BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Authority to Provide for a Standard Service Offer Pursuant to R.C. 4928.143 in the Form of an Electric Security Plan.	)	Case No. 14-1297-EL-SSO

SUPPLEMENTAL TESTIMONY OF JOHN SERYAK ON BEHALF OF THE OHIO MANUFACTURERS' ASSOCIATION ENERGY GROUP

December 30, 2015

Introduction

Q. Please state your name and business address.

A. My name is John A. Seryak. My principal place of business is at 3709 N. High Street, Columbus, Ohio 43214.

Q. By whom are you employed and in what capacity?

A. I am the lead analyst at RunnerStone, LLC on regulatory, policy, and wholesale market matters concerning customer-sited energy resources, which we define as energy efficiency, demand response, distributed generation, and energy storage. I am also Chief Executive Officer of Go Sustainable Energy, LLC, a consultancy that provides technical assistance on energy efficiency matters to the industrial, commercial, residential, and utility sectors.

Q. On whose behalf are you testifying in this proceeding?

A. My testimony is being sponsored by the Ohio Manufacturers' Association Energy Group (OMAEG). OMAEG is a non-profit entity that strives to improve business conditions in Ohio and drive down the cost of doing business for Ohio manufacturers.

OMAEG members take service under the General Service-Secondary (GS), General Service Primary (GP), and General Service – Subtransmission (GSU) tariffs.

Q. Please describe your professional experience and qualifications.

A. I received a Bachelor's degree in Mechanical Engineering from the University of Dayton, as well as a Master's of Science degree in Mechanical Engineering. I am a licensed Professional Engineer in the State of Ohio. I have worked extensively with customer-sited resources, primarily energy efficiency, for 14 years. My experience includes field work at industrial, commercial, and residential buildings identifying energy savings opportunities and quantifying the energy and dollar savings, chiefly through my responsibilities the last nine years for Go Sustainable Energy, LLC, of which I am a founding partner. Finally, I have three years of experience in regulatory and policy analysis in regard to behind-the-meter customer-sited energy resources. I have gained this experience in my role as an energy efficiency engineer to the OMAEG. In connection with these experiences, I have authored over 25 peer-reviewed academic papers on technical, programmatic, cultural, and regulatory issues concerning energy efficiency and distributed generation.

Q. Are you the same John A. Seryak who previously filed testimony in this proceeding?

A. Yes. I filed Direct Testimony in this proceeding on March 2, 2015.[1]

[1] OMAEG Ex. 22.

Overview and Conclusions

Q. What is the purpose of your testimony in this proceeding?

A. My testimony addresses the Third Supplemental Stipulation and Recommendation provisions filed in this proceeding by Ohio Edison Company (Ohio Edison), The Cleveland Electric Illuminating Company (CEI), and The Toledo Edison Company (Toledo Edison) (collectively, the Companies) on December 1, 2015 (Third Supp. Stipulation), which resulted in the Stipulated ESP IV as defined by the Ohio Edison Company, the Cleveland Electric Illuminating Company, and the Toledo Edison Company (collectively, the Companies),[2] including provisions related to the interaction of energy efficiency and renewable energy issues with the proposed power purchase agreement (PPA). In summary, I will testify that:

- The Third Supp. Stipulation provisions reduce wholesale electric market revenues,[3] and thus would increase costs to customers under Rider RRS.
- Industry practice has typically over-forecasted load, and the Companies have used this over-forecast as the basis of their cost estimates included in the testimony supporting the Third Supp. Stipulation and the filed workpaper.[4] In contrast, PJM Interconnection, LLC (PJM), the Regional Transmission Organization (RTO), is downward revising its load forecast,

[2] As explained by the Third Supp. Stipulation at 2, the Third Supp. Stipulation, together with the "Prior Stipulations" (defined as the December 22, 2014 Stipulation, the May 28, 2015 Supplemental Stipulation, and the June 4, 2015 Second Supplemental Stipulation) form the "Stipulated ESP IV," which must be considered as a package. See also Fifth Supplemental Testimony of Eileen M. Mikkelsen at 2 (December 1, 2015) (Mikkelsen Fifth Supplemental Testimony). See OMAEG Ex. 19 for a discussion of the amendments to the Application as a result of the three Prior Stipulations.

[3] See Third Supp. Stipulation at 11, 12.

