapers, and which are summarized in the following exhibit:

Exhibit 4-3. Summary of Actual Costs for January through December 2017

Line No.	Period	REC Expense	Brokerage Expense	Tracking Participation Expense	Realized Gains and Losses	Audit Fees	Carrying Costs	Total Costs	Revenue	(Over)Under Recovery	Per Prior Filing	Net (Over) Under Recovery
		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	Jan-17	$ 185,562	$ -	$ -	$ -	$ -	$ 17,925	$ 203,487	$ (236,702)	$ (33,215)	$ (33,215)	$ -
2	Feb-17	$ 178,445	$ -	$ -	$ -	$ -	$ 17,249	$ 195,694	$ (191,990)	$ 3,704	$ 3,704	$ -
3	Mar-17	$ 57,351	$ -	$ -	$ -	$ 8,023	$ 17,751	$ 83,125	$ (176,176)	$ (93,051)	$ (93,051)	$ -
4	Apr-17	$ 172,381	$ 625	$ -	$ -	$ -	$ 18,239	$ 191,245	$ (193,779)	$ (2,534)	$ (2,534)	$ -
5	May-17	$ 171,709	$ -	$ -	$ -	$ 7,701	$ 17,610	$ 197,020	$ (183,152)	$ 13,868	$ 13,868	$ -
6	Jun-17	$ 171,803	$ -	$ -	$ -	$ -	$ 16,938	$ 188,741	$ (196,029)	$ (7,288)	$ (7,288)	$ -
7	Jul-17	$ 171,910	$ -	$ -	$ -	$ -	$ 16,222	$ 188,132	$ (159,758)	$ 28,374	$ 28,374	$ -
8	Aug-17	$ 171,950	$ -	$ -	$ -	$ -	$ 15,505	$ 187,455	$ (159,630)	$ 27,825	$ 27,825	$ -
9	Sep-17	$ 175,302	$ -	$ -	$ -	$ -	$ 15,724	$ 191,026	$ (141,973)	$ 49,053	$ 49,053	$ -
10	Oct-17	$ 175,403	$ 1,145	$ -	$ -	$ -	$ 15,935	$ 192,483	$ (108,802)	$ 83,681	$ -	$ 83,681
11	Nov-17	$ 175,396	$ -	$ -	$ -	$ -	$ 15,218	$ 190,614	$ (106,453)	$ 84,161	$ -	$ 84,161
12	Dec-17	$ 175,396	$ -	$ 1,500	$ -	$ -	$ 14,479	$ 191,375	$ (139,164)	$ 52,211	$ -	$ 52,211
13	2017 Totals	$ 1,982,608	$ 1,770	$ 1,500	$ -	$ 15,724	$ 198,795	$ 2,200,397	$ (1,993,608)	$ 206,789	$ (13,264)	$ 220,053

Notes and Source
January through December 2017 amounts from Attachment 6 to the response to LARKIN-DR-01-002

As shown in the above exhibit, the Company reported total REC expense of $1,982,608 in 2017[27] along with brokerage expense, tracking participation expense and audit fees of $1,770, $1,500, and $15,724, respectively. Larkin requested that DEO provide the accounting support for the 2017 brokerage fees, tracking participation expenses and audit fees (see additional discussion below).

Exhibit 4-4. Summary of Actual Costs for January through December 2018

Line No.	Period	REC Expense	Brokerage Expense	Tracking Participation Expense	Realized Gains and Losses	Audit Fees	Carrying Costs	Total Costs	Revenue	(Over)Under Recovery	Per Prior Filing	Net (Over) Under Recovery
		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	Jan-18	$ 226,526	$ -	$ -	$ -	$ -	$ 13,598	$ 240,124	$ (256,077)	$ (15,953)	$ (15,953)	$ -
2	Feb-18	$ 147,961	$ -	$ -	$ -	$ -	$ 13,231	$ 161,192	$ (179,937)	$ (18,745)	$ (18,745)	$ -
3	Mar-18	$ (118,658)	$ -	$ -	$ -	$ -	$ 13,619	$ (105,039)	$ (159,201)	$ (264,240)	$ (264,240)	$ -
4	Apr-18	$ 147,961	$ -	$ -	$ -	$ -	$ 13,554	$ 161,515	$ (214,931)	$ (53,416)	$ (53,416)	$ -
5	May-18	$ 147,961	$ -	$ -	$ -	$ -	$ 12,898	$ 160,859	$ (161,996)	$ (1,137)	$ (1,137)	$ -
6	Jun-18	$ 147,962	$ -	$ -	$ -	$ -	$ 12,242	$ 160,204	$ (225,953)	$ (65,749)	$ (65,749)	$ -
7	Jul-18	$ 147,961	$ -	$ -	$ -	$ -	$ 11,586	$ 159,547	$ (140,855)	$ 18,692	$ 18,692	$ -
8	Aug-18	$ 147,961	$ -	$ -	$ -	$ -	$ 10,930	$ 158,891	$ (137,039)	$ 21,852	$ 21,852	$ -
9	Sep-18	$ 148,076	$ -	$ -	$ -	$ -	$ 10,288	$ 158,364	$ (137,180)	$ 21,184	$ 21,184	$ -
10	Oct-18	$ 148,076	$ -	$ -	$ -	$ -	$ 9,645	$ 157,721	$ (129,208)	$ 28,513	$ -	$ 28,513
11	Nov-18	$ 148,076	$ -	$ -	$ -	$ -	$ 8,989	$ 157,065	$ (123,683)	$ 33,382	$ -	$ 33,382
12	Dec-18	$ 147,880	$ -	$ 1,500	$ -	$ -	$ 8,333	$ 157,713	$ (150,964)	$ 6,749	$ -	$ 6,749
13	2018 Totals	$ 1,587,743	$ -	$ 1,500	$ -	$ -	$ 138,913	$ 1,728,156	$ (2,017,024)	$ (288,868)	$ (357,512)	$ 68,644

Notes and Source
January through December 2018 amounts from Attachment 1 to the response to LARKIN-DR-07-003

As shown in the above exhibit, the Company reported total REC expense of $1,587,743 in 2018 along with tracking participation fees of $1,500. There were no brokerage or audit fees reported in 2018. Larkin requested that DEO provide the accounting support for the 2018 tracking participation expenses (see additional discussion below).

[27] DEO provided the general ledger detail for the 2017 REC expense in response to LARKIN-DR-01-008.

