

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the OVEC Generation       )  
Purchase Rider Audits Required by R.C.       ) Case No. 21-477-EL-RDR  
Section 4928.148 for Duke Energy Ohio,       )  
Inc., The Dayton Power & Light Company,       )  
and AEP Ohio.                                       )

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**DIRECT TESTIMONY OF**

**JOHN D. SWEZ**

**ON BEHALF OF**

**DUKE ENERGY OHIO, INC.**

**PUBLIC VERSION**

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October 3, 2023

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### **ATTACHMENTS:**

Confidential Attachment JDS-1 OVEC Operating Procedures – Revision 11-15-19

## **I. INTRODUCTION**

1   **Q.    STATE YOUR NAME AND BUSINESS ADDRESS.**

2    A.    My name is John D. Swez and my business address is 525 S. Tryon Street,  
3           Charlotte, North Carolina 28202.

4   **Q.    BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5    A.    I am employed by Duke Energy Carolinas, LLC (Duke Energy Carolinas) as  
6           Managing Director, Trading and Dispatch. Duke Energy Carolinas is a public utility  
7           that is an affiliate of Duke Energy Ohio, Inc. (Duke Energy Ohio or Company),  
8           both of which are subsidiaries of Duke Energy Corporation (Duke Energy).

9   **Q.    PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND**  
10       **AND PROFESSIONAL EXPERIENCE.**

11   A.    I received a Bachelor of Science degree in Mechanical Engineering from Purdue  
12       University in 1992. I received a Master of Business Administration degree from the  
13       University of Indianapolis in 1995. I joined PSI Energy, Inc. in 1992, a predecessor  
14       to my current position. I have held various engineering positions with the Company  
15       or its affiliates in the Power Services and Power Trading departments since that  
16       time. In 2003, I assumed the position of Manager, Real-Time Operations. Though  
17       my title has changed on several occasions, I assumed my current role on November  
18       1, 2019.

19   **Q.    HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC**  
20       **UTILITIES COMMISSION OF OHIO?**

21   A.    Yes. I testified in the Company's Price Stabilization Rider (Rider PSR) proceeding  
22       before the Commission in 2022, Case No. 20-0167-EL-RDR.

1   **Q.   PLEASE BRIEFLY DESCRIBE YOUR DUTIES AS MANAGING**  
2       **DIRECTOR, TRADING & DISPATCH.**

3   A.   As Managing Director, Trading and Dispatch, for Duke Energy, I am responsible  
4       for Power Trading on behalf of Duke Energy Ohio and Duke Energy's other  
5       regulated utilities in the Carolinas, Florida, Indiana, and Kentucky. I am also  
6       responsible for Duke Energy's Indiana and Kentucky utilities' generation dispatch,  
7       unit commitment, and 24-hour real-time operations as a member of the  
8       Midcontinent Independent System Operator, Inc., (MISO) for Indiana and PJM  
9       Interconnection, LLC (PJM) for Kentucky and Ohio. For Duke Energy Ohio, this  
10      involvement is with the Ohio Valley Electric Corporation (OVEC) generating units,  
11      where I am on the OVEC Operating Committee as well as managing Duke Energy  
12      Ohio's day-to-day involvement with these generating units.

13   **Q.   WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

14   A.   The purpose of my direct testimony is to discuss what steps Duke Energy Ohio  
15      takes to ensure that its customers receive as much value as possible through its  
16      Legacy Generation Resource Rider (Rider LGR). In doing so, I describe the  
17      Company's participation and processes in place with the generating units owned by  
18      OVEC and those units' involvement in PJM. I also describe the various PJM Billing  
19      Line Item (BLI) charges and credits that are currently included in Rider LGR and  
20      why those charges and credits are appropriate for inclusion in the Rider LGR  
21      calculation.

## **II.   OVEC AND ITS GENERATING FACILITIES**

22   **Q.   PLEASE DESCRIBE OVEC AND ITS OWNERSHIP STRUCTURE.**

23   A.   OVEC was formed in 1952 during the Cold War to help the United States

1 government enrich uranium in Southern Ohio. The public utilities and power  
2 cooperatives that surrounded this part of the Ohio Valley came together to form  
3 OVEC, which built two large electric generating facilities, Clifty Creek Station  
4 (Clifty Creek) and Kyger Creek Station (Kyger Creek), and a long span of high-  
5 voltage (345 kV) transmission lines. Duke Energy Ohio, as a successor to the  
6 Cincinnati Gas & Electric Company, one of these original utilities, owns 9 percent  
7 of OVEC.

8 Clifty Creek is comprised of six coal-fired generating units, each with a  
9 winter capability of 200 MW for a site total of 1,200 MW. Kyger Creek consists of  
10 five coal-fired generating units, each with a capability of 199 MW for a site total of  
11 995 MW. Thus, the total generating capability of all OVEC units is 2,195 MW.  
12 Duke Energy Ohio receives nine percent of this energy and capacity, or  
13 approximately 198 MW (before losses).

14 **Q. PLEASE EXPLAIN THE INTER-COMPANY POWER AGREEMENT**  
15 **(ICPA).**

16 A. Duke Energy Ohio is a party to a contract among OVEC and the other owners of  
17 OVEC called the Amended and Restated Inter-Company Power Agreement, or  
18 ICPA. The ICPA provides for the various contracting parties' rights and obligations  
19 about capacity, generation, and the costs thereof. Although OVEC is its own  
20 corporation, Duke Energy Ohio is one of many co-sponsoring companies under the  
21 ICPA (Sponsoring Companies) in the OVEC corporation. The ICPA is not a simple  
22 power purchase agreement, but rather, it represents a long-term compact among  
23 OVEC's utility counterparties to pay all OVEC's costs and to be entitled to utilize

1 the power and energy from OVEC.

2 **Q. HOW ARE CAPACITY AND ENERGY COSTS ALLOCATED UNDER**  
3 **THE ICPA?**

4 A. Under the ICPA, Duke Energy Ohio is entitled to nine percent of OVEC's energy  
5 and capacity and is responsible for the same proportional share of its costs.

### **III. RIDER LGR**

6 **Q. HOW DOES RIDER LGR FUNCTION?**

7 A. Through the LGR Rider, as it pertains to the Duke Energy Ohio participation in  
8 OVEC, the Company credits its customers with its share of all revenues received  
9 from operation of the OVEC generating units, including energy, ancillary services,  
10 and capacity revenues in the PJM market, and charges customers with the  
11 Company's share of costs associated with running the OVEC units, including costs  
12 incurred in the PJM markets.

13 **Q. WHAT STEPS DOES THE COMPANY TAKE TO MANAGE ITS**  
14 **INTEREST IN OVEC TO MAXIMIZE BENEFITS FOR CUSTOMERS TO**  
15 **THE GREATEST EXTENT POSSIBLE?**

16 A. As far as the OVEC net revenues and costs that are passed through the Rider LGR,  
17 the Company attempts to maximize the benefits to the greatest extent possible so to  
18 minimize costs, and thereby achieve as much value as it can for its Ohio customers.  
19 Throughout the remainder of this testimony, I will explain how the Company works  
20 to accomplish this objective through its management and active participation in its  
21 share of the energy, capacity, and OVEC costs.

#### **IV. OVERVIEW OF OVEC OPERATIONS**

1   **Q.   PLEASE EXPLAIN WHAT ENTITY MANAGES OVEC’S OPERATIONS**  
2       **ON A DAY-TO-DAY BASIS.**

3   A.   OVEC manages and operates the OVEC facilities. It is its own corporation. Duke  
4       Energy Ohio does not operate OVEC’s generating stations or its transmission  
5       facilities. Moreover, Duke Energy Ohio’s personnel do not participate in OVEC’s  
6       day-to-day operational decisions. Strategic decisions regarding OVEC’s operations  
7       are made by OVEC’s management, with oversight and approval by OVEC’s Board  
8       of Directors and the OVEC Operating Committee.