[4] See Fifth Supplemental Testimony of Eileen M. Mikkelsen at 12 and Mikkelsen Workpaper (November 30, 2015), both filed on December 1, 2015 in this proceeding.

which would result in lower wholesale electric market prices and increased Rider RRS costs compared to the Companies' current estimates.

- The Third Supp. Stipulation's energy efficiency provisions, on balance, provide no new benefits while introducing elements that would make energy efficiency more costly.[5]
- The renewable energy provisions of the Third Supp. Stipulation are anti-competitive and could negatively impact business interests.[6]

Given the wide scope of the issues addressed in the Third Supp. Stipulation, my recommendations are concentrated on a limited number of issues. Absence of comment on my part regarding a particular aspect of the Third Supp. Stipulation or the Stipulated ESP IV does not signify support (or opposition) toward the Companies' filing with respect to said issue.

Q. What are your primary conclusions and recommendations?

A. I conclude that the Third Supp. Stipulation and Stipulated ESP IV are in conflict with the three-part test considered by the Commission for approval. I disagree that the Stipulated ESP IV, as a whole, benefits customers and the public interest. Neither the Companies nor any other signatory party has provided analysis of the Stipulated ESP IV showing that it benefits customers and the public interest on the whole. However, many non-signatory parties have provided critiques on why it will not benefit customers or the public interest.

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[5] See Third Supp. Stipulation at 11, 12, 13.

[6] Id. at 12.

Moreover, in the Commission's limited approval of the establishment of a similar rider to potentially collect future costs associated with a PPA in AEP Ohio's Electric Security Plan proceeding,[7] the Commission set forth key considerations which the Stipulated ESP IV does not meet:

- The Commission considered "whether the Company's proposal would provide the purported benefits or otherwise further the policy of the state."[8] In denying AEP Ohio's proposed PPA Rider, the Commission concluded that it "is unable to reasonably determine the rate impact of the rider,"[9] and stated that it was not persuaded that the proposed rider "would, in fact, promote rate stability, as the Company claims, or that it is in the public interest."[10] Recent revisions to load forecasts, and the addition of price suppressing provisions in the Third Supp. Stipulation,[11] create doubt that the Companies' proposed Rider RRS would produce benefits during the eight-year term.
- Another key consideration the Commission established in AEP Ohio's ESP Order is that a PPA rider should stabilize the wholesale market for retail customers.[12] The Commission assumes a PPA rider will rise and fall

[7] *In the Matter of the Application of Ohio Power Company for Authority to Establish a Standard Service Offer Pursuant to R.C. 4928.143, in the Form of an Electric Security Plan, et al.*, Case No. 13-2385-EL-SSO, et al., Opinion and Order at 20-27 (February 25, 2015) (considering AEP Ohio's proposed PPA Rider)(AEP Ohio ESP Order).

[8] Id. at 20

[9] Id. at 24.

[10] Id.

[11] Third Supp. Stipulation at 11-12.

[12] AEP Ohio ESP Order at 21, 23.

opposite of wholesale prices.[13] However, the Third Supp. Stipulation undermines this consideration by introducing renewable energy and storage provisions, and purporting to introduce additional energy efficiency, all of which suppress wholesale electricity prices, increasing the costs of Rider RRS to customers.[14] Thus, Rider RRS, as now proposed via the Stipulated ESP IV, will have inherent internal conflicts, damaging its ability to function as a hedge.

<u>The Third Supp. Stipulation and New Load Forecast Information Increases the Likelihood that Costs will be Passed onto Customers through Rider RRS.</u>

Q. Would the provisions of the Third Supp. Stipulation and resulting Stipulated ESP IV affect the costs and benefits of Rider RRS?

A. Yes.

Q. Did the Companies provide an analysis of the costs and benefits of Rider RRS to customers over its revised eight-year term, including the additional or modified provisions included in the Third Supp. Stipulation?

A. No, not in totality.[15]

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[13] Id. at 21.

[14] Third Supp. Stipulation at 11-12.

[15] See Fifth Supplemental Testimony of Eileen M. Mikkelsen at 12 and Mikkelsen Workpaper (November 30, 2015), both filed on December 1, 2015 in this proceeding; also see, generally, Third Supp. Stipulation.

Q. Did any other Signatory Party or non-opposing party provide an analysis of the costs and benefits of Rider RRS to customers, including the provisions from the Third Supp. Stipulation?