Administrative Expense -

For 2017, DEO reported renewables compliance administrative costs which totaled an overall amount of $18,994. These administrative costs are comprised of: (1) brokerage expense, (2) tracking participation expenses, and (3) audit fees. The exhibit below provides a breakout of each component of the administrative costs that flowed through Rider AER-R during 2017:

Exhibit 4-5. 2017 Renewables Compliance Administrative Expense

Period	Broker Fees	Tracking Participation Expenses	Audit Fees	Total
Jan-17	$ -	$ -	$ -	$ -
Feb-17	$ -	$ -	$ -	$ -
Mar-17	$ -	$ -	$ 8,023	$ 8,023
Apr-17	$ 625	$ -	$ -	$ 625
May-17	$ -	$ -	$ 7,701	$ 7,701
Jun-17	$ -	$ -	$ -	$ -
Jul-17	$ -	$ -	$ -	$ -
Aug-17	$ -	$ -	$ -	$ -
Sep-17	$ -	$ -	$ -	$ -
Oct-17	$ 1,145	$ -	$ -	$ 1,145
Nov-17	$ -	$ -	$ -	$ -
Dec-17	$ -	$ 1,500	$ -	$ 1,500
Total	$ 1,770	$ 1,500	$ 15,724	$ 18,994

Source: LARKIN-DR-01-002, Attachment 6

As shown in the above exhibit, during 2017, DEO reported brokerage expense totaling $1,770, tracking participation expense totaling $1,500, and audit fees totaling $15,724 for a grand total of $18,994. The amount for tracking participation expense relate to the subscription fees associated with DEO's PJM-GATS account which is the tracking system through which DEO's RECs are retired.

In December 2018, DEO reported tracking participation expense totaling $1500. There were no brokerage or audit fees recorded in 2018.

As noted above, Larkin requested that DEO provide the accounting support for the tracking participation expense. A discussion of each category of administrative costs is as follows:

Review of 2017 and 2018 Brokerage Expense

As noted above, for 2017, DEO included brokerage expenses of $625 and $1,145 in April and October, respectively for total brokerage expenses of $1,770 in Rider AER-R during 2017. Per our request, the Company provided copies of the invoices for the $625 and $1,145, which were issued to DEO by BGC Environmental Brokerage Services LP in its confidential response to LARKIN-DR-02-002. In addition to the invoices, this response also included copies of the Company's Request for Wire Transfer Payment as relates to the two brokerage expense invoices. Larkin also traced the $625 and $1,145 to the general ledger detail that was provided in response to LARKIN-DR-01-008. There was no brokerage expense recorded in 2018.No exceptions were noted.

Review of 2017 and 2018 Tracking Participation Expense

As noted above, for both 2017 and 2018, DEO included tracking participation expense of $1,500 in December of each year, which flowed through Rider AER-R in 2017 and 2018, respectively. Per Larkin's request, the Company provided copies of the invoices for the 2017 and 2018 tracking participation expenses that were issued to DEO by PJM in the Company's response to LARKIN-DR-01-036. In addition, Larkin also traced each $1,500 amount to the general ledger detail that was provided in the responses to LARKIN-DR-01-008 (for 2017) and LARKIN-DR-02-002 (for 2018). No exceptions were noted.

Review of 2017 and 2018 Audit Fees

As noted above, for 2017, DEO included audit fees of $8,023 and $7,701 in March and May, respectively for total audit fees of $15,724 in Rider AER-R during 2017. In response to LARKIN-DR-01-003, which requested a complete set of supporting working papers for the calculations in Rider AER-R for the 2017review period, DEO provided a copy of an invoice that Larkin had submitted to DEO pursuant to the 2016 review of Rider AER-R. This invoice, which is dated May 4, 2017, reflects the $7,701 of audit fees shown in the exhibit above. With regard to the $8,023 recorded in March 2017, this amount results from the Company implementing Larkin's recommendation from the 2016 to remove $7,026 of audit fees that were not actually billed to DEO for that prior audit. In other words, Larkin submitted an invoice in March 2017 in the amount of $15,049 and subtracting the $7,026 noted in the 2016 audit reduces this amount to the $8,023 that is shown on Schedule B of the Company's Excel workbook.

There were no audit fees recorded in 2018.

Over/Under REC Recovery

As shown in Exhibit 4-2 above, on line 13, the calculation of the Company's projected Rider AER-R rate in its quarterly filing for the second quarter of 2017 reflects a prior period over recovery of $24,301, which as previously discussed, is reflected on Schedule B from the Rider AER-R workpapers provided in LARKIN-DR-01-002 for the second quarter 2017 Rider AER-R filing. Specifically, when DEO over or under recovers revenues through Rider AER-R in a given quarterly period, the over/under recovery is included in DEO's reconciliation calculation two quarters later. For example, the $24,301 over recovery reflected in the second quarter 2017 Rider AER-R filing that was included in the calculation of the AER-R rate for that period was based on the actual Rider AER-R revenues, expenses and calculated carrying costs from the fourth quarter of 2016.The exhibit below provides a summary of the (over)/under recovered balances from the Rider AER-R filings for each quarter of 2017.

Exhibit 4-6. Summary of 2017(Over)/Under Recovery

Description	1Q 2017 Rider AER-R Quarterly Filing	2Q 2017 Rider AER-R Quarterly Filing	3Q 2017 Rider AER-R Quarterly Filing	4Q 2017 Rider AER-R Quarterly Filing	2017 Net (Over)/Under Recovery
(Over)/Under Recovery Per DEO's Reconciliation Workpaper	$ (36,064)	$ (24,301)	$ (122,562)	$ 4,046	$ (178,881)
Source: LARKIN-DR-01-002					

As shown in the above exhibit, the Company's (over)/under recovery balances reflected over-recovered balances of $36,064, $24,301 and $122,562 for the first, second and third quarters of 2017, respectively. The fourth quarter reflected an under-recovered balance of $4,046. The combined total over-under recoveries resulted in an overall net over-recovered balance of $178,881 at December 31, 2017.

The exhibit below provides a summary of the (over)/under recovered balances from the Rider AER-R filings for each quarter of 2018.

Exhibit 4-7. Summary of 2018 (Over)/Under Recovery

Description	1Q 2018 Rider AER-R Quarterly Filing	2Q 2018 Rider AER-R Quarterly Filing	3Q 2018 Rider AER-R Quarterly Filing	4Q 2018 Rider AER-R Quarterly Filing	2018 Net (Over)/Under Recovery
(Over)/Under Recovery Per DEO's Reconciliation Workpaper	$ 105,252	$ 220,053	$ (298,938)	$ (120,302)	$ (93,935)
Source: LARKIN-DR-01-002					

As shown in the above exhibit, the Company's (over)/under recovery balances reflected under-recovered balances of $105,252 and $220,053 for the first and second of 2018, respectively. The third and fourth quarters reflected over-recovered balances of $298,938 and $120,302, respectively. The combined total over-under recoveries resulted in an overall net over-recovered balance of $93,935 at December 31, 2018. These over-recoveries would be reconciled during 2019.

REC Inventories

Pursuant to R.C.4928.65, RECs that were purchased by the Company are usable generally within a five-year period. Any RECs held by DEO at December 31, 2016 that were in excess of its 2016 Benchmarks were applied to future year benchmarks.