9   **Q.   PLEASE EXPLAIN DUKE ENERGY OHIO’S INTERACTION WITH**  
10       **OVEC.**

11   A.   Duke Energy Ohio has one representative on the OVEC Board of Directors, as well  
12       as a nine-percent “vote” on matters that are brought to the Board of Directors. In  
13       addition to this Board representation, I am Duke Energy Ohio’s representative on  
14       the OVEC Operating Committee. Certain decisions, including those regarding  
15       procedures for scheduling delivery of available energy, and recommendations for  
16       scheduling, operating, testing and maintenance procedures, and other related  
17       matters, are delegated by the Board of Directors to the Operating Committee. Duke  
18       Energy Ohio is actively engaged in the management of its own, nine-percent  
19       entitlement percentage. The Company actively participates in various committees  
20       and may make recommendations to the OVEC personnel who are responsible for  
21       day-to-day decisions, all with the goal of increasing the value of OVEC for Duke  
22       Energy Ohio’s customers. Additionally, Duke Energy Ohio, outside of the OVEC

1 Operating Committee, has discussions with OVEC staff on an as-needed basis.

2 **Q. PLEASE EXPLAIN THE OVEC OPERATING COMMITTEE.**

3 A. Currently, there are ten members of the Operating Committee, one for each  
4 member, including OVEC's own representative. As Duke Energy Ohio's  
5 representative to the OVEC Operating Committee, I attend Operating Committee  
6 meetings, respond to correspondence, vote on Operating Committee matters, and  
7 oversee Duke Energy Ohio's involvement with the OVEC assets with the goal of  
8 maximizing the value of the assets for the benefit of the Ohio customers. This is  
9 accomplished by OVEC's, Duke Energy Ohio's, and the Operating Committee's  
10 continuous focus on providing value. Examples of recent topics discussed at  
11 Operating Committee meetings include, but are not limited to, unit commitment  
12 and dispatch decisions, management of emissions allowances in conjunction with  
13 commitment of Clifty Creek Unit 6, and exploration of providing additional  
14 ancillary service value, such as regulation, from the OVEC units.

15 **Q. DOES DUKE ENERGY OHIO MAKE SUGGESTIONS TO OVEC**  
16 **REGARDING ITS OPERATIONS?**

17 A. Yes. The Company discusses opportunities within OVEC and potential changes in  
18 the PJM markets, participates in discussions and brings up proposals for  
19 consideration in the OVEC Operating Committee, and is active on the OVEC Board  
20 of Directors.



**V. COMMITMENT AND DISPATCH IN THE PJM ENERGY MARKET**

**Q. PLEASE EXPLAIN THE GENERATING UNIT COMMITMENT DECISIONS FOR THE OVEC UNITS AND THE PROCESS USED TO MAKE SUCH OFFERS.**

A. First, let's define the term commitment. Commitment is the decision or act of starting a generator that is off-line, maintaining an on-line generation status for a unit that is already on-line, or shutting down an on-line unit. Simply said, it is the decision to run or not run a unit. OVEC itself determines the unit commitment in PJM. OVEC's commitment starts with the OVEC Energy Scheduling department that has an internal daily call every non-holiday weekday morning to review unit status and availability, including applicable unit derates, potential unit liabilities, and outage status and expected unit return-to-service dates. OVEC then uses this information to formulate and submit the day-ahead unit offers into the PJM market. In advance of the morning call, the OVEC Energy Scheduling department also receives a daily unit status report from each plant. Information in this report is updated, as appropriate, based on real-time unit operating status during the morning calls. A similar, but less formal, daily meeting takes place on weekends and holidays with OVEC's system operations personnel and the contractor that provides certain functions during weekends and holidays. OVEC then updates day-ahead offers, if necessary, based on conditions at that time.

Units are offered into the PJM market with a commitment status consistent with the sponsor-approved Operating Committee procedures (OVEC Operating Procedures). With some exceptions, as discussed further below, units that are in

1 service and expected to be available in the day-ahead market are offered as Must  
2 Run. During ozone season, Unit 6 at Clifty Creek is assigned an opportunity cost  
3 associated with its NOx emissions profile and is offered as Economic. Additional  
4 exceptions could include changes to the Operating Procedures due to significant  
5 events, such the impacts of the COVID-19 pandemic, and resultant energy market  
6 shifts, unusual non-market-related events such as coal shortages or surpluses,  
7 and/or some form of force majeure event outside of OVEC's control. Additionally,  
8 OVEC develops its appropriate day-ahead and real-time energy market offers  
9 (incremental cost, no-load cost, startup cost, etc.) in accordance with PJM Manual  
10 15.

11 **Q. WHAT ARE THE OPTIONS FOR COMMITTING UNITS IN PJM?**

12 A. PJM allows for four different commitment status offers: Not Available or Outage,  
13 Emergency, Economic, and Must-Run (sometimes referred to as self-scheduled).  
14 For units that are offered with an Economic commitment status, the decision to turn  
15 on or continue running this unit is made by PJM. For units that are offered with a  
16 Must-Run commitment status, the decision to turn on or continue running the unit  
17 is made by the owner.

18 **Q. CAN A GENERATION OWNER CHOOSE TO SIMPLY NOT OFFER A**  
19 **GENERATING UNIT TO PJM OR MAKE A UNIT UNAVAILABLE**  
20 **WITHOUT A SCHEDULED OR FORCED OUTAGE?**

21 A. In the case of units that have cleared the PJM RPM auction and have not procured  
22 replacement capacity, unless the unit is in a scheduled or forced outage, no. Since  
23 most of the Duke Energy share of the OVEC units typically clear the PJM capacity

1 auctions, as undoubtedly other sponsoring companies in PJM do as well, an offer  
2 to PJM is required. Units that are counted as resources by PJM must be made  
3 available, meaning unless experiencing an outage, they are offered as either  
4 Economic, Must-Run, or Emergency. Generating owners cannot simply choose to  
5 not offer their generation in the PJM energy markets absent an outage.

6 **Q. IS A MUST-RUN COMMITMENT OFFER REASONABLE?**

7 A. Yes. Often times, a Must-Run offer produces the most value for a unit due to the  
8 relationship of the unit's variable costs with the PJM energy and ancillary services  
9 revenue, especially after consideration of other factors such as cycling costs, risks,  
10 and other parameters. Simply said, over a period of time the revenues received from  
11 operation in the PJM Energy and Ancillary Services Markets (ASM) are generally  
12 greater than the variable costs necessary to run the unit, or the losses are minimized,  
13 and thus a Must-Run offer frequently produces more value in today's market than  
14 an offer that potentially cycles the unit on and off or doesn't commit the unit  
15 effectively.

16 For example, with respect to cycling costs, OVEC, as a coal-fired  
17 generating station, is not capable of instantaneous turning on and off like a light  
18 switch. Shutting off the units, turning on the units, and ramping up the units takes  
19 time with an approximate 11-hour unit startup and notification time per unit and  
20 comes with risks and significant costs. As a result, any commitment decision must  
21 factor in the cycling timing, risks, and costs. It can often be more economic to run  
22 a unit during periods where it is "out of the money" so that the unit is capable of  
23 operation during those periods when it is "in the money" so to maximize potential

1 margins and access to potential benefits and value to customers.

2 Similarly, with respect to other risks, every time a coal-fired unit is shut  
3 down, there are risks associated with starting it up again. Units can fail to start due  
4 to thermal cycles or other cycling issues, causing potential damage to the units,  
5 thereby causing additional costs to repair, and thereby, a loss of market revenue.  
6 This risk of cycling must also be factored into commitment decisions and whether  
7 or not to offer the unit as Economic or Must-Run.

8 **Q. FOR A UNIT THAT HAS ENERGY AND ANCILLARY SERVICE**  
9 **REVENUES GREATER THAN ITS VARIABLE COSTS OVER A**  
10 **COMMITMENT PERIOD, IS THERE AN ADVANTAGE TO THE USE OF**  
11 **A MUST-RUN OFFER?**

12 A. Yes. Since the unit is “in the money” (*i.e.*, revenues exceed variable costs) in this  
13 scenario, use of a Must-Run offer guarantees the unit will run and be not subject to  
14 decommitment during periods of time when the unit may fall out of the money for  
15 a period, but not for a long enough period to justify an economic cycle (shutting the  
16 unit on and off), as could be accomplished with the use of an Economic  
17 commitment offer. However, assuming that there is no change to a unit’s  
18 commitment (the unit still runs in both the Economic and the Must Run  
19 commitment scenarios), the amount of revenue each unit receives is identical  
20 between the two different scenarios. In this situation, the assumption is made that  
21 there is no additional revenue available when a unit is committed by PJM but  
22 doesn’t receive enough revenue to offset the unit’s variable costs, called Day-  
23 Ahead or Balancing Operating Reserve payments, since the unit is in the money.