A. No.

Q. Did the Companies provide an updated analysis of the projected market revenue and costs associated with RRS Rider in the Third Supp. Stipulation, supporting testimony, or filed workpapers?

A. No. As indicated in the Mikkelsen Workpaper (November 30, 2015), the sources identified for the projected market revenue and costs associated with Rider RRS are previously filed exhibits in the proceeding, with a modification to the projected costs to take into consideration the modified return on equity contained in the Third Supp. Stipulation.[16]

Q. Will the Commission have all quantitative information by which to judge the effect of this Third Supp. Stipulation on customer bills?

A. No, not in totality.

Q. Why not?

A. In addition to the new or modified provisions included in the Third Supp. Stipulation, there is other updated information that could substantively change previous estimates of costs and benefits of the proposed Rider RRS. PJM is

[16] See Mikkelsen Workpaper (November 30, 2015) (Attachment JAS-1).

reducing its load forecast by 3.5-5%,[17] depending on the year forecasted. This reduction is recent and concurrent with the settlement negotiations concerning the Companies' Third Supp. Stipulation. PJM's forecast years are all within the proposed term of Rider RRS. PJM recently released a draft load forecast. Its final load forecast is due on or around December 30, 2015.

Q. How could PJM's reduction of its load forecast impact the validity of the Companies' cost estimates included in the testimony supporting the Third Supp. Stipulation and the filed workpaper (Stipulated ESP IV)?

A. The Companies previously estimated costs and benefits of its proposed Rider RRS is based on PJM's 2014 load forecast.[18] PJM's load forecast reductions of 3.5%-5%, applied to the Companies' estimates would likely reduce the revenue projected to be achieved by the power plants under the PPA. This would result in additional costs to customers for every year of its modified eight-year term. Thus, the Companies are likely significantly overestimating revenue potential of their power plants included in the PPA.

PJM's revisions to its load forecast are in synch with retrospective studies of other respected load forecasts. For example, the US Department of Energy's (DOE) Energy Information Administration (EIA) prepares load forecasts as part of its Annual Energy Outlook (AEO). Even according to EIA's own retrospective studies, its AEO forecasts nearly always significantly overestimate load in

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[17] http://www.pjm.com/~/media/committees-groups/subcommittees/las/20151130/20151130-item-07-preliminary-load-report.ashx, at 2.

[18] Tr. Vol. VI at 1179, lns.15-23.

medium-term and long-term forecasts. Figure 1 is reproduced from the EIA Annual Energy Outlook Retrospective Review.[19] Note that this shows EIA forecasts generally overestimate electricity load (overestimated load shown in blue). Since 2000, EIA has over-estimated its 5-year forecast load by over 6.5%, on average. In the same time period, its 7-year forecast is decidedly worse, overestimating load on average by 8.3%.