Pursuant to the passage of S.B. 310 in September 2014, the Company's requirement to purchase at least 50% of it renewable energy resources through facilities located in the State of Ohio was eliminated. As a result, inventories in 2017 and 2018 were maintained for the following two types of RECs:

(1) Non-Solar RECs; and

(2) Solar RECs.

Larkin reviewed DEO's inventory worksheets, which were provided in the response to LARKIN-DR-01-010. The inventory worksheets reflected month ending REC balances, third party purchases, and RECs that were used for consumption during 2017 and 2018. In addition, the inventory worksheets include the quantity, price per REC and overall cost of the RECs purchased from third party suppliers. Using the information for REC quantities and cost, the Company calculated the WACI at each month's end. As previously discussed, certain of the WACI amounts calculated on the inventory worksheets are used by the Company for the WACI component of the projected Rider AER-R rate calculations in the quarterly filings. For example, the Rider AER-R workpapers for the second quarter 2017 quarterly filing reflects the WACI amounts calculated on the inventory worksheets for January 2017.[28]

In terms of the accounting guidance used by DEO as it relates to how RECs are entered into or extracted from inventory, in its response to LARKIN-DR-01-013 the Company cited its confidential Commodity Contract Accounting Manual. Specifically, DEO cited Chapter 4, Section 4.11.1 which states:

> Note that Duke Energy employs a hybrid model across its business units that may sometimes utilize RECs for both compliance purposes as well as trading purposes. As such, Duke Energy has elected to adopt a company-wide intangible asset model for the balance sheet classification of RECs (that are not accounted for as derivatives). The Company notes that the FASB has informally confirmed with the Big Four Accounting Firms that similar environmental-based assets, such as emissions allowances, meet the spirit of the definition of intangible assets under ASC Topic 350, *Intangibles - Goodwill and Other* (codification of SFAS No. 142), and are most appropriately classified as intangible assets (as opposed to inventory assets). Duke Energy has historically accounted for its portfolio of emissions allowances as intangible assets, and so accordingly, concludes that it is appropriate to account for similar environmental-based assets, such as RECs, in a similar manner, as intangible assets.

With regard to the foregoing passage from the Commodity Contract Accounting Manual, the response to LARKIN-DR-01-013 stated that the Company is accounting for RECs in a manner similar to emissions allowances and included Attachment 2, which is a document titled Emission Allowance Accounting Guidelines dated November 1, 2007. Larkin asked DEO whether any portion of the Emission Allowance Accounting Guidelines were used by DEO as guidance for accounting for RECs or REC inventories during 2017 and 2018. In its response to LARKIN-DR-02-015, the Company stated that the Emission Allowance Accounting Guidelines were not referenced for 2017 and 2018 and that such guidelines were a basis for the RECs and REC inventory prior to the Commodity Contract Accounting Manual referenced above taking effect as of January 1, 2017.

The response to LARKIN-DR-01-013 also stated the following with regard to how DEO maintains its REC inventory: (1) only the REC purchase cost is included in REC inventory (as opposed to also including other items such as brokerage fees); (2) the Company does not generate RECs; (3) the Company does not purchase RECs as part of a bundled energy transaction; and (4) the RECs are consumed on a monthly basis and included in rates, but they are not surrendered into PJM-GATS until April of every year to meet the annual compliance obligation.

[28] See Attachment 2 from the response to LARKIN-DR-01-002.

Upon reviewing the inventory worksheets for 2017 and 2018 that were provided in response to LARKIN-DR-01-010, we noted that in March of each year, the Company included a line item titled "Compliance True-Up" in which RECs were added back to the overall REC inventory. We inquired whether the Company has an explanation for why the compliance true-up for the solar and non-solar RECs has resulted in an add-back in each of the last three years to each REC inventory and whether such add-backs have any implications for the Rider AER-R estimation and/or forecasting. In addition, we asked the Company to explain how the estimating and forecasting process could be adjusted to avoid over-recognition of REC usage during the year, thus not making it necessary to make add-back adjustments in the annual compliance adjustment. In response to LARKIN-DR-02-017, the Company stated:

> The add back is a consequence of forecasts for non-switched load that have been higher than what has occurred during the years mentioned. Within each customer class, fixed allocations are used to apportion the MWH forecast between switched and non-switched customers, and it's clear that the allocation % for residential customers of 50.9% is much higher than what has recently occurred. In the graph below - which presents the share of residential sales that are to non-switched customers over time - it can be seen that a very sudden drop occurred in later 2017 after several years of apparent stability around that 50.9% figure. During preparation of the most recent forecast, that drop appeared transitory because of a subsequent rebound, but that rebound now appears to have been inadequate.
>
> One method to mitigate the problem going forward would be to use a lower fixed allocation percentage for residential sales, perhaps one based on an average of the most recent one or two years. An alternative method - one that is much more difficult and subject to greater uncertainty - would be to employ modeling to attempt to forecast the continued decline of this share over time.

Larkin does not consider this over-recording of RECs during the year to be a major issue since Rider AER-R compliance gets trued-up, but adjusting the Company's estimates of REC consumption that occurs during the year could help avoid the substantial over-consumption of RECs during the year prospectively and the need to add-back RECs into solar and non-solar inventory when the Company makes its annual compliance filing. One of our recommendations relates to improvements in the forecasting process that could help minimize the amounts of REC cost that get added back into inventory with the year-end true-ups, something that occurred for DEO for both years, 2017 and 2018.

DEO did not record any impairment related to REC inventory in 2017 or 2018.[29]The Company stated that it purchases RECs solely to meet the Ohio compliance requirements and that such RECs are prudently incurred and are therefore recoverable through Rider AER-R. In addition, no triggering event or changes occurred which would indicate that RECs may not be recoverable. DEO cited the aforementioned Commodity Contract Accounting Manual and specifically Section 4.18.1 for its accounting policy related to impairment, which states:

[29] See the response to LARKIN-DR-01-014.

> Duke Energy shall review its RECs recorded as finite-lived intangible assets for recoverability and/or impairment under the guidance contained in ASC Topics 350 and 360 whenever events or changes in circumstances indicate that the carrying amount of the recognized RECs may not be recoverable. If carrying amounts recognized on the balance sheet for RECs are not deemed to be recoverable, the Company shall record an impairment charge pursuant to the guidance contained in ASC Topics 350 and 360 in the event that the carrying amounts recognized on the balance sheet for RECs exceed the fair values of those RECs. After an impairment loss has been recognized (if applicable), the adjusted carrying amounts of those RECs will represent a new accounting basis for such RECs going forward.

3) A Review to Verify the Accuracy of Information and Calculations Related to any Carrying Charges Included in the Company's Quarterly Rider AER-R Calculations

RFP No. RA19-AER1 provides at Attachment 2, Item 3 that the auditor conduct:

> A review to verify the accuracy of information and calculations related to any carrying charges included in the Company's quarterly Rider AER-R calculations.

