BEFORE
THE PUBLIC UTILITY COMMISSION OF OHIO

In the Matter of the Application of Duke Energy Ohio, Inc. for an Increase in Electric Distribution Rates.	)))	Case No. 17-32-EL-AIR
In the Matter of the Application of Duke Energy Ohio, Inc. for Tariff Approval.	))	Case No. 17-33-EL-ATA
In the Matter of the Application of Duke Energy Ohio, Inc. for Approval to Change Accounting Methods.	)))	Case No. 17-34-EL-AAM
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Modify Rider PSR.	))	Case No. 17-872-EL-RDR
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Amend Rider PSR.	))	Case No. 17-873-EL-ATA
In the Matter of the Application of Duke Energy Ohio Inc., for Approval to Change Accounting Methods.	)))	Case No. 17-874-EL-AAM
In the Matter of the Application of Duke Energy Ohio, Inc. for Authority to Establish a Standard Service Offer Pursuant to Section 4923.143, Revised Code, in the Form of an Electric Security Plan, Account Modifications, and Tariffs for Generation Service.	))))))	Case No. 17-1263-EL-SSO
In the Matter of the Application of Duke Energy Ohio, Inc. for Authority to Amend its Certified Supplier Tariff, P.U.C.O. No. 20.	)))	Case No. 17-1264-EL-ATA
In the Matter of the Application of Duke Energy Ohio, Inc. for Authority to Defer Vegetation Management Costs.	)))	Case No. 17-1265-EL-AAM
In the Matter of the Application of Duke Energy Ohio, Inc., to Establish Minimum Reliability Performance Standards Pursuant to Chapter 4901:1-10, Ohio Administrative Code.	))))	Case No. 16-1602-EL-ESS

DIRECT TESTIMONY OF JOSEPH HAUGEN
ON BEHALF OF
THE RETAIL ENERGY SUPPLY ASSOCIATION AND
INTERSTATE GAS SUPPLY, INC.

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q1. **Please introduce yourself.**

A1. My name is Joseph Haugen and I am employed by Interstate Gas Supply, Inc. d/b/a IGS Energy ("IGS" or "IGS Energy"). I am the Power Supply Director and have been in this role since May of 2017. I have responsibilities related to IGS's power supply and risk along with wholesale power market operations. I am also responsible for representing IGS in the PJM Interconnection, Inc. stakeholder process, supervising IGS's demand response programs, and the daily operation and bidding of distributed energy resources into the PJM Frequency Regulation Market. My business address is 6100 Emerald Parkway, Dublin, Ohio 43016. I have worked at IGS since February 2013 when I was hired as a Senior Supply Analyst and aided in developing and implementing wholesale risk management hedging and trading strategies. In January 2015, I was promoted to Power Supply Manager where I managed a team of analysts responsible for implementing risk management and trading strategies.

Q2. On whose behalf are you testifying?

A2. I am testifying on behalf of IGS Energy and the Retail Energy Supply Association ("RESA").[1]

Q3. Please describe your educational background and work history.

[1] The comments expressed in this filing represent the position of the Retail Energy Supply Association (RESA) as an organization but may not represent the views of any particular member of the Association. Founded in 1990, RESA is a broad and diverse group of twenty retail energy suppliers dedicated to promoting efficient, sustainable and customer-oriented competitive retail energy markets. RESA members operate throughout the United States delivering value-added electricity and natural gas service at retail to residential, commercial and industrial energy customers. More information on RESA can be found at www.resausa.org.

A3. I graduated from the Ohio State University in 2005 with a B.A. I obtained a Master of Business Administration from Otterbein University in 2009. Prior to working at IGS, I was an energy scheduler for Buckeye Power from 2007 through 2013. I scheduled daily power usage for the 25 cooperatives in Ohio and coordinated generation resources including wind, natural gas, and coal plants in the wholesale markets. I was also responsible for operating the demand response program. Prior to that I was a Laboratory Manager for CTL Engineering from 2005 to 2007.

Q4. What is the nature of IGS's business?