1   **Q.    WILL A MUST-RUN COMMITMENT STRATEGY ALWAYS BE**  
2       **REASONABLE FOR THE OVEC GENERATING UNITS?**

3    A.   Not necessarily. As a unit becomes or is forecasted to be more marginal or even out  
4       of the money for an extended period, the advantage of using a Must-Run offer tends  
5       to decline or be eliminated versus the use of an Economic offer. However, the  
6       determination between the two different types of offers depends on many factors,  
7       such as the revenue expected to be received versus the variable cost of the unit, the  
8       cost and risk to cycle a unit, consideration of required unit testing or other reasons  
9       why a unit may be required to operate, the amount of time necessary to shut down  
10      and restart a generating unit, the ramp rate of a generating unit, and external PJM  
11      sponsor coordination, among many factors. Finally, a unit commitment offer, over  
12      a longer period of time, may need to reflect the inelasticity of the coal supply chain,  
13      either to manage too little coal or excess coal, and OVEC's need to manage within  
14      station inventory bounds.

15   **Q.    IS AN ECONOMIC COMMITMENT STRATEGY ALWAYS**  
16       **REASONABLE FOR THE OVEC GENERATING UNITS?**

17   A.   Again, not necessarily. Offering a unit with an Economic commitment status, at all  
18       times, can either cause the unit to not be started when it is economic to operate or  
19       cause excessive cycling costs and shutdown the unit when it is economic to leave  
20       the unit on-line. This is due to the length of the PJM Day-Ahead market (24 hours)  
21       in relationship to the unit's practical minimum up time, minimum down time,  
22       and/or startup time. When an Economic commitment status is utilized for the  
23       OVEC units, with the current variable cost of these units in relationship with the

1 energy revenues received, strategically using both Must Run and Economic  
2 commitment status offers may be needed.

3 For OVEC, an Economic-only commitment strategy means that an off-line  
4 unit(s) would only be committed if the variable costs, including start-up costs and  
5 start-up time, would justify their operations. As a base-load coal-fired generator,  
6 OVEC cannot respond quickly to changes in power process on an hourly basis when  
7 a unit is cycled off as a result of an Economic commitment offer. For this reason,  
8 PJM may not call upon the units in the Day-Ahead Market because they cannot  
9 power up quickly enough in an offline state, even if it is otherwise economic to  
10 operate. In addition, unit cycling and resulting performance must be considered.  
11 For example, if the units were frequently cycled from off-line to on-line, the risk of  
12 error, damage, and unit degradation will increase. Failed start-up due to risks of  
13 thermal cycling could occur in this scenario, resulting in additional cost of repair,  
14 lost energy margins during the time that the unit was off-line for repair, and any  
15 additional PJM charges, *i.e.*, potential capacity performance charges. These factors  
16 are prudently evaluated when considering de-commitment for units such as OVEC.  
17 In all these scenarios, the units could miss significant positive margin opportunities  
18 that exist within a Must-Run commitment model. Similarly, running the units solely  
19 as “Must Run,” without consideration of market forecasts and unit limitations, may  
20 not be in the best interests of customers. What Duke Energy Ohio has advocated  
21 successfully, as referenced in the Audit Report, is that commitment decisions be  
22 made based upon a longer view of market data, including using forward power  
23 curves and other market data to make commitment decisions.

1 Duke Energy Ohio independently projects the expected energy market  
2 revenues from the operation of the OVEC units in PJM, the variable costs to operate  
3 the units at the forecasted unit hourly loading, and the resulting forecasted hourly  
4 energy margins. However, it would be imprudent and contrary to customers' best  
5 interests to make Day-Ahead market prices the exclusive basis for any unit  
6 commitment decision or designation. This is particularly true with respect to base-  
7 load coal-fired generation. As I previously stated, one must factor in unit start-up  
8 costs, cycling costs, risks with powering down and powering up units, such as  
9 unexpected outages that occur because of additional unit cycling, required  
10 operations for environmental and other testing, as well as the loss of value in the  
11 opportunity to respond to power price changes, coal procurement and transportation  
12 impacts, and other potential factors. The year 2020 presented challenges that  
13 represent a good example of the use of both Economic and Must Run offers – which  
14 is how the OVEC units were offered to PJM in 2020.

15 **Q. PLEASE FURTHER EXPLAIN SOME OF THE SPECIFIC**  
16 **CONSIDERATIONS IN THE PJM MARKET THAT FACTOR INTO**  
17 **COMMITMENT DECISIONS.**

18 A. The OVEC generating units are not capable of turning off and back on without  
19 additional cost, time, or risk. These factors, as well as forward price curves, must  
20 be considered when making unit commitment decisions. The current PJM Day-  
21 Ahead market is not a multi-day commitment. Rather, it is exactly, as the name  
22 implies, a one-day at a time market (i.e., 24 hours in length). Always using an  
23 Economic commitment status could, at times, cause a unit that becomes economic

1 to operate to remain offline or result in the uneconomic cycling of certain units  
2 across multiple days. Looking solely at the next twenty-four hours, to the exclusion  
3 of price forecasts for subsequent days, could result in a significant loss of value for  
4 customers. Although the PJM Day-Ahead market is an efficient market that is  
5 utilized to the benefit of customers, the PJM Day-Ahead Market construct was not  
6 designed to forecast multi-day economic commitments. The Day-Ahead Market is  
7 designed to minimize the cost to serve the demand reliably and economically for  
8 the next 24-hour period. In my practical experience, the Day-Ahead Market will  
9 not always result in an optimal commitment of these generating units when being  
10 offered with a commitment status of Economic, even though they may be the most  
11 economic choice to operate over a multi-day period. It is possible that an off-line  
12 coal unit that is economic to operate (revenues greater than variable costs) can go  
13 multiple days without a commitment if offered with an Economic commitment  
14 status offer to PJM because of the startup times alone. On the other hand, that same  
15 unit, with a Must Run designation over that same period, receives significant  
16 revenues because start-up limitations are not a factor. There are often times where  
17 it may be the best decision to maintain the units' commitment as "Must Run"  
18 because switching to an Economic offer based solely on the Day-Ahead energy  
19 market would result in missed opportunities for revenues.

20 Additionally, it is my understanding that it is simply not operationally  
21 possible to shut down and start up all OVEC units at once, which could occur if all  
22 11 units are offered with a commitment status offer of Economic. The units must  
23 be cycled on and off independently, not simultaneously. This results in an even



1 greater start up time for the plant to become fully online.

2 In the case of the OVEC units during 2020, a mix of “Must-Run”  
3 commitment strategy and one that uses an “Economic” commitment strategy,  
4 produced greater value for customers than an Economic-only commitment strategy.

5 **Q. DO YOU BELIEVE THAT OVEC WOULD CHANGE THE**  
6 **COMMITMENT STATUS OFFER IF NEEDED?**

7 A. Absolutely. In fact, this is exactly what happened during the second quarter of 2020  
8 due to the impact of COVID and the resulting low energy prices in PJM.

9 **Q. PLEASE DISCUSS THE PROCESS OF CHANGING THE COMMITMENT**  
10 **STATUS OFFER DURING THE AUDIT PERIOD, NAMELY THE**  
11 **SECOND QUARTER OF 2020.**

12 A. At the request of Duke Energy, as noted on page 42 of the Audit Report in this  
13 proceeding,<sup>1</sup> the Operating Committee voted and approved the use of an Economic  
14 commitment status offer from April 14, 2020 through June 30, 2020. As noted in the  
15 Audit Report, this decision was based on “multiple considerations, including COVID-  
16 19 staffing and related safety issues, operational requirements, and coal contract  
17 requirements and related potential liquidated damages.”<sup>2</sup> During this period, OVEC  
18 utilized this strategy when it made economic sense, in addition to changes in  
19 scheduled outage timing, to minimize financial losses brought on by the low energy  
20 prices due to COVID.

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<sup>1</sup> Audit of the Legacy Generation Resource Rider of Duke Energy Ohio Final Report, by London Economics International LLC (December 15, 2021) (LEI Report) at 42.

<sup>2</sup> *Id.*, see also LEI-DR-01-003-CONF.

1     **Q.     DESCRIBE YOUR ROLE IN RECOMMENDING AN ECONOMIC OFFER**  
2     **IN THE SECOND QUARTER OF 2020.**

3     A.     Following internal deliberation and discussion by Duke Energy, in early April of 2020  
4     I reached out to OVEC leadership via email regarding the possibility of offering some  
5     OVEC units in the PJM Day-Ahead Market energy market with a commitment status  
6     of Economic, as opposed to the typical offer of Must-Run. I outlined the impacts that  
7     exceptionally low energy prices were having on the OVEC units due to the uncertainty  
8     and shifting energy demand outlook during the height of the COVID-19 pandemic.  
9     Per the Operating Procedures, I requested that a vote be sent out to the OVEC  
10    Operating Committee members, proposing to offer approximately half of the units  
11    with a commitment status of Economic and asking that the strategy be put to an  
12    Operating Committee vote as soon as possible.