For DEO's 2017 Rider AER-R costs, carrying charges were based on a cost of debt of 5.32%.[30]

As noted above, the response to LARKIN-DR-01-002 included Attachment 6, which shows the calculation of carrying costs by month for the 2017 review period as follows:

[30] The Opinion and Order in Case No. 12-1682-EL-AIR (May 1, 2013) adopted a stipulation which included a provision whereby DEO shall use 5.32% as its cost of debt for determining carrying charges for future electric deferral requests until it resets pursuant to DEO's next rate case.

Exhibit 4-8. Summary of Carrying Costs for January through December 2017

Line No.	Period	Beginning Inventory Balance	Ending Inventory Balance	Average Inventory Balance	Annual Rate Based on Cost of Debt* 5.32%	Carrying Costs
(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Jan-17	$ 4,127,881	$ 3,959,184	$ 4,043,533	0.4433%	$ 17,925
2	Feb-17	$ 3,959,184	$ 3,823,046	$ 3,891,115	0.4433%	$ 17,249
3	Mar-17	$ 3,823,046	$ 4,185,695	$ 4,004,371	0.4433%	$ 17,751
4	Apr-17	$ 4,185,695	$ 4,043,091	$ 4,114,393	0.4433%	$ 18,239
5	May-17	$ 4,043,091	$ 3,901,694	$ 3,972,393	0.4433%	$ 17,610
6	Jun-17	$ 3,901,694	$ 3,739,982	$ 3,820,838	0.4433%	$ 16,938
7	Jul-17	$ 3,739,982	$ 3,578,628	$ 3,659,305	0.4433%	$ 16,222
8	Aug-17	$ 3,578,628	$ 3,416,678	$ 3,497,653	0.4433%	$ 15,505
9	Sep-17	$ 3,416,678	$ 3,677,365	$ 3,547,022	0.4433%	$ 15,724
10	Oct-17	$ 3,677,365	$ 3,511,541	$ 3,594,453	0.4433%	$ 15,935
11	Nov-17	$ 3,511,541	$ 3,353,620	$ 3,432,581	0.4433%	$ 15,218
12	Dec-17	$ 3,353,620	$ 3,178,224	$ 3,265,922	0.4433%	$ 14,479
13	2017 Totals	$ 45,318,405	$ 44,368,748	$ 44,843,577		$ 198,795

Notes and Source:

Jan-Dec amounts from Attachment 6 to the response to LARKIN-DR-01-002

*The Opinion and Order in Case No. 12-1682-EL-AIR approved a stipulation which included a 5.32% cost of debt

As shown in the above exhibit, DEO calculated carrying costs totaling $198,795, which were flowed through Rider AER-R in 2017. DEO calculates carrying costs by taking the average of the beginning and ending monthly solar and non-solar REC inventory balances and multiplying the result by the long term debt costs included in Case No. 12-1682-EL-AIR.[31] In other words, the Company divides the long term cost of debt of 5.32% by 1/12 to calculate the monthly amount of .4433%.As shown in the exhibit above, Larkin recalculated the AER carrying costs for each month of 2017 using the 5.32% rate that applied in 2017. No exceptions were noted.

The response to LARKIN-DR-07-003 included Attachment 1, which shows the calculation of carrying costs by month for the 2018 review period as follows:

[31] See the response to LARKIN-DR-01-008, which includes the general ledger detail for the carrying costs.

Exhibit 4-9. Summary of Carrying Costs for January through December 2018

Line No.	Period	Beginning Inventory Balance	Ending Inventory Balance	Average Inventory Balance	Annual Rate Based on Cost of Debt* 5.32%	Carrying Costs
(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Jan-18	$ 3,178,224	$ 2,956,573	$ 3,067,398	0.4433%	$ 13,598
2	Feb-18	$ 2,956,573	$ 3,012,862	$ 2,984,717	0.4433%	$ 13,231
3	Mar-18	$ 3,012,862	$ 3,131,520	$ 3,072,191	0.4433%	$ 13,619
4	Apr-18	$ 3,131,520	$ 2,983,559	$ 3,057,540	0.4433%	$ 13,554
5	May-18	$ 2,983,559	$ 2,835,597	$ 2,909,578	0.4433%	$ 12,898
6	Jun-18	$ 2,835,597	$ 2,687,636	$ 2,761,617	0.4433%	$ 12,242
7	Jul-18	$ 2,687,636	$ 2,539,675	$ 2,613,656	0.4433%	$ 11,586
8	Aug-18	$ 2,539,675	$ 2,391,713	$ 2,465,694	0.4433%	$ 10,930
9	Sep-18	$ 2,391,713	$ 2,249,878	$ 2,320,796	0.4433%	$ 10,288
10	Oct-18	$ 2,249,878	$ 2,101,802	$ 2,175,840	0.4433%	$ 9,645
11	Nov-18	$ 2,101,802	$ 1,953,726	$ 2,027,764	0.4433%	$ 8,989
12	Dec-18	$ 1,953,726	$ 1,805,847	$ 1,879,787	0.4433%	$ 8,333
13	2017 Total	$ 32,022,765	$30,650,388	$ 31,336,576		$ 138,913

Notes and Source:

Jan-Dec amounts from Attachment 1 to the response to LARKIN2-DR-07-001

*The Opinion and Order in Case No. 12-1682-EL-AIR approved a stipulation which included a 5.32% cost of debt

As shown in the above exhibit, DEO calculated carrying costs totaling $138,913, which were flowed through Rider AER-R in 2018. Similar to 2017, DEO calculates carrying costs by taking the average of the beginning and ending monthly solar and non-solar REC inventory balances and multiplying the result by the 5.32% long term debt cost included in Case No. 12-1682-EL-AIR and divides the 5.32% by 1/12 to calculate the monthly amount of .4433%. As shown in the exhibit above, Larkin recalculated the AER carrying costs for each month of 2018 using the 5.32% rate that applied in 2017. No exceptions were noted.

4) A Review of the Company's Status Relative to the 3% Provision Contained within R.C. 4928.64(C)(3)

RFP No. RA19-AER1 provided standards for reviewing the Company's Rider AER-R, which included Attachment 2, Item 5, which states:

> A review of the Company's status relative to the three percent provision contained within R.C. 4928.64(C)(3).

In accordance with R.C. 4928.64(C)(1), the Commission annually reviews electric distribution utilities and/or electric services companies compliance with the benchmarks reflected in the Renewable and Solar Benchmarks exhibit above. As part of that review, the Commission identifies under-compliance or non-compliance that it determines is related to weather, equipment, resource shortages for advanced energy, or renewable energy sources, and which is outside a utility's or electric service company's control. R.C. 4928.64(C)(3) states that:

> An electric distribution utility or an electric services company need not comply with a benchmark division (B)(1) or (2) of this section to the extent that its reasonably expected cost of that compliance exceeds its reasonably expected cost of otherwise producing or acquiring the requisite electricity by three percent or more. The cost of compliance shall be calculated as though any exemption from taxes and assessments had not been granted under section 5727.75 of the Revised Code.