A4. IGS Energy has over 25 years' experience serving customers in Ohio's competitive markets. IGS Energy serves over 1 million customers nationwide and sells natural gas and electricity to customers in 11 states and in over 40 utility service territories. In Ohio, IGS currently serves electric customers in the Duke, AEP, FirstEnergy Ohio, and the Dayton Power & Light service territories. The IGS family of companies (which include IGS Generation, IGS Home Services and IGS CNG Services) also provides customer focused energy solutions that complement IGS Energy's core commodity business including demand response, IGS Solar, IGS Construction, distributed generation, CNG refueling, back-up generation and utility line protection. In relation to this testimony, IGS has several distributed energy resources which operate in the PJM Frequency Regulation Market.

Q5. Have you testified previously?

A5. Yes, I submitted testimony in Case Nos. 14-841-EL-SSO, *et al.*, Case Nos. 14-1693-EL-RDR, and Case No. 14-1297-EL-SSO,

Q6. What is the purpose of your testimony?

A6. The purpose of my testimony is to ensure that the Commission prohibits Duke from utilizing battery storage projects to compete in wholesale markets. As I will discuss further below, such conduct would be inconsistent with the Stipulation, violate Ohio law policy, and distort wholesale market prices to the detriment of other distributed energy resources, such as the resources owned by IGS. The PJM Frequency Regulation (FR) market is a competitive wholesale market, and, as described below, Rider DCI would provide a subsidy from distribution customers to support Duke Energy Ohio's provision of a wholesale competitive service.

Q7. Can you explain the battery storage proposal before the Commission?

A7. Yes, In Duke's electric security plan ("ESP") application, Duke proposed to construct 10 megawatts in battery storage project(s). Among other things, Duke proposed to "provide certain ancillary services to the PJM Interconnection, L.L.C. (PJM) market. Specifically, the project is likely to provide frequency regulation, thereby helping to stabilize the electric grid in a manner that is more efficient than traditional resources, such as fossil generation."[2] As part of the Stipulation and Recommendation, Duke is permitted to install "battery storage project(s) for the purpose of deferring circuit investments or addressing distribution reliability issues."[3] The Stipulation proposes that Duke recover up to $20 million in battery investments through the non-bypassable distribution rider DCI. [4] Consequently, the Stipulation provides that the investments "[m]ust qualify as distribution equipment under the FERC uniform system of accounts authorized for

[2] Direct Testimony of Duke witness Kuznar at 3.
[3] Stipulation at 13.
[4] *Id.*

collection via the Rider DCI and subject to the Rider DCI caps."[5] Thus, the investment must qualify under FERC Accounts 360-374.[6]

Q8. Do you have any concerns with Duke's battery proposal as modified by the Stipulation and presented by Duke in testimony?

A8. Yes, while I believe the Stipulation contains restrictions on Duke's utilization of battery resources, Duke's testimony and discovery responses raise concerns the Commission should directly address in its Opinion and Order. Specifically, in response to discovery on the Stipulation, Duke stated that "If authorized by the Commission, Duke may use the battery projects to participate in wholesale markets. Duke will evaluate frequency regulation and other potential markets if authorized to participate in those markets by the Commission."[7] Further, Duke Witness Wathen alleges battery storage resources qualify under FERC Account 363, but then he also states in a separate piece of testimony that "the Commission should provide explicit authority to include battery storage in Rider DCI, even if the investment in this equipment is ultimately recorded in FERC Accounts other than Accounts 360-374."[8] Although I believe that these statements are inconsistent with the Stipulation, the fact that they were made after the filing of the Stipulation demonstrates a need for the Commission to explicitly restrict Duke from participating in wholesale markets with subsidized battery resources.

II. <u>THE UNLAWFUL USE OF RESOURCES IN RIDER DCI</u>

Q9. Could you explain Duke Energy Ohio's Rider DCI with regards to battery storage?

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[5] Stipulation at fn 10.
[6] Stipulation at 11. "Capital costs included in Rider DCI shall be those recorded in FERC Accounts 360 through 374, provided such costs are not recovered elsewhere." *Id.*
[7] Duke Response to IGS-INT-01-001, IGS First Set of Interrogatories – Stipulation, Case Nos. 17-32-EL-AIR, et al, attached as Exhibit JH-1.
[8] Supplemental Direct Testimony of William Wathen at 47.

A9. The Stipulation provides that Duke may recover the cost of battery resources through Rider DCI for the purpose of deferring circuit investments or addressing distribution reliability issues and that this equipment will qualify as distribution equipment under the Uniform System of Accounts.[9] Witness Wathen further clarifies, that the energy storage equipment will qualify as a distribution resource and the cost of the resource must be allocated through rates approved by a relevant regulatory agency under Account 363.[10] But, as explained previously Duke has indicated that it desires to use these storage projects for wholesale market functions including Frequency Regulation in the PJM markets.