13           After discussion between Duke Energy and OVEC regarding this request, a  
14    Sponsor Proposal Relative to Unit Dispatch was drafted and the requested change to  
15    commitment strategy was brought to the Operating Committee members for  
16    consideration and subsequent vote. The proposal stated as follows:

17           “Due to the unique and unprecedented circumstances driven primarily  
18    by the direct and indirect impacts COVID-19 is having on energy  
19    prices, OVEC is requesting Sponsors approve, pursuant to Section  
20    E.1.b, and c of the Operating Procedures, the ability for OVEC to offer  
21    units into the PJM Market as either “Economic” or “Must Run” from  
22    April 14, 2020 to no later than May 31, 2020, to allow time to prepare  
23    the units for the PJM “no fly” zone. OVEC will utilize multiple inputs  
24    in their offer decision, including 1) projected power prices and related  
25    margin, 2) COVID-19 staffing/safety issues, 3) operational  
26    requirements, such as JBR operation, environmental requirements,  
27    coal inventories, and related liquidating damages/penalties, and 4)  
28    other financial related impacts.”

1 A vote of the Operating Committee was held via email, as was customary  
2 during the height of the COVID-19 pandemic. The proposal was unanimously  
3 approved and OVEC began use of both Economic and Must Run commitment status  
4 on April 14, 2020. This initial period lasted through May 31, 2020, and a vote to  
5 extend the practice was held, approving the Economic commitment status through  
6 June 30, 2020.

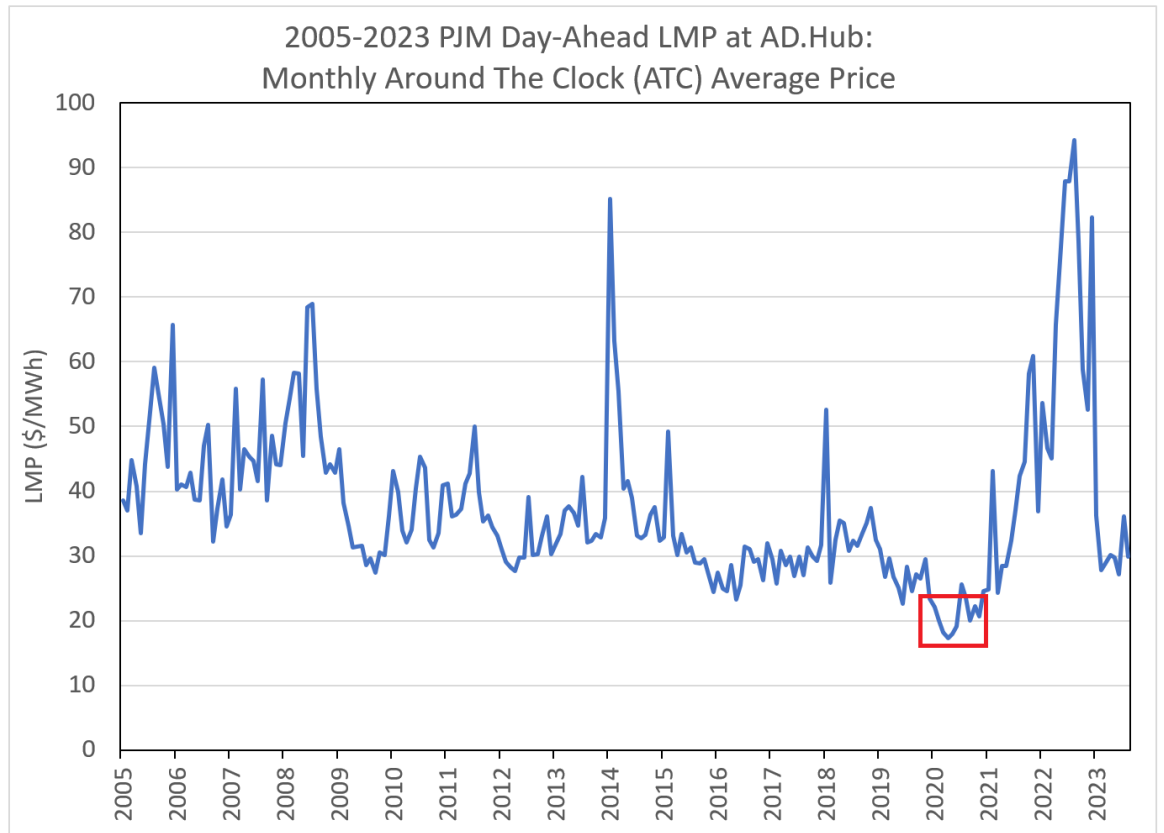
7 **Q. WAS THE CHANGE IN DISPATCH STRATEGY EFFECTIVE IN THE**  
8 **SECOND QUARTER OF 2020?**

9 A. Yes, I believe this change was effective. Although a detailed examination of this  
10 strategy would need to include many different items, as previously discussed in this  
11 testimony and is not possible without many assumptions and limitations, if one  
12 simply looked at only historical LMP power prices, the second quarter of 2020,  
13 when OVEC modified its commitment status offer and generation maintenance  
14 scheduling, stands out. The change allowed OVEC to de-commit generating units  
15 during some of the lowest energy prices seen in PJM in recent memory. Referring  
16 to the following chart showing the monthly average around-the-clock (ATC) Day-  
17 Ahead LMP at the AD Hub between 2005 and present, this low dip in power prices  
18 can be seen during the second quarter of 2020 (boxed in red). As shown, the ATC  
19 PJM prices dropped below \$20/MWh for the first time since 2005. LEI calculated  
20 that the average variable cost of the OVEC generating units was \$25.61/MWh in  
21 2020.<sup>3</sup> With OVEC variable generating unit costs greater than the resulting energy

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<sup>3</sup> LEI Report at 29, Figure 12. \$25.61/MWh calculated by dividing the total energy cost of  
[REDACTED]

1 payment from PJM, I believe OVEC reacted to this challenge appropriately and  
2 within the constraints present, resulting in maximized overall generating unit value  
3 over time.



4 **Q. DOES DUKE ENERGY OHIO ALONE HAVE THE ABILITY TO**  
5 **CONTROL OR FORCE OPERATIONAL DECISIONS OF OVEC?**

6 A. No. As demonstrated by the Economic Offer in 2020, while Duke Energy can make  
7 suggestions and raise issues to OVEC and the Operating Committee, the procedures  
8 for the scheduling of available energy are set by the Operating Committee. Again,  
9 while Duke Energy Ohio works hard to manage its interests, recognize trends, and  
10 raise issues to the Operating Committee, Duke Energy Ohio has only one vote on this  
11 committee. Pursuant to Section 9.05 of the ICPA, “[t]he decisions of the Operating

1 Committee, including the adoption or modification of any procedure by the  
2 Operating Committee pursuant to this Section 9.04, must receive the affirmative  
3 vote of at least two-thirds of the members of the Operating Committee present at  
4 any meeting.”<sup>4</sup> Pursuant to the Operating Procedures of the Operating Committee  
5 (see Confidential Attachment JDS-1 OVEC Operating Procedures – Revision 11-  
6 15-19), the unanimous approval of the Operating Committee (excluding OVEC’s  
7 representative) is required to change the commitment status of “Must Run” with  
8 respect to the offer of the “PJM Sponsors’ aggregate share of reserved Available  
9 Energy into PJM’s Day-Ahead Energy Market,” with limited exceptions expressly  
10 set forth therein, including with respect to Clifty Unit No. 6 during ozone season.

11 **Q. IN YOUR OPINION, WAS THE OVEC COMMITMENT STATUS OFFER**  
12 **STRATEGY AND IMPLEMENTATION IN PJM ENERGY MARKETS**  
13 **DURING 2020 APPROPRIATE AND IN THE BEST INTEREST FOR**  
14 **CUSTOMERS?**

15 A. Yes. For 2020, the optimal commitment decisions were employed by OVEC by  
16 submitting a combination of both Economic and Must-Run commitment status  
17 offer for available units.

18 As discussed, LEI calculated that the average variable cost of the OVEC  
19 generating units was \$25.61/MWh in 2020. This variable cost is consistent with the  
20 Company’s understanding of the variable costs of the units at the time. Although  
21 no re-commitment study was completed (it is debatable that a meaningful  
22 commitment study can even be completed due to the “what if” analysis and multiple

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<sup>4</sup> See ICPA, LEI-DR-06-001 Attachment, incorporated by reference.