On page 34 of its Order and Opinion dated August 7, 2013 in Case No. 11-5201-EL-RDR, the Commission adopted the following methodology for calculating the 3% cost cap:

> (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 preceding three 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.

Pursuant to Larkin management/performance audit recommendation number four from the 2014-2015 review period report, the Company included a description and calculation of the 3% cost cap in the Contracting Principles, Guidelines and Strategy document, which was provided in response to LARKIN-DR-01-033. The Company's 3% cost cap calculation for 2017 is replicated in the following exhibit:

Exhibit 4-10. [redacted]

[redacted]

For the first step of the Commission's adopted methodology for calculating the 3% cost cap, the Company used the baseline for compliance obligations that it reported in its 2017 annual compliance filing. While the Commission's Opinion and Order specified that this amount was to be based on an average of DEO's annual Ohio retail sales from the preceding three years, the

Company's baseline amounts are based on the total MWh sales in the applicable compliance year (i.e., 2017).[32]

As shown in the exhibit above, for 2017, the 3% cost cap was [redacted] As shown in Exhibit 4-3 above, the total cost of RECs retired for 2017 was [redacted], which is well below the cost cap calculated above. Based on the foregoing, Larkin has no recommendation regarding the 3% provision for 2017.

The Company's 3% cost cap calculation for 2018 is replicated in the following exhibit:

Exhibit 4-11. [redacted]

[redacted]

As shown in the exhibit above, for 2018, the 3% cost cap was [redacted] As shown in Exhibit 4-11 above, the total cost of RECs retired for 2018 was [redacted] which is well below the cost cap calculated above. Based on the foregoing, Larkin has no recommendation regarding the 3% provision for 2018.

5) A Review Comparing the Costs Recovered Through the Company's Rider AER-R during the Audit Period to the Costs Incurred

As previously discussed, the Commission's Opinion and Order dated November 22, 2011 in Case No. 11-3549-EL-SSO, allowed DEO to recover the reasonable costs incurred pursuant to complying with the requirements of R.C. 4928.64 as it relates to Rider AER-R. Such costs include the following:

1) All reasonable and prudently incurred costs for the acquisition of RECs;
2) Brokerage expense;
3) REC tracking participation expenses;
4) Audit fees;
5) Gains and losses realized from the sale of RECs; and
6) Carrying costs calculated at the long term cost of debt

[32] DEO's 2017 annual compliance filing cites Ohio R.C. 4928.64(B) as its basis for using the compliance year in determining its baseline compliance obligation.

As previously discussed, the Rider AER-R workpapers that were provided in response to LARKIN-DR-01-002 includes Schedule B, which reflects the Company's actual 2017 and 2018 (through June 2018)Rider AER-R reconciliation activity. The response to LARKIN-DR-07-001 included actual 2018 data through December 2018. Larkin was able to trace the Rider AER-R revenue and expense activity from the reconciliation schedules to the general ledger detail that was imported from the Company's Peoplesoft accounting system and which was provided in the responses to LARKIN-DR-01-008 and LARKIN-DR-02-002. No exceptions were noted.

Larkin traced the amounts related to Rider AER-R administrative costs, which included (1) brokerage expense; (2) tracking participation expense; and (3) audit fees to supporting documentation (i.e., invoices).

DEO did not reflect any realized gains or losses from the sale of RECs in its 2017 and 2018 reconciliation schedules. According to the response to LARKIN-DR-01-042, the Company did not sell non-solar or solar RECs as all RECs were needed for compliance during the 2017 and 2018 review periods.

6) A Review of any Specific Items as Identified by the Commission or Staff

As noted previously in Chapter 3, Staff requested that Larkin review the Company's voluntary GoGreen Power green pricing program in order to confirm the appropriate separation between the green pricing program and the Ohio renewable mandate.   The GoGreen Power program is discussed in Chapter 5. As the GoGreen costs are not recovered through Rider AER-R, a comprehensive review of DEO’s GoGreen Program is beyond the scope of this audit.

In addition, Staff requested that Larkin review the recommendations and related Commission Orders that are associated with the management and financial audits of Rider AER-R for the 2014, 2015 and 2016 review periods. The purpose of this review is to confirm whether DEO has complied with the Commission's directives from that prior review. This is discussed in the Executive Summary.

5 GOGREEN POWER PRICING PROGRAM

In addition to purchasing RECs for the Ohio renewables compliance requirement, the cost of which DEO recovers in Rider AER-R, DEO also purchases RECs for its voluntary Green Pricing program ("GoGreen Power").[33] Similar to past audits of Rider AER-R, the PUCO Staff asked Larkin to examine the potential overlap of these two programs to assure that the RECs and associated costs for the two programs were being appropriately accounted for by DEO.

O.A.C.4901:1-42 relates to the review of green pricing programs in Ohio. Specifically, O.A.C. 4901:1-42-02 addresses the review of green pricing programs offered in Ohio as part of competitive retail electric service ("CRES"), pursuant to R.C. 4928.70. Parties affected by the green pricing rules include all Ohio EDUs and CRES providers serving or soliciting retail electric customers in Ohio.

O.A.C.4901:1-42-03 addresses specific green pricing requirements, which became effective January 8, 2015, and includes the following:

1) Any Ohio EDU or CRES providers offering a green pricing program shall ensure that any program or marketing materials distributed to customers accurately portray the product;
2) Any program or marketing materials being used by an Ohio EDU or CRES provider that address green pricing programs shall be provided to Commission staff not later than four calendar days after being distributed to customers or after the product included in such programs is offered to Ohio customers. Additionally, any program or marketing materials requested by Staff should be provided to Staff by email or facsimile within five calendar days;
3) Any Ohio EDU or CRES provider offering a green pricing program shall report participation statistics, consistent with the requirements of O.A.C. 4901:1-25;
4) Any Ohio EDU or CRES provider offering a green pricing program shall maintain sufficient documentation to verify that adequate resources were secured and retired to support the product offerings. Such documentation, which shall be retained for no less than two years, shall be provided to Commission Staff within five calendar days of such a request;
5) Any Ohio EDU or CRES provider offering a green pricing program shall maintain sufficient documentation to verify that the resources used to support participation in the green pricing program are separate from the resources used for compliance

[33] The costs associated with the GoGreen Power program are not included in Rider AER-R, but rather are paid directly by the participants in this voluntary program.

with the state's alternative energy portfolio standard as set forth in R.C. 4928.64. Such documentation, which shall be retained for no less than two years, shall be provided to Commission staff within five calendar days of such a request; and

6) Any Ohio EDU or CRES provider offering a green pricing program shall not engage in double-counting of resources used to support participation in a green pricing program.