Q10. Could you explain PJM's Frequency Regulation Market?

A10. Frequency Regulation (FR) in the PJM market is a competitive service that corrects for short-term changes in electricity. It matches up generation and demand more quickly than many of the steam units to help the grid maintain the desired electrical frequency and operate normally. Market participants submit their offer price the day before the operating day and can adjust the MW capability hourly through the operating day. PJM runs an hourly auction for the service which sets the hourly price and determines which units will provide the service based on the lowest price offers and historical performance.

Q11. Do you believe resources can participate in wholesale energy markets and qualify under Rider DCI?

A11. No. In order for the resource to qualify under Rider DCI, the resource must qualify under Accounts 360-374. Those accounts—particularly account 363—are limited to assets utilized for distribution purposes. The FERC regulated wholesale markets are not

[9] Stipulation and Recommendation, page 13.
[10] Second Supplemental Testimony of William Don Wathen Jr. In Support of Stipulation, Page 11.

distribution related. It is my belief that if they operate in wholesale markets, they would not qualify as a distribution resource under Account 363. They would be providing a wholesale service and receiving revenue from the PJM wholesale markets. Given that fact, the more appropriate account to record such battery assets is FERC Account 348, which relates to Energy Storage Equipment—Production. As witness Wathen himself acknowledges, under the FERC Accounting rules established by FERC Order 784, "Where energy storage equipment can perform more than one function or purpose, the cost of the equipment shall be allocated among production, transmission, and distribution plant based on the services provided by the asset." Wholesale market services relate to production—not distribution.

Q12. Do you believe the Commission should make any clarifications to the Stipulation?

A12. Yes, I believe the commission should explicitly exclude any projects under Rider DCI from competing in the wholesale energy markets. By guaranteeing full cost recovery for the project, this would insulate the battery from the risk of the market, provide an unlawful subsidy for a generation related service, and discourage other resources from participating in the competitive market. Duke Energy Ohio should be required to stand on its own, just like all other resources in the market. Allowing the Duke Energy Ohio battery to receive guaranteed recovery of costs from all Duke Ohio customers would harm all other resources that do not get guaranteed cost recovery and negatively impact the PJM market.

Q13. Can you explain how the permitting subsidized energy storage to provide FR would interfere with PJM's wholesale markets?

A13. Yes. PJM has established an interstate market for FR services. The FR Market establishes uniform prices for this ancillary service throughout all of PJM. The FR Market rewards efficient sellers and drives inefficient sellers out of business. The problem with the proposed projects under Rider DCI operating in wholesale markets is that it allows Duke Energy Ohio to receive a different level of compensation in addition to the uniform clearing price. This guaranteed revenue recovery would permit Duke to participate in the wholesale market without the risks that apply to other resources participating in that market.

Q14. Do you believe that providing cost recovery through Rider DCI for resources that participate in the wholesale market would provide an unlawful subsidy to a competitive service?

A14. Yes, I do. R.C. 4928.02(H) states that it is the state policy to "[e]nsure effective competition in the provision of retail electric service by avoiding anticompetitive subsidies flowing from a noncompetitive retail electric service to a competitive retail electric service or to a product or service other than retail electric service, and vice versa, including by prohibiting the recovery of any generation-related costs through distribution or transmission rates." Frequency Regulation is a generation-related competitive service. It would be inappropriate to permit Duke to subsidize its battery investment through its non-competitive service, Rider DCI, and to then use the battery assets to compete to provide competitive wholesale services.

Q15. Would allowing Duke to use subsidized batteries to participate in wholesale markets discourage other market participants from building distributed energy resources?

A15. Yes, it would pick a particular resource to receive cost-based rate recovery over other resources, removing certain resources from the competitive wholesale FR markets. The battery resources would receive guaranteed cost recovery and have a competitive advantage over resources relying on wholesale markets that must bid into and be selected in the hourly FR auctions, creating an unduly discriminatory effect. Put simply, subsidized resources need not make decisions like rational market participants. This unpredictability in itself can discourage investment.

Q16. Why are you interested in this portion of Rider DCI?