1 assumptions involved with such a study), it is my opinion that substantial additional  
2 use of an Economic commitment offer would have resulted in a more negative  
3 overall margin for customers, not a higher (or greater) margin. As the previous chart  
4 of PJM energy prices showed, OVEC employed additional use of an Economic  
5 commitment offer and/or scheduled additional maintenance outages during the time  
6 coinciding with the lowest energy prices in PJM history. Although it is not possible  
7 to avoid all energy losses, to the extent possible and within constraints, the actions  
8 of OVEC and sponsoring companies, including Duke Energy, were successful in  
9 avoiding as many losses as possible.

10 **Q. HOW DID YOU COME TO THIS CONCLUSION?**

11 A. First, we must keep in mind that any backward-looking discussion or attempted  
12 analysis involves the element of perfect and hindsight knowledge not available at  
13 the time the decisions were made. However, that notwithstanding, as the OVEC  
14 Sponsor Proposal explained, there are multiple inputs to the commitment offer  
15 decision including “projected power prices, COVID-19 staffing/safety issues,  
16 operational requirements, such as JBR operation, environmental requirements, coal  
17 inventories, and related liquidating damages/penalties, and other financial related  
18 impacts”. In addition, a commitment offer may need to also consider unit testing,  
19 minimum up and down time, startup time, cycling costs, risks, impacts of multiple  
20 unit startups and shutdowns, and in OVEC’s case, impact on members that are  
21 taking energy outside of PJM (representing approximately 9.63% of OVEC  
22 energy). In coming to this conclusion, I will discuss only two of the above reasons,  
23 impact from additional unit cycling and the impact on the coal supply chain. All

1 other issues identified would have further supported the commitment decisions; for  
2 instance, during times of required environmental testing, if the units had a negative  
3 margin, these results would need to be ignored since they were a necessary part of  
4 owning a power plant. Thus, this is a conservative assessment. Continuing with this  
5 example, if this required unit testing had occurred during times when the units were  
6 out of the money, it could be shown as a negative margin, but nonetheless, would  
7 be unavoidable and required.

8 **Q. PLEASE EXPLAIN THE OVERALL DUKE ENERGY OHIO IMPACT**  
9 **FROM OPERATION IN THE PJM ENERGY MARKET DURING 2020?**

10 A. Although the LEI audit report didn't calculate a specific Duke Energy Ohio energy  
11 margin statement (comprised of PJM Duke Energy Ohio Energy and Ancillary  
12 Services Net Revenues minus Duke Energy Ohio Energy Charges from operation  
13 of the units), one can be calculated:

- 14 • From CUB-INT-02-008, Risk Month sheet, and [REDACTED],  
15 the Duke Energy Ohio share of PJM Energy and Ancillary Services Net  
16 Revenue was a payment of [REDACTED] from PJM in 2020.
- 17 • From LEI-01-022 CONF Attachment 1 and referring to page 3 of each of the  
18 monthly Available Power Statements and summing the "Total Energy Charge  
19 Payable" applicable to "Cincinnati", the Duke Energy Ohio only energy amount  
20 paid to OVEC in 2020 was [REDACTED].
- 21 • Subtracting the [REDACTED] of energy costs from the [REDACTED] in PJM  
22 energy and ancillary services market revenue results in an energy loss of  
23 [REDACTED] in 2020.

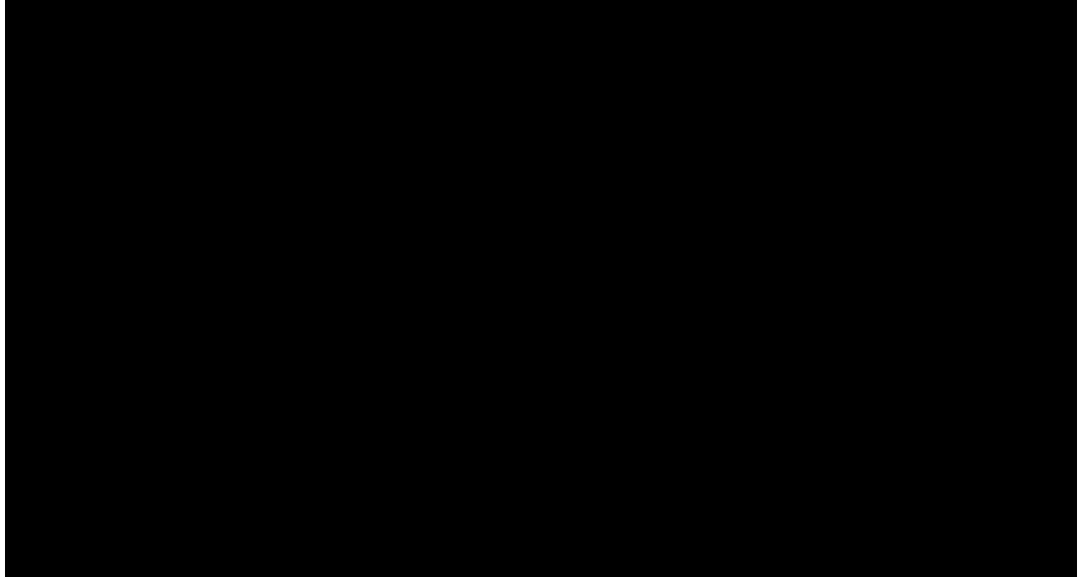
1           Thus, operation of the OVEC units in the PJM Energy and Ancillary Services  
2           Market resulted in a loss of [REDACTED] to DEO customers in 2020. However, this  
3           loss was minimized to the extent possible, unavoidable in some cases due to testing  
4           or other operational requirements, allowed for the option of the units to run during  
5           future periods where larger energy gains occurred, and in the customers best  
6           interests since it avoided potential coal liquidated damages costs resulting from  
7           OVEC being unable to meet its contractual coal delivery obligations due to  
8           unprecedented low energy market prices.

9   **Q.   PLEASE EXPLAIN YOUR ASSESSMENT OF WHAT WOULD HAVE**  
10   **HAPPENED HAD ADDITIONAL CYCLING OCCURRED ON THE OVEC**  
11   **UNITS DURING 2020?**

12   A.   Although it is not possible to perform a holistic recommitment strategy study post  
13           hoc, as only PJM has access to its extensive modeling and ability to manage its  
14           entire footprint, it is possible to extrapolate the direct impacts given OVEC's own  
15           operating parameters and capabilities. I believe commitment decisions that involve  
16           additional frequent unit cycling during times when the units were marginal or out  
17           of the money in 2020 would have resulted in lower margins (additional losses).  
18           Referring to Figure 30 on page 51 of the audit report, one can see the monthly  
19           energy margin for the OVEC units under the column titled "PJM price less OVEC  
20           energy cost". As the table shows, the OVEC units had a negative energy margin in  
21           10 of the 12 months of 2020, ranging from a monthly gain of \$.69/MWh to a  
22           monthly loss of \$15.10/MWh. The months with the largest losses occurred during  
23           the height of the COVID impact during the 2<sup>nd</sup> quarter and as previously discussed,



1 these losses were minimized to the extent possible. However, for many of these  
2 months, although the units had a negative energy margin, the margin wasn't enough  
3 to justify additional cycling of units.



4 In this figure, LEI calculates the margin (generating unit revenue minus  
5 generating unit variable cost) for each month of 2020 for the entirety of the OVEC  
6 generation in PJM. During many of these months, the units were very marginal,  
7 meaning that one could have attempted to cycle the units more during the time that  
8 they were out of the money, but the result would have been the opposite of that  
9 which was desired; the units' margin would have been reduced. With the current  
10 startup cost of an OVEC unit at approximately [REDACTED]  
11 [REDACTED] per unit, with eleven total units and  
12 potentially multiple instances of starting/stopping per month, cycling costs can get  
13 expensive quickly. Thus, I believe that had the OVEC units been offered with a  
14 commitment status of Economic instead of Must Run and had excessive cycling in

1 2020 during times units were marginal, the value to the Duke Energy Ohio  
2 customer would have decreased, meaning more costs, not less.

3 **Q. WHAT IMPACT DID THE PANDEMIC HAVE ON COAL INVENTORIES**  
4 **IN 2020?**

5 A. Regarding coal inventory, it is my understanding that the reason coal inventory  
6 levels were higher than targets in 2020 can be attributed to several factors outside  
7 of OVEC's (or the Company's) control. Specifically, PJM electric customer  
8 demand was lower resulting in lower power prices than anticipated (as discussed  
9 above), resulting in reduced demand for generation, including the OVEC units,  
10 thereby ultimately resulting in less coal burn than forecasted and increasing coal  
11 inventory levels.