On May 9, 2007, the Commission approved DEO's Green Pricing option, GoGreen Power ("GoGreen"), for a pilot program through December 31, 2008. The pilot program was then extended through 2011 per the Commission's Opinion and Order dated December 17, 2008 in Case Nos. 08-920-EL-SSO, et. al. This Green Pricing option provided ratepayers the option of paying a premium to enable DEO to purchase RECs associated with generation from renewable energy sources. Following the conclusion of the pilot program, GoGreen was implemented on a long-term basis in the Commission's Opinion and Order dated November 22, 2011 in Case No. 11-3549-EL-SSO.

At the request of the PUCO Staff and pursuant to item numbers five and six from the green pricing rules listed above,[34] Larkin reviewed DEO’s accounting for RECs used by DEO for its Green Pricing program to assure that there was no double counting of the RECs used for the Green Pricing program and Rider AER-R, and that the costs of the REC purchases by DEO for these two programs were being appropriately tracked and accounted for separately by DEO.

During the interviews on May 20, 2019, the Company stated that there were no changes to the GoGreen Power program from prior years. However, for both 2017 and 2018, the RECs associated with the GoGreen Power program were tracked and retired through the MRETS tracking system[35]whereasin the years prior to 2017, the GoGreen Power program related RECs were retired through PJM-GATS.[36]

During the interviews at the Company's offices, DEO's GoGreen Power Program Product and Services Manager stated that the Company's Senior Emissions Trader executes the orders for GoGreen REC purchases[37] and that such RECs are purchased on the open market by a separate broker who then sells the RECs to DEO (see additional discussion below). In its response to LARKIN-DR-01-048, DEO stated that it did not seek Green-e certification in either 2017 or 2018,[38] but that the third party suppliers that purchase the RECs on behalf of DEO for GoGreen are Green-e certified, which included 3 Degrees Group Inc. and Carbon Solutions Group LLC in 2017 and 2018, respectively.[39]In addition, DEO stated that the tracking and retirement of the GoGreen RECs through a tracking system depends on the location of the third-party suppliers from which DEO purchases its GoGreen RECs. As noted above, the responses to LARKIN-DR-

[34]In the context of the scope of this project, item numbers 5 and 6 from the green pricing rules are the only such rules that relate to Rider AER-R.
[35] See the responses to LARKIN-DR-01-051 and LARKIN-DR-01-052.
[36] See the supplemental response to LARKIN-DR-04-001.
[37] The Senior Emissions Trader also executes orders for RECs purchased for RPS compliance.
[38] The Green-e Certification Program is a voluntary program that offers certification to green power electricity offerings that meet the program's environmental and consumer protection requirements.
[39] See the response to LARKIN-DR-01-048, Attachments A and B.

01-051 and LARKIN-DR-01-052 indicated that the 2017 and 2018GoGreen RECs were retired through the MRETS tracking system. The exhibits below reflect the number of GoGreen RECs that relate to 2017 as well as the related MRETS data including the certificate numbers associated with the retired RECs.

Exhibit 5-1. Summary of 2017 GoGreen Power RECs and MRETS Data

Retirement Type	Reason	Additional Details	MRETS ID	Generation Facility	Commenced Operation Date	Fuel Type	Certificate Type	Certificate Vintage	Generation Period	Certificate Serial Numbers	Quantity
Beneficial Ownership	For Beneficial Owner (Individual)	On Behalf Duke Energy's GoGreen Customers	M734	Elk Wind Energy LLC	10/8/2011	Wind	Renewable	12/2016	12/2016	734-IA-12-2016-55381-19 to 16259	16,241
Beneficial Ownership	For Beneficial Owner (Individual)	On Behalf Duke Energy's GoGreen Customers	M780	Pocohantas Prairie, LLC	2/3/2012	Wind	Renewable	06/2016	06/2016	780-IA-06-2016-51154-8225 to 12983	4,759
										Total	21,000

Source: LARKIN-DR-01-053, Attachment B

As shown in the exhibit above, 21,000 RECs were retired on behalf of Duke Energy for the GoGreen Power program during 2017. In addition, the separate third party broker that Duke Energy purchased the GoGreen Power RECs from was 3 Degrees. DEO stated that of the 21,000 GoGreen RECs retired through MRETS in 2017, 9,000 were retired on behalf of DEO.[40]As noted above, the third party suppliers from which Duke Energy purchased the 21,000 RECs for the GoGreen Power program have attained Green-e Energy certification. As a result, the 21,000 RECs that were retired on the MRETS tracking system report are also reflected on the Green-e Energy Renewable Attestation from Wholesale Provider of Electricity or RECs, which shows that Duke Energy Indiana purchased the 21,000 RECs from 3 Degrees Group Inc.[41]

The Company stated that GoGreen is a low volume program whereby one bulk purchase of RECs is made on behalf of the Company's GoGreen customers. The bulk purchase is tracked until the RECs are consumed then additional RECs are purchased. In its response to LARKIN-DR-02-026, DEO stated that such purchases are typically once a year on average with the amount purchased based on a review of customer participation and expected future customer participation. The Company summarizes its GoGreen REC purchases on a monthly spreadsheet, which is aggregated at year-end. Larkin requested a copy of the monthly spreadsheet aggregated to year-end for 2017, which the Company provided in its response to LARKIN-DR-01-049 Revised, Attachment A. The 2017 GoGreen aggregated monthly data is replicated in following exhibit:

[40]The remaining 12,000 GoGreen Power RECs were retired on behalf of Duke Energy customers in Indiana and Kentucky (see LARKIN-DR-01-049 Revised).
[41] See the response to LARKIN-DR-01-048, Attachment A.

Exhibit 5-2. Summary of 2017Ohio GoGreen RECs Sales

Year 2017	End of Month Customers	Monthly Block Sales	YTD Total Block Sales	REC Conversion	REC Acquisition	REC Supply
						349
January	1072	5,995	5,995	599.5		(250)
February	1078	6,025	12,020	602.5		(853)
March	1079	6,033	18,053	603.3		(1,456)
April	1079	6,028	24,081	602.8		(2,059)
May	1057	5,995	30,076	599.5		(2,659)
June	1070	5,998	36,074	599.8		(3,258)
July	1068	5,965	42,039	596.5	9,000	5,145
August	1080	6,034	48,073	603.4		4,542
September	1088	6,069	54,142	606.9		3,935
October	1092	6,086	60,228	608.6		3,326
November	1092	6,124	66,352	612.4		2,714
December	1095	6,157	72,509	615.7		2,098
Total		**7,250,900**	**72,509**	**7,251**		
Source: LARKIN-DR-01-049, Attachment A						

As shown in the above exhibit, the starting REC supply amount is 349 RECs which were still remaining as of December 31, 2016. For 2017, DEO had72,509 year-to-date total block sales during 2017, which were then converted to7,251 RECs. As discussed previously and noted in the above exhibit, the Company acquired an additional 9,000 GoGreen related RECs in July 2017.In addition, the Company had 2,098 RECs remaining at December 31, 2017. The Company stated that these remaining RECs, which have a cost of $2,033 (2,098 x $0.969) were applied to the 2018 obligation for the GoGreen Power program.[42] As shown in Exhibit 5-4 below, the 2,098 RECs are reflected as the starting point under the "REC Supply" column.