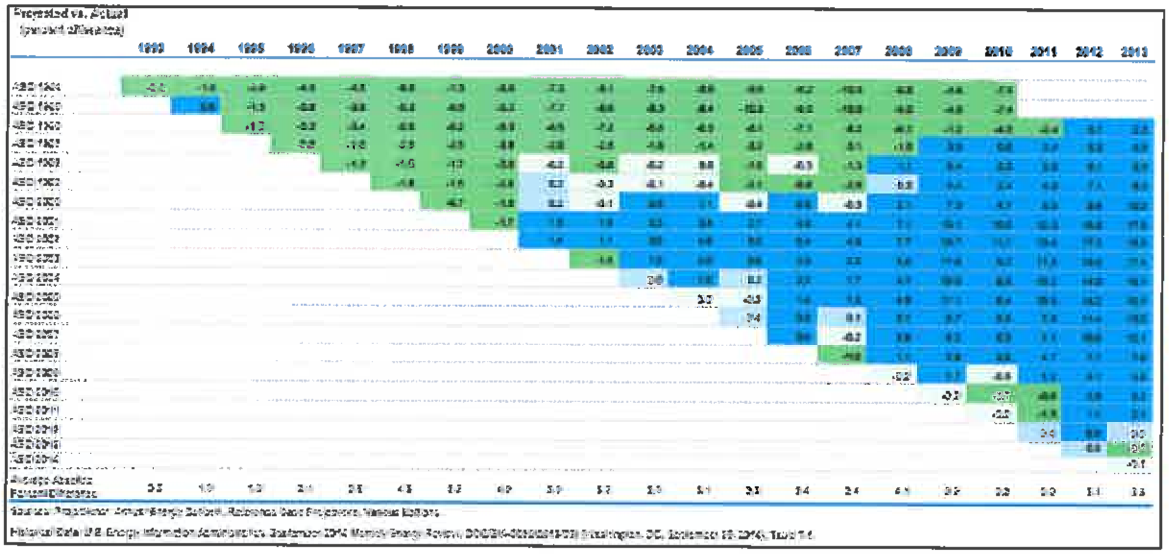

Figure 1: EIA AEO Retrospective Review, Table 15

This is further evidence that in recent years load forecasts have generally over-estimated load.

[19] https://www.eia.gov/forecasts/aeo/retrospective/pdf/table_15.pdf

Q. How would adoption of PJM's most recent load forecasts affect the Companies' cost estimates of Rider RRS included in the testimony supporting the Third Supp. Stipulation and the filed workpaper (Stipulated ESP IV)?

A. It increases the likelihood that the proposed Rider RRS will only create costs for customers, not benefits. In light of PJM's load forecast reduction, and EIA's retrospective review, the Companies' estimate of benefits to customers through Rider RRS in the later years of the eight-year term is unlikely.[20]

Q. Should the Commission take PJM's reduction in its load forecast into consideration when evaluating the Third Supp. Stipulation?

A. Yes. PJM's revisions mark a major development, and will result in less generating capacity resources clearing in the PJM capacity auctions. This will likely suppress capacity clearing prices, and could undercut the Companies' assumptions of capacity market prices and revenue as stated in the testimony supporting the Third Supp. Stipulation and the filed workpaper.[21] And, if the Companies are similarly over-forecasting load in the energy market, it would result in lower energy sales by the output of the generating facilities included in the PPA during the eight-year term of Rider RRS.

[20] See Mikkelsen Workpaper (November 30, 2015) (Attachment JAS-1).

[21] See Fifth Supplemental Testimony of Eileen M. Mikkelsen at 12 and Mikkelsen Workpaper (November 30, 2015), both filed on December 1, 2015 in this proceeding.

Q. Does the Third Supp. Stipulation further modify the Companies' cost estimates?

A. Yes. The Third Supp. Stipulation introduces, or purports to introduce, several new energy resources:

- 100 MW of wind or solar.[22]
- Battery resources.[23]
- 800,000 MWh of energy efficiency per year.[24]

Each of these resources will have the effect of reducing electricity sales from traditional generation, reducing capacity sales from traditional generation, and will suppress prices in wholesale electric energy and capacity markets.

For example, utility-scale wind and solar resources are dispatched before other resources by PJM in its energy markets. The price suppression effect from this dispatch order was recognized by the Commission in its August 2013 study, "Renewable Resources and Wholesale Price Suppression",[25] wherein Staff of the Commission used PROMOD IV to simulate electricity market outcomes. The report concludes:

- "The model demonstrates that wholesale electricity market prices in Ohio are reduced…as a result of incorporating the renewable generation resources."[26]

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[22]Third Supp. Stipulation at 12.

[23]Id. at 11.

[24]Id. at 11.

[25]http://www.ohiomfg.com/wp-content/uploads/2013-08-16_lb_energy_renewable_resource_and_wholesal_price_suppression.pdf.

[26] Id. at 5.

- "As renewable generation requirements escalate and new projects are required, future model runs can be made…this analysis can be conducted by Commission Staff through PROMOD IV simulation, a powerful, well respected and unbiased tool that is currently at our disposal."[27]

Similarly, multiple studies have shown that energy efficiency suppresses load and prices in both energy and capacity markets. According to Lazard's 2015 Levelized Cost of Energy (LCOE) study,[28] all of these resources are economically competitive with, or better than, coal-fired power plants. This increases the likelihood that these new resources will shift the Companies' PPA power plants into an uncompetitive position. In fact, Companies witness Rose (who performed the underlying forecasted wholesale market electricity prices used to calculate the costs and revenues included in JAR-1 Revised as referenced on the Mikkelsen Workpaper (JAS-1))[29] describes in great detail how price suppression from load reductions has created the economic conditions in which the PPA power plants are uneconomical.[30]

Finally, the Companies witness Rose cites that electricity market price's "High volatility is driven by a lack of storage."[31] As the Companies rely on market volatility as a key argument for supporting Rider RRS, the introduction of storage in their Third Supp. Stipulation undermines their original argument of need for

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[27] Id. at 7.