A16. IGS has invested considerably in physical resources, many of which are in Ohio, which would be in direct competition with the proposed batteries in the PJM FR market. While we must factor in market and investment risk, a resource with guaranteed cost recovery would be at an unfair advantage and create a dysfunctional market. We believe that there should be a level playing field in the PJM markets and that winners and losers shouldn't be selected by subsidizing specific resources. Therefore, we urge the Commission to prohibit Duke from using battery resources recovered through the DCI from participating in wholesale markets.

Q17. Does this conclude your testimony?

A17. Yes it does. But I reserve the right to supplement my testimony.

CERTIFICATE OF SERVICE

I hereby certify that a copy the foregoing Direct Testimony of Joseph Haugen was served by electronic mail this 25th day of June, 2018 to the following:

rocco.dascenzo@duke-energy.com
elizabeth.watts@duke-energy.com
jeanne.kingery@duke-energy.com
camal.robinson@duke-energy.com
chris.miller@icemiller.com
mike.mizell@icemiller.com
mkurtz@bkllawfirm.com
jkylercohn@bkllawfirm.com
dboehm@bkllawfirm.com
william.michael@occ.ohio.gov
kevin.moore@occ.ohio.gov
christopher.healey@occ.ohio.gov
zachary.woltz@occ.ohio.gov
terry.etter@occ.ohio.gov
fdarr@mwncmh.com
mpritchard@mwncmh.com
cmooney@ohiopartners.org
mfleisher@elpc.org
paul@carpenterlipps.com
mleppla@theoec.org
tdougherty@theoec.org
joliker@igsenergy.com
mnugent@igsenergy.com
eakhbari@bricker.com
nhewell@bricker.com
mdortch@kravitzllc.com
kboehm@bkllawfirm.com
bojko@carpenterlipps.com
dressel@carpenterlipps.com
daltman@environlaw.com
jnewman@environlaw.com
jweber@environlaw.com
swilliams@nrdc.org
rdove@attorneydove.com
mjsettineri@vorys.com
glpetrucci@vorys.com
charris@spilmanlaw.com
dwilliamson@spilmanlaw.com
lbrandfass@spilmanlaw.com
dborchers@bricker.com
dparram@bricker.com
talexander@calfee.com
jlang@calfee.com
slesser@calfee.com
mkeaney@calfee.com
rsahli@columbus.rr.com
tony.mendoza@sierraclub.org
steven.beeler@ohioattorneygeneral.gov
robert.eubanks@ohioattorneygeneral.gov

/s/ Rebekah J. Glover
One of the Attorneys for the Retail Energy Supply Association

Duke Energy Ohio
Case No. 17-0032-EL-AIR, et al.
IGS First Set of Interrogatories - Stipulation
Date Received: May 10, 2018

IGS-INT-01-001

REQUEST:

The Stipulation states at p. 13 that "Duke Energy Ohio may install a battery storage project(s) for the purpose of deferring circuit investments or addressing distribution reliability issues." Regarding this statement:

a. Identify all circuit investments that Duke has idenfitied for potential deferral.
b. Identify the definition of "distribution reliability issues" and all possible battery applications to address such issues.
c. Does Duke intend to use the battery storage project(s) to participate any wholesale markets, including but not limited to the frequency regulation market? If so, identify all markets.
d. Identify the anticipated depreciation life for the battery storage project(s).
e. Identify the expected useful life of the battery storage projects with and without participation in wholesale markets, including but not limited to the frequency regulation market.
f. Regarding Duke's response to (e), identify all information, statistics, studies, and data to support the useful life under all scenarios.

RESPONSE:

a. Duke is reviewing the potential for circuit investment deferral but has not finalized project details sufficient to identify specific circuit investments for deferral.
b. Distribution reliability issues refers to outages and power quality issues for customers.Batteries can be operated in island mode to prevent outages for customers. Batteries can also react to changes in power quality such as a drop in voltage in order to maintain power quality for customers.
c. If authorized by the Commission, Duke may use the battery projects to participate in wholesale markets. Duke will evaluate frequency regulation and other potential markets if authorized to participate in those markets by the Commission.
d. We expect the cells and monitoring equipment to have a depreciation life of 12 years and the remaining equipment to have a depreciation life of 25 years. This could change depending on project specific details.
e. This is unknown and will depend on the specific project and battery technology, which have not been finalized yet.
f. As no specific projects have been evaluated to determine a useful life there is no additional information to provide.

PERSON RESPONSIBLE: Zachary Kuznar