The exhibits below reflect the number of GoGreen RECs that relate to 2018 as well as the related MRETS data including the certificate numbers associated with the retired RECs.

[42] See the response to LARKIN-DR-05-003(b).

Exhibit 5-3. Summary of 2018 GoGreen Power RECs and MRETS Data

Account	ID	Project	Fuel Type	Vintage	Location	Quantity
IL ARES GE Wind BH17 (RY18) + Illinois	68B9A96E-9C5A	Story County Wind Project - Story County (Wabash)	Wind	11/2017	IA	6,287
IL ARES GE Wind BH17 (RY18) + Illinois	68B9A96E-9C5A	Story County Wind Project - Story County (Wabash)	Wind	06/2017	IA	5,235
IL ARES GE Wind BH17 (RY18) + Illinois	68B9A96E-9C5A	Story County Wind Project - Story County (Wabash)	Wind	07/2017	IA	2,658
IL ARES GE Wind BH17 (RY18) + Illinois	68B9A96E-9C5A	Story County Wind Project - Story County (Wabash)	Wind	08/2017	IA	2,218
IL ARES GE Wind BH17 (RY18) + Illinois	68B9A96E-9C5A	Story County Wind Project - Story County (Wabash)	Wind	09/2017	IA	4,602
					Total	21,000
Source: LARKIN-DR-01-54, Attachment B						

As shown in the exhibit above, similar to 2017, 21,000 RECs were retired on behalf of Duke Energy for the GoGreen Power program during 2018. In addition, the separate third party broker that Duke Energy purchased the GoGreen Power RECs from in 2018 was Carbon Solutions Group, LLC. Similar to 2017, the Company stated that of the 21,000 GoGreen RECs retired through MRETS in 2018, 9,000 were retired on behalf of DEO with the remaining 12,000 RECs retired on behalf of Duke Energy customers in Indiana and Kentucky. As noted above, the third party suppliers from which Duke Energy purchased the 21,000 RECs for the GoGreen Power program have attained Green-e Energy certification. As a result, the 21,000 RECs that were retired on the MRETS tracking system report for 2018 are also reflected on the Green-e Energy Renewable Attestation from Wholesale Provider of Electricity or RECs, which shows that Duke Energy Indiana purchased the 21,000 RECs from Carbon Solutions Group, LLC.[43]

Larkin requested a copy of the aforementioned monthly spreadsheet aggregated to year-end for 2018, which the Company provided in its response to LARKIN-DR-01-050, Attachment A. The 2018 GoGreen aggregated monthly data is replicated in following exhibit:

[43] See the response to LARKIN-DR-01-048, Attachment A.

Exhibit 5-4. Summary of 2018Ohio GoGreen RECs Sales

Year 2018	New Customers	End of Month Customers	Monthly Block Sales	YTD Total Block Sales	REC Conversion	REC Acquisition	REC Supply
							2,098
January	10	1,100	6,211	6,211	621.1		1,477
February	6	1,103	5,526	11,737	552.6		924
March	5	1,101	5,527	17,264	552.7		372
April	11	1,109	5,562	22,826	556.2		(185)
May	5	1,107	5,568	28,394	556.8		(741)
June	11	1,110	5,582	33,976	558.2		(1,300)
July	13	1,117	5,601	39,577	560.1	9,000	7,140
August	9	1,120	6,257	45,834	625.7		6,515
September	3	1,118	6,245	52,079	624.5		5,890
October	3	1,116	6,237	58,316	623.7		5,266
November	5	1,117	6,230	64,546	623.0		4,643
December	6	1,119	6,253	70,799	625.3		4,018
Total			**7,079,900**	**70,799**	**7,080**		

Source: LARKIN-DR-01-050, Attachment A

As shown in the above exhibit, the starting REC supply amount is the 2,098 RECs still remaining as of December 31, 2017 as discussed and shown in Exhibit 5-2 above. For 2018, DEO had70,799 year-to-date total block sales during 2018, which were then converted to7,080 RECs. As discussed previously and noted in the above exhibit, the Company acquired an additional 9,000 GoGreen related RECs in July 2018. In addition, the Company had 4,018 RECs remaining at December 31, 2018. The Company stated that these remaining RECs, which have a cost of $3,817 (4,018 x $0.95) will be applied to the 2019 obligation for the GoGreen Power program.[44]

We asked the Company if it applies inventory accounting for the RECs purchased and used for the GoGreen Power program, and if so, we asked how DEO account for the financing costs of the GoGreen REC inventory (i.e., for the cost of purchasing and holding RECs for application in the Ohio GoGreen Power program). With regard to whether the Company applies inventory for the GoGreen Power RECs, in response to LARKIN-DR-02-029, DEO stated in part:

> Duke Energy does not apply inventory accounting for the RECs that are purchased for and used in the Ohio GoGreen program because the Company does not actually take possession of the RECs. Cost of purchasing the RECs, including any applicable broker fees, are recognized at the time the RECs are purchased. The supplier retires the RECs on behalf of the customers at the time of purchase and provides supporting documentation of the retirement. The retired RECs are then monitored in the billing system to ensure sufficient RECs have been purchased based on customer participation.

[44] See the response to LARKIN-DR-05-003(a).

For the reasons stated in the foregoing passage, the Company does not account for the cost of purchasing and holding the RECs for application to the Ohio GoGreen Power program.[45] In addition, the other states in which Duke Energy has the GoGreen Power program (i.e., Indiana and Kentucky), also do not apply REC inventory accounting as the GoGreen RECs in those states are managed in the same manner as the Ohio GoGreen program.[46]

During the interviews on May 20, 2019, the Company stated that at the end of the year, it produces what it referred to as a "P&L" (profit and loss) type report for the GoGreen Power program, which shows the accounting details for the amounts of revenue and costs for the GoGreen Power program. We requested that DEO provide the GoGreen Power P&L reports for both 2017 and 2018, which it provided in its response to LARKIN-DR-02-022. The GoGreen Power program revenues and expenses for 2017, which is from the Company's general ledger, is summarized in the exhibit below:

Exhibit 5-5. Summary of 2017 GoGreen Power Program Revenues and Expenses

2017 GoGreen Power Revenues and Costs		**Amount**
Revenues	$	43,988
REC Purchase		(8,721)
Marketing, Admin & Call Center Costs		(4,535)
Net Amount	$	30,732
Source: LARKIN-DR-02-022		

As shown in the exhibit, for 2017 the Company recorded revenue for the GoGreen Power program totaling $43,988 and after subtracting the costs associated with the purchase of the 9,000 RECs (9,000 x $.969 = $8,721)) as well as for marketing, administrative and call center costs totaling $4,535, the Company had a net amount of $30,732. The GoGreen Power program revenues and expenses for 2018 are summarized in Exhibit 5-6 below:

Exhibit 5-6. Summary of 2018 GoGreen Power Program Revenues and Expenses

2018 GoGreen Power Revenues and Costs		**Amount**
Revenues	$	44,370
REC Purchase	$	(8,550)
REC Purchase Fees	$	(225)
Marketing - Acquisition Costs	$	(2,733)
Adminstration & Call Center Costs	$	(2,220)
Net	$	30,642
Additional misc. expense per LARKIN-DR-05-003	$	(6)
Corrected "Net Amount"	$	30,636
Source: LARKIN-DR-02-022		

[45] See the response to LARKIN-DR-02-024.
[46] See the response to LARKIN-DR-02-028.