[28] https://www.lazard.com/media/2390/lazards-levelized-cost-of-energy-analysis-90.pdf

[29] See reference to JAR-1 Revised and Company Ex. 33 at 6 (Jay A. Ruberto Direct Testimony (August 4, 2014)); also see Tr. Vol. XIII at 2763-69 (September 17, 2015).

[30] Direct Testimony of Judah Rose at 14-20 (Rose Direct) (Companies Exhibit 17).

[31] Id. at 62.

Rider RRS. That is, if storage reduces volatility, Rider RRS is not necessarily needed for that purpose as well.

In the context of the Third Supp. Stipulation, price suppression benefits from renewable energy and energy efficiency resources that would normally accrue universally to ratepayers would now be countered by Rider RRS. Stipulation. That is, the Companies' plants could possibly sell less energy, less capacity, and would certainly sell output at a lower price, because of the renewable and energy efficiency provisions contained in the Third Supp. Stipulation. The provisions of the Third Supp. Stipulation would thus reduce the revenue of the Companies' PPA plants, thus increasing the cost of Rider RRS to customers.

Q. Is the Companies' commitment in the Third Supp. Stipulation to provide energy efficiency savings meaningful?

A. No. First, while the Companies offer to reactivate energy efficiency program offerings in 2017,[32] they are already required to do so by law. Unless the Companies are successful in changing the law within the next year, this is a meaningless provision.

Second, the Companies state that their energy efficiency plan "will be subject to Commission review and approval" in a separate proceeding.[33] Typically, this review and approval includes addressing how much money the Companies are allowed to collect in shareholder profit, referred to as "shared savings". There has

[32] Third Supp. Stipulation at 11.

[33] Id.

been considerable dispute among parties on the amount of profit a utility should be able to collect, what performance metrics this profit should be tied to, and the timing of the collection. However, the Third Supp. Stipulation deprives the Commission and intervenor groups from debating shared savings collection in a separate proceeding, as the shared savings cap is increased and dictated in this Third Supp. Stipulation.[34]

Finally, the Third Supp. Stipulation commits the Companies to file a case prior to April 3, 2017 to transition to straight-fixed-variable rates for the residential class. Straight-fixed-variable rate designs remove a significant amount of price signal between consumer use of electricity and costs. It will inherently undermine energy efficiency efforts, as efficient users will spend nearly as much on electricity as inefficient users. This provision could result in shifting energy efficiency focus away from the residential class to the business class in an inequitable manner.

Customer Need for a Renewable Energy and Rider ORR

Q. How do the Companies propose paying for its proposed wind and solar projects included in the Third Supp. Stipulation?

A. If the provision is implemented, the Third Supp. Stipulation requires all costs incurred from the renewable energy projects to be recovered through a non-bypassable rider, the Ohio Renewable Resources Rider (Rider ORR), by selling the resource (energy and renewable energy credits (RECs)) into the market, and

[34] Id. at 12.

charging or crediting the difference between the all-in price and the comparable wholesale price received from the market to customers.

Q. Do businesses already purchase renewable energy?

A. Yes. Businesses and other customers increasingly integrate renewable energy purchases, or on-site renewable energy projects, into their electricity purchasing strategies.[35] A business may purchase 100% renewable energy, or strategically purchase a percentage of its electricity from renewable sources.

Q. What impact does the Third Supp. Stipulation have on customers that have already purchased renewable energy or installed renewable energy?

A. In effect, these businesses pay twice for renewable energy: First, for their own project or purchase, and second, for the Companies' proposed Rider ORR. Moreover, it may affect the revenue that a customer-sited renewable energy project would otherwise receive. A business may decide to keep, or sell, its RECs when it develops a renewable energy project. If a business retains its RECs, it may bypass paying its CRES provider for compliance for the present-day Renewable Energy Portfolio Standard (RPS), or future CPP compliance. Without bypassability, a business would subsidize other ratepayers if Rider ORR includes renewable energy. If a business sells its RECs, the market price of RECs may be

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[35] Public examples include: Amazon's recent announcement to power its new central Ohio data centers with 100% Ohio wind (http://www.dispatch.com/content/stories/business/2015/11/19/amazon-to-build-wind-farm-in-ohio.html); Ohio State University's announcement to power 25% of its campus with Ohio wind (http://oee.osu.edu/ohio-state-to-power-campus-with-wind-energy.html); and the GM Lordstown Plant's solar installation (http://media.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2014/Oct/1020-lordstown-chevrolet.html).

unfairly influenced by ratepayer subsidization of the Companies' renewable energy projects. That is, allowing Rider ORR would force a business to subsidize it's competitor in the REC market.