12 While the Audit Report made no findings of imprudence regarding OVEC's  
13 coal handling, it made recommendations regarding coal inventory levels during the  
14 2020 Audit Period, finding that "[c]oal inventories were much higher than target  
15 levels in 2020; part of this could be owing to inaccurate forecasting of coal burns.  
16 LEI recommends that [Duke Energy Ohio], through its role on the Operating  
17 Committee, encourage ongoing review and improvement to OVEC's coal burn  
18 forecasting methods, and coal procurement practices."<sup>5</sup>

19 Duke Energy Ohio does not control OVEC's coal inventories, nor does it  
20 make fuel procurement decisions for OVEC. Fuel costs charged to the Sponsoring  
21 Companies and reflected in the LGR Rider are related to fuel burned, not fuel  
22 present in inventory. Moreover, the entire 2020 Audit Period encompassed the most

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<sup>5</sup> LEI Report at 10.

1 uncertain and unprecedented times of the COVID-19 Pandemic. According to  
2 statistic and projection data from the International Energy Agency (IEA), the shock  
3 to energy demand in 2020 was the largest in the last 70 years.<sup>6</sup> Global energy  
4 demand in 2020 declined by 7.6% compared to 2019, a fall seven times greater than  
5 during the 2009 financial crisis. Decreased manufacturing, consumption, and  
6 overall energy demand was clear throughout the Audit Period.<sup>7</sup> This resulted in a  
7 record drop in demand and consumption, thus resulting in increasing inventory  
8 levels.

9 **Q. HAD ADDITIONAL SIGNIFICANT PERIODS OF RESERVE**  
10 **SHUTDOWN OF THE OVEC UNITS OCCURRED IN 2020, WHAT IS**  
11 **YOUR ASSESSMENT OF THE IMPACT ON THE COAL SUPPLY**  
12 **CHAIN?**

13 A. Contracts for coal deliveries are typically entered into months or years in advance  
14 of when the coal is needed for consumption. Procurement of coal is based on  
15 estimated or forecasted generation levels that change based on power market  
16 pricing, unit dispatch cost, unit availability and other factors, some of which are  
17 unforeseen conditions. It is OVEC's responsibility to meet its contractual coal  
18 delivery obligations in order to avoid contractual defaults and associated legal

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<sup>6</sup> *Impacts of COVID-19 on energy demand and consumption: Challenges, lessons and emerging opportunities*, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7834155/>.

<sup>7</sup> *Global Changes in Electricity Consumption During COVID-19*, iScience Vol. 25, Issue 1, January 21, 2022 (available at <https://news.stanford.edu/2022/02/11/fall-rise-electricity-use-early-pandemic/>) (“In April 2020, at the beginning of the COVID-19 pandemic, electricity consumption had declined by 7.6 percent across the globe, which was larger and much more rapid than the 7 percent drop seen during the 2008 global financial crisis. Apparent causes of early consumption reductions – like government restrictions on in-person work, schooling, travel and social interaction, as well as declines in personal mobility and economic production – were much less correlated with recovery times.”).

1 actions and liquidated damages When needed to help manage inventory levels,  
2 OVEC may negotiate with its suppliers to defer tons to future periods if the supplier  
3 is willing to do so. The variability mentioned in the Audit Report reflects the  
4 realities of the inelasticity of the coal supply chain and the requirements to manage  
5 within inventory bounds, while minimizing overall costs and ensuring fuel security.  
6 Given the inability of the coal supply chain to swiftly respond to changes in real  
7 time demand, coal contracts with longer term supply, delivery, and inventory  
8 planning are necessary and reduce the volatility of fuel inventories and are entered  
9 into well in advance of the actual use period.

10 As previously mentioned, it is not possible to complete a re-commitment  
11 study due to the host of limitations and complications and requires multiple  
12 assumptions. For example, there is no way to know whether PJM would have still  
13 committed all generating units, what new unit loading PJM would have dispatched  
14 generating units to in either the day-ahead or real-time market, whether PJM would  
15 have cleared or deployed ancillary services, whether having new dispatch and  
16 commitment of generating units would have changed Locational Marginal Prices  
17 (LMP), etc. In addition, Duke Energy Ohio does not have access to PJM's  
18 optimization software that makes these decisions or performs this calculation.  
19 Using a hypothetical situation in which OVEC offered all units as Economic and  
20 the resulting commitment decision resulted in units being off-line during the  
21 months in which units were out of the money and ignoring the increased costs due  
22 to unit start-up and ramp up I previously discussed, although energy margin losses  
23 would have been avoided in the short-term, this action would have likely resulted

1 in OVEC having a significant surplus coal during the year. It is uncertain how  
2 OVEC would have been forced to react to this additional excess coal position. Had  
3 OVEC failed to allow receipt of this additional coal, potentially incurring liquidated  
4 damages for defaulting on its coal contract obligations, in other words paying for  
5 coal it didn't receive, it is unknown how the individual coal suppliers would have  
6 been impacted, jeopardizing the reliability of the future supply of coal to the station.

7 As previously shown, the OVEC and Company actions reduced DEO  
8 energy losses in 2020 to a [REDACTED] loss while avoiding an unknown amount of  
9 coal liquidated damages charges and impacts to future coal supply reliability. The  
10 only way to further eliminate these energy losses, assuming the units could have  
11 even been de-committed, would have resulted in not running the units and putting  
12 future coal supplies at risk. Although not part of this audit period, had OVEC taken  
13 this action, not only would the aforementioned potential impacts to the coal supply  
14 chain have occurred, but such action would also have put the positive energy  
15 margins achieved in future time periods at significant risk. Such as the case in 2021  
16 and 2022, when the coal delivered to the OVEC stations resulted in substantial  
17 energy margins approaching [REDACTED] that were then credited to Duke Energy Ohio  
18 customers alone. Thus, [REDACTED] in energy losses in 2020 paved the way for  
19 [REDACTED] in gains in 2021-2022, benefiting Duke Energy Ohio customers.

1   **Q.   HOW DOES THE COMPANY ENSURE THAT THE UNITS' MOST**  
2       **ECONOMICALLY ADVANTAGEOUS COMMITMENT STATUS OFFER**  
3       **TO PJM IS BEING UTILIZED BY OVEC?**

4   A.   Each business day, OVEC sends two reports to each PJM sponsor company; one  
5       report titled "OVEC Available Power Offer for Sponsors" and another titled  
6       "OVEC Morning Generation Report." Through these reports, the Company  
7       maintains awareness of the availability and capability of the available OVEC  
8       generating units. Additionally, every business day, for each hour of the upcoming  
9       21-day period, Duke Energy Ohio independently projects the expected energy  
10      market revenues from the OVEC units in PJM, including the variable costs to  
11      operate each unit at the forecasted unit hourly loading, and the resulting hourly  
12      energy margin. This report, called the Daily Profit & Loss Analysis, shows the  
13      hourly results summarized to a daily amount. Similar to how Duke Energy  
14      evaluates all of its generating units, this Daily Profit & Loss Analysis depicts the  
15      projected hourly energy hub prices in which the OVEC units sits, factors in their  
16      start-up and shut down costs, and evaluates the units as a station for performance  
17      based upon low and high market scenarios to determine an overall profitability of  
18      the stations. The units are compared day by day. This Analysis is used to monitor  
19      both Duke Energy Ohio's interest in OVEC, and to assist my evaluation in flagging  
20      issues for the OVEC Operating Committee.

21           As I previously discussed, similar to most generating units, there were days  
22      during 2020 when the revenues from the PJM day-ahead energy market were  
23      projected to be less than the variable operating costs for the OVEC units, *i.e.* a

1 negative margin would be shown on these reports. There are also days where the  
2 reverse occurs, and a positive margin occurs. Thus, the plants can and do “lose  
3 money” or “gain money” for a particular hour or day. However, this is not a  
4 complete picture of a unit’s proper commitment decision, as these decisions involve  
5 more variables than just a number on a spreadsheet at a single point in time. For  
6 example, frequently a coal unit may lose money on weekends or at night due to the  
7 lower energy prices, but it does not make economic sense to cycle the unit off-line  
8 and back on-line due to operational constraints due to the length of time required  
9 to shut down and start-up, and the fact that the startup costs would be larger than  
10 the loss caused by just leaving the unit on-line. Thus, the way to maximize the  
11 operating margin from the unit may be to voluntarily have a loss in margin over a  
12 period of time to avoid a larger loss (due to incurring greater costs) in margin from  
13 cycling the unit off-line. Additionally, as I previously mentioned, there may be  
14 other reasons to leave or bring a unit on-line at any given point in time, including  
15 to startup a unit following a planned outage, for required unit testing, to avoid the  
16 risk of cycling and causing a thermal cycle that could lead to a forced outage, the  
17 inability to shut down and restart multiple units at the same time, and external PJM  
18 sponsor coordination, among many factors.