As shown in the exhibit above, for 2018 the Company recorded revenue for the GoGreen Power program totaling $44,370 and after subtracting the costs associated with the purchase of the 9,000 RECs (9,000 x $.95 = $8,550) as well as broker fees of $225[47], marketing costs of $2,733, and administrative and call center costs totaling $2,220, the Company had an initial net amount of $30,642. In its response to LARKIN-DR-05-003(a), the Company stated that the miscellaneous amount of $5.96 was not deducted and that after doing so, the corrected net amount for 2018 was $30,636.

In its response to LARKIN-DR-05-003, the Company stated that the "net" amounts for 2017 and 2018 reflect what was collected from customers in excess of the cost of providing the GoGreen Power program and such amounts were included on the Company's income statement. For the 2017 "net" amount of $30,732, DEO stated that the following with regard to which accounts the GoGreen Power revenues and expenses were recorded:

> The money collected from customers was recorded in accounts 0451100 (Misc. Service Revenue). The expenses were recorded in FERC accounts 557, 910, 912, and 913 (specific account number varies depending on the type of expense). Account 557 was inadvertently used. The correct FERC accounts are 910 through 917 and will be used going forward.

For the 2018 "net" corrected amount of $30,636, DEO stated that the following with regard to which accounts the GoGreen Power revenues and expenses were recorded:

> The money collected from customers was recorded in accounts 0451100 (Misc. Service Revenue) and 0417310 (Products and Services Nonreg). Account 0417310 was inadvertently used. The expenses were recorded in FERC accounts 910, 912, 913 and 417 (specific account number varies depending on the type of expense). Account 417 was inadvertently used. The correct FERC accounts are 910 through 917 and will be used going forward.

The Company indicated that it had "net" amounts in years prior to 2017. Specifically, in response to LARKIN-DR-05-003(f), for the period 2013 through 2016, the Company provided the following "net" amounts for the GoGreen Power program: $12,964 (2013), $13,842 (2014), $9,812 (2015), and $6,570 (2016). Similar to the 2017 and 2018 "net" amounts, the 2013-2016 "net" amounts were recorded on the income statement. The "net" amount increased in 2017 and 2018 due to minimal administrative program management expenses. The Company stated that in late 2018, the GoGreen Power program was transitioned to the Renewables Program Management team based on this team's experience and expertise in renewables and green power. In addition, the Program Manager is planning to resume the marketing for the GoGreen Power program in 2019 to encourage customer participation, and that the team will continue to evaluate the GoGreen Power program, including REC prices, marketing and administrative costs in order to determine whether changes to the program may be necessary.

[47] In its response to LARKIN-DR-05-003, the Company stated that the broker fees were inadvertently not deducted from the 2018 GoGreen P&L report. For purposes of the presentation in Exhibit 5-6, the $225 has been deducted from GoGreen Power revenues.

With regard to the "net" amounts associated with the GoGreen Power program, Larkin inquired as to whether the Company had a liability or reserve account recorded on its books as of December 31, 2018 for accumulated GoGreen Power "net" amounts representing Ohio GoGreen program revenue in excess of GoGreen expenses. In its response to LARKIN-DR-05-003(g), the Company stated that it did not have a liability or reserve account on its books for accumulated GoGreen "net" amounts. DEO referred to the following passage from LARKIN-DR-05-003(d) as its explanation for why a liability or reserve was not recorded:

> The GoGreen rider supports alternative energy sources by allowing customers to purchase GoGreen units from a Company-sponsored program. The customer enters into a service agreement with the Company that specifies the amount of GoGreen units and price of GoGreen units to be purchased. The service agreement doesn't state that the customer is to be refunded or charged for any over- or under-collection of the program. The Company believes that the program revenues should cover the costs of the program and is not considered to be a profit center. The Company monitors the program to ensure that the revenues collected from the customers covers the costs of the program. The Company will make a filing with the Commission to adjust the rider if the costs are being materially under- or over-collected because any annual under- or over-collection in the test year of a base rate case is included in the revenue requirement.

In addition to the foregoing, as it relates to the 4,018 REC surplus as of December 31, 2018, DEO stated that it did not book a reserve/inventory for these RECs (which will applied to the 2019 obligation) since title does not transfer to Duke and the value of the RECs is immaterial.[48]

During the interviews at DEO's headquarters, the Company's Products and Services Manager indicated that the Company provides the PUCO Staff with an annual GoGeen Power program reporting documents, which entails a year-end wrap-up and program details for the GoGreen Power program for the year. The Company provided copies of this report, which is titled "Duke Energy Ohio GoGreen Reporting" for 2017 and 2018 in response to LARKIN-DR-02-023. Upon reviewing these reporting documents, we noted that they summarize the information shown in Exhibit 5-2 (2017) and Exhibit 5-4 (2018) with regard to the number of customers and blocks sold as well as the REC purchase price data, marketing and administration costs and call center costs.

As discussed in the Executive Summary of this report, the Company confirmed in its response to LARKIN-DR-04-001that the RECs retired through M-RETS for the GoGreen Power program are accounted for separately from the RECs retired through PJM-GATS for RPS compliance. As noted above, DEO's Senior Emissions Trader is responsible for executing the orders for the REC purchases associated with both the GoGreen Power program and for RPS compliance purposes. The Company stated that the Senior Emissions Trader executes the orders for REC purchases for the GoGreen Power program on different days than the orders for RECs purchased for RPS compliance. This raised a concern about whether the RECs are being accounted for separately between the two programs. However, Larkin confirmed the programs' separation by reviewing

[48] LARKIN-DR-05-003(g).

the PJM-GATS tracking system reports which list the REC retirements under Ohio compliance and the MRETS tracking system reports which list the retirements under the GoGreen Power program. In addition, Larkin verified that the certificate serial numbers related to the RECs retired for the GoGreen Power program were different than those RECs retired for RPS compliance. Pursuant to this review, Larkin confirmed that there was no double-counting of the RECs between these two programs. No exceptions were noted.

Memorandum Of Findings And Recommendations

Our findings and recommendations are summarized in Chapter 1.