Q. Is the Rider ORR mechanism different than an RPS in regards to development of renewable energy?

A. Yes. The RPS promotes and allows resource competition. A business may purchase RECs, sell RECs, or develop its own customer-sited renewable energy project and retain ownership of the RECs. An RPS creates a market of many buyers and many sellers, where information is transparently communicated via market prices of RECs. This competition and market pricing often serves to drive prices down. Rider ORR, in contrast, undercuts market development by greatly limiting the number of buyers and sellers. Additionally, by allowing the buyer and seller to be affiliated, and by removing both parties from the risk of the project (the ratepayers take the risk), the potential for price manipulation is high.

Q. What are your conclusions?

A. The Companies' estimates of benefits to ratepayers of the Stipulated ESP IV included in the testimony supporting the Third Supp. Stipulation and filed workpapers are likely over-estimated, and were completed prior to the filing of the Third Supp. Stipulation and not updated with the new filings. Nonetheless, the Third Supp. Stipulation introduces significant amounts of new generation resources that will reduce revenue of the generation plants included in the PPA, increasing the likelihood that Rider RRS will create costs for customers. It is quite possible then, that Rider RRS will not provide a hedge at all for customers, but only create costs.

Additionally, the Third Supp. Stipulation does not introduce new energy efficiency resources, but instead deprives parties of debating critical components of program costs (shared savings), and introduces rate designs that discourage energy efficiency.

Rider ORR may require businesses to pay twice for renewable energy and is anti-competitive for the development of renewable energy resources.

Q. Do you have recommendations for the Commission?

A. Yes. First, I recommend that the Commission require the Companies to provide an analysis of the costs and benefits of the total package of the Stipulated ESP IV, including all provisions of the Third Supp. Stipulation. The proposed Third Supp. Stipulation creates new precedent and costs for years to come, and the new provisions are highly interactive, affecting market prices and revenue. A thorough, transparent cost analysis should be a minimum requirement for such a proposal. And considering that the Companies relied upon PJM's load forecast for their cost estimates included in the testimony supporting the Third Supp. Stipulation, and PJM has significantly changed its load forecast, an updated analysis is warranted and logical.

Second, the Commission should consider requesting its own Staff to use the market modeling resources that it has and also provide an independent analysis of the costs and benefits of all provisions of the Stipulated ESP IV, including the Third Supp. Stipulation.

Third, given that the Companies have presented no comprehensive analysis in support of its Stipulated ESP IV, including the Third Supp. Stipulation, the Commission should take into consideration that recent downgrades of future load forecasts and provisions from the Third Supp. Stipulation could result in Rider RRS no longer serving as a hedge, but only as a cost to customers. For that reason alone, the Commission should deny it in full.

Finally, the Commission should deny the request in the Third Supp. Stipulation to establish a new non-bypassable rider, the ORR. The renewable energy provisions of the Third Supp. Stipulation are irrelevant to the Companies' stated needs for its affiliate's power plants, in addition to being anti-competitive for the development of renewable energy. At a minimum, the Commission should modify the Third Supp. Stipulation and establish Rider ORR as bypassable for businesses that are already purchasing renewable energy or developing renewable energy projects of their own accord.

Q. Does this conclude your direct testimony?

A. Yes.

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the foregoing was served upon the following parties via electronic mail on December 30, 2015.