19 If the units lose money on a consistent basis over the commitment period,  
20 the Daily Profit and Loss Report reflects this situation. Where it makes economic  
21 sense, Duke Energy Ohio will, and has, contacted OVEC to request examination of  
22 a potential change to one or more units’ commitment status offer to PJM. As  
23 mentioned, during April 2020, based on very low market prices from reduced loads

1 in the PJM footprint due to COVID-19 impacts on customer demand, the Company  
2 brought up this concern with OVEC. OVEC responded by proposing a  
3 modification of the Operating Committee process. The matter was voted on by  
4 members of the Operating Committee and passed. The system worked as it should.

5 **Q. WHAT ADDITIONAL MEASURES DOES THE COMPANY EMPLOY TO**  
6 **MONITOR THE MARGINS PRODUCED BY THE OVEC GENERATING**  
7 **UNITS?**

8 A. Duke Energy Ohio performs the following additional processes to monitor the  
9 profitability of the units and accuracy of information:

- 10 • After the units' Day-Ahead awards are published by PJM, each day the  
11 Company creates a preliminary profit and loss (or margin) report. Note that  
12 this is different from the Daily Profit and Loss report discussed previously,  
13 as this report uses the actual PJM Day-Ahead awards, not forecasted  
14 awards. This report allows the Company to maintain additional situational  
15 awareness of OVEC generators revenue received from PJM against the  
16 units expected variable costs.
- 17 • Company personnel review the OVEC monthly bill (the "Available Power  
18 Statement"), by checking for accuracy in a separate excel spreadsheet. This  
19 was especially helpful during the time when additional shares of OVEC  
20 from FirstEnergy Solutions were allocated to other sponsors.
- 21 • At the end of each month, Company personnel, including members of the  
22 front office, back office, and IT, review the PJM settlements statement in  
23 the "Monthly Settlement Meeting." At these meetings, Company employees



1 review the OVEC PJM Settlement Statement that is specific to Duke Energy  
2 Ohio's OVEC shares only in PJM. Additionally, a comparison is made of  
3 the net sum of these values (the net revenues) to the OVEC charges broken  
4 out between fixed and variable charges, as shown in the OVEC Available  
5 Power Statement.

- 6 • Duke Energy Ohio creates a monthly unit margin report for the total OVEC  
7 generating units in PJM (not just the Duke Energy Ohio share). Duke Energy  
8 Ohio creates this report by taking the Duke Energy Ohio share of its PJM  
9 Billing Line Item (BLI) amounts and dividing this amount by the Duke Energy  
10 Ohio PJM sponsor share percentage, with the resulting value being the total  
11 value for all PJM sponsoring companies. By doing this, Duke Energy Ohio  
12 creates a total profit and loss statement for all PJM sponsor companies. This  
13 report is periodically sent to OVEC management as feedback for the units'  
14 PJM energy margin. Capacity related charges or credits are not included in  
15 this report as capacity is handled on an individual company basis only.

16 **Q. DOES DUKE ENERGY OHIO EMPLOY ANY LONGER-TERM**  
17 **GENERATION OR PJM MARGIN FORECASTS OF THE OVEC**  
18 **GENERATING UNITS?**

19 A. Yes. In addition to the above processes, using the same plant parameters, unit  
20 variable costs, and forecasted PJM energy markets, among other inputs, Duke  
21 Energy Ohio forecasts OVEC unit generation, energy revenue, variable costs, and  
22 energy margin for a longer-term basis (up to 5-year) through a model called  
23 GenTrader. Again, this modeling helps inform Duke Energy Ohio's strategy to

1 manage its OVEC share in the best interests of customers.

2 **Q. PLEASE EXPLAIN OVEC’S DISPATCH IN PJM.**

3 A. Again, let’s first start by defining the term dispatch. Dispatch is the process of  
4 determining at which output to operate an on-line generating facility and the  
5 movement of the unit to that desired output. In OVEC’s case, the dispatch of the  
6 generating units refers to the instructions for the dispatch of the OVEC units from  
7 PJM and movement of the unit to the requested setpoint. These dispatch instructions  
8 for the OVEC generating units are sent by PJM and received by OVEC every 5-  
9 minutes. Unless a unit is required to be at an exact output such as what would be  
10 required for an environmental test, the OVEC generators are economically  
11 dispatched based on the units’ incremental cost offer between minimum and  
12 maximum available output. Thus, as an example, if a unit’s incremental cost offer  
13 is \$25/MWh and the real-time LMP is greater than this amount, the unit typically  
14 would receive an instruction to move up in output or remain at full output since it  
15 is economically advantageous to do so.

16 **Q. WHAT PROCESS DOES OVEC USE TO MONITOR THE ACCURACY OF**  
17 **FOLLOWING THE PJM DISPATCH INSTRUCTIONS?**

18 A. OVEC has established an internal PJM Demand Comparison Report which is  
19 generated daily. This report provides operating data that includes a unit-by-unit  
20 hourly comparison of actual net generation versus PJM demand. This report is also  
21 made available to plant operations personnel to aid them in evaluating prior day  
22 unit and operations related performance.

1   **Q.    ARE THERE PROCESSES IN PLACE FOR DUKE ENERGY OHIO TO**  
2       **MONITOR THE UNITS IN REAL TIME?**

3    A.    Yes. Duke Energy Ohio has incorporated the OVEC units into its Energy  
4       Management System (EMS) to monitor the output of these units through generation  
5       dispatch management. Additionally, OVEC has created a secure website with  
6       which each member can interface to see the output of units in real-time, the status  
7       of each unit, and forecasted costs, among other information.

**VI.    PARTICIPATION IN THE PJM CAPACITY MARKET**

8   **Q.    PLEASE EXPLAIN HOW DUKE ENERGY OHIO MANAGED ITS SHARE**  
9       **OF OVEC CAPACITY DURING THE CALANDER YEAR 2020.**

10   A.    Duke Energy Ohio offered its appropriate share of OVEC capacity into both the  
11       Base Residual Auctions (BRA) and each of the subsequent Incremental Auctions  
12       (IA) that contained the year 2020. Thus, because PJM capacity auctions cover the  
13       period from June through May, the PJM auctions that contained the calendar year  
14       2020 would have been 2019/20 (June 1, 2019 through May 31, 2020) and  
15       2020/2021 (June 1, 2020 through May 31, 2021).

16   **Q.    PLEASE EXPLAIN WHAT ZONE CONTAINED THE OVEC CAPACITY**  
17       **DURING THE YEAR 2020.**

18   A.    Duke Energy Ohio offered OVEC capacity into the regional transmission  
19       organization (RTO) zone for capacity auctions during 2020. As discussed in  
20       previous OVEC audit proceedings, OVEC became a full member of PJM on  
21       December 1, 2018. Starting with the auction for delivery year 2022/23 that was held  
22       in May of 2021, Duke Energy Ohio now bids OVEC capacity into the OVEC zone.

1    **Q.    PLEASE EXPLAIN HOW DUKE ENERGY OHIO CALCULATES ITS**  
2            **CAPACITY OFFER PRICE AND THE AMOUNT THAT IT USES TO**  
3            **FORMULATE AN OFFER INTO THE PJM CAPACITY AUCTION.**

4    A.    Price curves are derived using an economic indifference framework. This involves  
5            determining the break-even offer price at which participating in the auction yields  
6            the same amount of expected net revenue as does the option of not participating.  
7            The algebraic equation involves the sum of capacity payments, expected capacity  
8            performance bonuses, and expected penalties. While the indifference curve  
9            methodology is consistent across auctions, various model parameters are updated  
10           based on historical data and expected outcomes. For example, each year, a new  
11           offer price is created based on the updated inputs of: (1) Forced Outage Rate; (2)  
12           PJM must-offer volume; (3) PJM expected performance assessment hours; (4) PJM  
13           Capacity Performance rate; and (5) change in installed capacity due to physical loss  
14           assignment by PJM.

15   **Q.    WHY DOES THIS APPROACH MAKE SENSE?**

16   A.    The capacity offer price curves are derived using an economic indifference method  
17           that applies a consistent offer methodology that weighs the value of clearing in the  
18           PJM Capacity Market versus the risk associated with that obligation. It is a risk  
19           versus reward approach. As the capacity market price decreases, the lower capacity  
20           payments do not justify taking on the capacity performance risk and thus the  
21           Company's offered amount of capacity decreases at a lower clearing price. As the  
22           clearing price increases, the Company is willing to sell more capacity forward since  
23           there are larger rewards to offset the potential capacity performance penalty.