Danielle M. Ghiloni

Thomas.mcnamee@puc.state.oh.us
Thomas.lindgren@puc.state.oh.us
Steven.beeler@puc.state.oh.us
mkurtz@BKLlawfirm.com
kboehm@BKLlawfirm.com
jkylercohn@BKLlawfirm.com
stnourse@aep.com
mjsatterwhite@aep.com
yalami@aep.com
Jennifer.spinosi@directenergy.com
ghull@eckertseamans.com
myurick@taftlaw.com
dparram@taftlaw.com
Schmidt@sppgrp.com
ricks@ohanet.org
tobrien@bricker.com
mkl@bbrslaw.com
gas@smxblaw.com
wttpmlc@aol.com
lhawrot@spilmanlaw.com
dwilliamson@spilmanlaw.com
blanghenry@city.cleveland.oh.us
hmadorsky@city.cleveland.oh.us
kryan@city.cleveland.oh.us
mdortch@kravitzllc.com
rparsons@kravitzllc.com
gkrassen@bricker.com
drinebolt@ohiopartners.org
meissnerjoseph@yahoo.com
LeslieKovacik@toledo.oh.gov
trhayslaw@gmail.com
Jeffrey.mayes@monitoringanalytics.com
mhpetricoff@vorys.com
burkj@firstenergycorp.com
cdunn@firstenergycorp.com
dakutik@jonesday.com
sam@mwncmh.com
fdarr@mwncmh.com
mpritchard@mwncmh.com
cmooney@ohiopartners.org
callwein@keglerbrown.com
joliker@igsenergy.com
mswhite@igsenergy.com
barthroyer@aol.com
athompson@taftlaw.com
Christopher.miller@icemiller.com
Gregory.dunn@icemiller.com
Jeremy.grayem@icemiller.com
blanghenry@city.cleveland.oh.us
hmadorsky@city.cleveland.oh.us
kryan@city.cleveland.oh.us
tdougherty@theOEC.org
jfinnigan@edf.org
Marilyn@wflawfirm.com
todonnell@dickinsonwright.com
matt@matthewcoxlaw.com
mfleisher@elpc.org
larry.sauer@occ.ohio.org
michael.schuler@occ.ohio.org
dstinson@bricker.com
dborchers@bricker.com
mitch.dutton@fpl.com
DFolk@akronohio.gov
mkimbrough@keglerbrown.com
sechler@carpenterlipps.com
gpoulos@enernoc.com

mjsettineri@vorys.com
glpetrucci@vorys.com
msoules@earthjustice.org
sfisk@earthjustice.org
rlehfeldt@crowell.com

twilliams@snhslaw.com
dwolff@crowell.com
mandy.chiles@puc.state.oh.us
megan.addison@puc.state.oh.us
greg.price@puc.state.oh.us

Mikkelsen Workpaper November 30, 2015

	Quantitative Benefit of ESP IV	Total	NPV
1	($ in millions)		
2	Economic Development Funding	$ 24.0	$ 16.9
3	Low Income Funding	$ 19.1	$ 13.5
4	Customer Advisory Agency Funding	$ 8.0	$ 5.6
5	Retail Rate Stability Rider	$ 561.0	$ 260.0
6	Total Quantitative Benefit	$ 612.1	$ 296.0

		16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total	NPV	
7	Economic Development	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24.0	16.9	Source: Third Supplemental Stipulation
8	Low Income Funding	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	19.1	13.5	Source: Third Supplemental Stipulation
9	Customer Advisory Agency Funding	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	8.0	5.6	Source: Third Supplemental Stipulation

	Retail Rate Stability Rider	2016*	2017	2018	2019	2020	2021	2022	2023	2024*	Total	
10	Projected Market Revenue	606	1,155	1,302	1,507	1,657	1,693	1,738	1,771	748	12,177	Source: JAR - 1 Revised (2024 is 5/12 of annual projection)
11	Projected Costs	762	1,330	1,386	1,381	1,450	1,477	1,561	1,581	688	11,616	Source: Attachments JJL-1 & JJL-2 & JJL-3 Revised**
12	Under (Over) Recovery	155	175	84	(126)	(207)	(216)	(177)	(190)	(60)	(561)	Calculation: Line 11 - Line 10
13	NPV Under/(Over) Recovery	144	152	67	(94)	(144)	(140)	(107)	(107)	(31)	(260)	Calculation: Line 12 / (1+WACC)^Yrs

	Rider RRS Assumptions		
A	Return on Equity	10.38%	Supplemental response to IEU Set 1 INT 25 Attachment 1 - revised
B	Assumed Debt %	50.00%	Source: JAR - 1 Revised
C	Assumed Equity %	50.00%	Source: JAR - 1 Revised
D	Cost of Debt	4.54%	Source: JAR - 1 Revised
	WACC	7.46%	Calculation: Line A* Line C + Line B* Line D

*2016 is June 1 - December 31. 2024 is January 1 - May 31.

**With modified Return on Equity Assumption