1    **Q.     DID THE LEI REPORT AGREE WITH THIS APPROACH?**

2    A.     The LEI Auditor had no issues with Duke Energy Ohio’s approach. The Audit  
3           Report determined that Duke Energy Ohio’s capacity offers were “formulated  
4           prudently, and transparently reflect the risks and reward features of the PJM  
5           capacity construct.”<sup>8</sup>

6    **Q.     DID THE COMPANY MAKE ADDITIONAL CAPACITY SALES TO**  
7           **OVEC DURING 2020?**

8    A.     Yes. To assist with the OVEC transition to becoming a full PJM member and the  
9           resulting OVEC capacity requirement, the Company not only self-supplied its share  
10          of the OVEC capacity obligation but sold additional capacity to OVEC at the BRA  
11          clearing prices for each auction.

## **VII.    PJM BILLING LINE ITEMS**

12   **Q.     PLEASE BRIEFLY EXPLAIN THE PJM SETTLEMENT PROCESS.**

13   A.     PJM has a standard and robust process for accounting for all costs and credits  
14          accrued in participation of its markets. All costs and credits accrued as a member  
15          of PJM are invoiced weekly with a monthly true-up and settled by PJM through  
16          BLIs. The monthly bill includes a detailed listing of the different BLIs, with BLIs  
17          that start with a 1000 designation as costs and BLIs that start with a 2000  
18          designation as credits. If a 1000 charge type is positive, that represents a charge,  
19          whereas a 1000 charge type that is negative represents a credit to the Company.  
20          Conversely, if a 2000 charge type is positive, that represents a credit, whereas a  
21          2000 charge type that is negative represents a charge to the Company. BLIs provide

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<sup>8</sup> LEI Report at 5.

1 a transparent process to account for costs caused and benefits incurred as a member.  
2 These BLIs include costs for use of the PJM-managed interstate transmission grid,  
3 including reliability projects, as well as participation in the wholesale energy  
4 markets, ASM, and capacity markets. Note that, in the case of OVEC, because there  
5 is only generation and no demand (load), most of the PJM BLI's are credits (*i.e.*,  
6 either negative 1000 series BLI or positive 2000 series BLI).

7 **Q. PLEASE EXPLAIN THE MAJOR PJM BILLING LINE ITEMS AND**  
8 **WHICH ARE RECOVERED IN THE RIDER PSR FILING.**

9 A. The vast majority of PJM net revenue from OVEC is contained in PJM BLIs 1200,  
10 1205, 1210, 1215, 1220, 1225, and 2600. A summary of these billing line items is  
11 as follows (note that sections of these BLI that pertain to load were eliminated since  
12 they are not relevant to OVEC):

- 13 • **1200 - Day-Ahead Spot Market Energy:** BLI 1200 represents the net  
14 day-ahead energy component. Revenue is being received when  
15 generation clears the day-ahead market at the generator LMP.
- 16 • **1205 – Balancing Spot Market Energy:** BLI 1205 represents the net  
17 real-time energy component deviation between the amount of  
18 generation cleared between the Day-Ahead and Real-Time markets. If  
19 there is no change to the quantity of generation sold between the Day-  
20 Ahead and Real-Time Energy Markets, there is no adjustment in  
21 balancing spot market energy.
- 22 • **1210 – Day-Ahead Transmission Congestion:** BLI 1210 represents  
23 the change in energy costs due to re-dispatch in the Day-Ahead Market

1 during hours when the PJM transmission system is constrained and  
2 assessed to participants based on the congestion price component of  
3 LMP.

- 4 • **1215 – Balancing Transmission Congestion:** BLI 1215 represents the  
5 change in energy costs due to re-dispatching in the balancing market  
6 during hours when PJM transmission system is constrained and assessed  
7 to participants based on the real-time congestion price component of  
8 LMP. If there is no change to the quantity of generation sold between  
9 the Day-Ahead and Real-Time Energy Markets, there is no balancing  
10 transmission congestion charges or credits.

- 11 • **1220 – Day-Ahead Transmission Losses:** BLI 1220 represents the  
12 change in energy costs due to transmission losses in the Day-Ahead  
13 Market represented in the PJM network model and assessed to  
14 participants based on the loss component of LMP.

- 15 • **1225 – Balancing Transmission Losses:** This BLI represents the  
16 change in energy costs due to transmission losses in the balancing  
17 market as represented in the PJM network model and is assessed to  
18 participants based on the real-time loss component of LMP. If there is  
19 no change to the quantity of generation sold between the Day-Ahead  
20 and Real-Time energy markets, there is no adjustment in balancing  
21 transmission losses charges or credits.

- 22 • **2600 – RPM Auction:** This BLI represents the net revenues received  
23 from capacity sold to PJM.

1   **Q.    ARE THERE ADDITIONAL PJM BLI RECEIVED FROM OR PAID TO**  
2       **PJM?**

3   A.   Yes. Additional PJM BLIs include, but are not limited to, the following: 1245;  
4       1303; 1305; 1307; 1310; 1312; 1313; 1314; 1375; 1376; 1667; 1999; 2360; 2365;  
5       2366; and 2667.

6   **Q.    DO YOU BELIEVE INCLUDING ALL OF THE AFOREMENTIONED PJM**  
7       **BLIs IS APPROPRIATE FOR RIDER LGR?**

8   A.   Yes. These PJM BLIs are exclusively for the payment of energy and capacity  
9       provided from the OVEC units. Crediting the customer with these net revenues is  
10      appropriate since the customer is also paying for the costs to produce this energy  
11      and capacity.

#### **VIII.   COMPONENTS OF FIXED COSTS**

12   **Q.    PLEASE DESCRIBE THE COMPONENTS OF FIXED COSTS, AS**  
13      **DISCUSSED IN THE AUDIT REPORT.**

14   A.   In the Audit Report, the Auditor states that “[t]he components of fixed costs were  
15      billed properly.” However, the Auditor points out one aspect of the components of  
16      fixed costs, Component D in the OVEC bill, and identifies it as a “payment per  
17      common share (similar to a dividend)” stating that “Component D is itself a return  
18      to the owners of OVEC.”<sup>9</sup> The Auditor states that “the Commission may wish to  
19      examine this” as “ORC 4928.01(A)(42) requires that “[p]rudently incurred costs . .  
20      . must exclude any return on investment in common equity[.]”

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<sup>9</sup> LEI Report at 10.



1   **Q.    WHAT CONSIDERATIONS SHOULD THE COMMISSION EVALUATE**  
2       **IN EXAMINING COMPONENT D, IF IT SO CHOOSES?**

3    A.    Component D is one component of a monthly demand charge imposed on each  
4           sponsor, including Duke Energy Ohio. Component D is a monthly charge under  
5           Section 6.03(d) of the ICPA. Component D was first calculated and determined in  
6           1953, at OVEC's inception.

7           The Component D charge is a cost allocated pursuant to a power agreement,  
8           the ICPA, which agreement and charge were approved first by the Federal Power  
9           Commission and, subsequently, in connection with the review of amendments to  
10          the ICPA, by the Federal Energy Regulatory Commission (FERC). Importantly,  
11          the payment of Component D does not result in Duke Energy Ohio earning any  
12          return on its investment. Moreover, Component D is part of the FERC-approved  
13          rate that has been in effect and unchallenged since the inception of the ICPA. The  
14          decision to incur Component D charges was made in or before 1953—when the  
15          first iteration of the ICPA was signed. Component D is merely an allocation of the  
16          totality of costs that FERC has approved. For Duke Energy Ohio, costs associated  
17          with Component D are ICPA-based costs, and no different from any other  
18          component of OVEC's charges to Duke Energy Ohio. The costs are not returned to  
19          Duke Energy Ohio, either directly or indirectly, via a dividend paid to the  
20          Company, or otherwise. The amounts that Duke Energy Ohio and other Sponsoring  
21          Companies pay to OVEC under Component D are used by OVEC to pay its various  
22          costs of operation and are not returned to its shareholders. LEI determined that the  
23          charge is a small share of the overall OVEC bill and did not deem the charge

1            imprudent.

**IX.    CONCLUSION**

2    **Q.    DOES THIS CONCLUDE YOUR TESTIMONY?**

3    **A.    Yes.**

CONFIDENTIAL ATTACHMENT JDS-1 IS BEING  
FILED UNDER SEAL.

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Summary: Testimony Direct Testimony of John D. Swez on Behalf of Duke Energy Ohio, Inc. electronically filed by Mrs. Tammy M. Meyer on behalf of Duke Energy Ohio Inc. and D'Ascenzo, Rocco and Akhbari, Elyse Hanson and Kingery, Jeanne and Vaysman, Larisa.