COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matters of:

ELECTRONIC APPLICATION OF KENTUCKY
UTILITIES COMPANY FOR AN ADJUSTMENT
OF ITS ELECTRIC RATES  CASE NO. 2018-00294

ELECTRONIC APPLICATION OF LOUISVILLE
GAS AND ELECTRIC COMPANY FOR AN
ADJUSTMENT OF ITS ELECTRIC RATES  CASE NO. 2018-00295

Direct Testimony of
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On Behalf of
Sierra Club

Public Version; Confidential Information Redacted

January 16, 2019
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1. **INTRODUCTION AND PURPOSE OF TESTIMONY.**

Q Please state your name, business address, and position.

A My name is Jeremy I. Fisher. I am a Senior Strategic and Technical Advisor at Sierra Club, at 2101 Webster Street, Oakland, California.

Q Please describe your role at Sierra Club.

A My role at Sierra Club is to provide an expert viewpoint on energy systems economics, emerging electric sector issues, and provide technical review of policy matters with which Sierra Club engages, including electricity system resource planning and public utilities regulation.

Q Please summarize your work experience and educational background.

A Prior to joining Sierra Club at the end of 2017, I was employed as a Principal Associate at Synapse Energy Economics, where I worked in electricity systems issues for a decade. At Synapse, I evaluated and helped to shape resource planning efforts, engaged in electric sector planning on behalf of states and municipalities, helped regulators navigate environmental rules, and assisted states in crafting or revising resource planning rules. In addition, I led the resource planning group at Synapse, which engages in the assessment of planning processes across a wide cohort of states and regions.

While at Synapse, I provided services for a wide variety of public sector and public interest clients, including the U.S. Environmental Protection Agency (“EPA”); the National Association of Regulatory Utility Commissioners (“NARUC”); the National Association of State Utility Consumer Advocates (“NASUCA”); the National Rural Electric Cooperative Association (“NRECA”); the respective energy offices and public utility commissions of Alaska, Arkansas, Michigan, and Utah, the Commonwealth of Puerto Rico; the Tennessee Valley Authority Office of Inspector General (“TVA OIG”); the California Division of Ratepayer Advocates (“CADRA”); the California Energy Commission (“CEC”);
the Regulatory Assistance Project (“RAP”); and various environmental public
interest groups, including Sierra Club.

As a consultant, I provided training to federal regulators on resource planning
practice and issues. I also led an intensive statewide planning process on behalf of
the Michigan Public Service Commission (“MPSC”). Further, I worked on behalf
of the Puerto Rico Energy Commission (“CEPR”) to develop state-of-the-art
integrated resource plan (“IRP”) rules, lead the evaluation of the island’s first
IRP, and audit the public utility in a first-ever rate case.

I have provided testimony in electricity planning and general rate case dockets in
California, Georgia, Idaho, Indiana, Kansas, Kentucky, Louisiana, Nevada, New
Mexico, Ohio, Oklahoma, Oregon, Puerto Rico, Utah, Washington, Wisconsin,
and Wyoming.

I hold a doctorate in Geological Sciences from Brown University, and I received
my bachelor’s degrees from University of Maryland in Geology and Geography.

My *curriculum vitae* is attached as Exhibit JIF-01.

Q Have you previously provided comments to or testified before the Kentucky
Public Service Commission (“Commission”) previously?
A Yes, I have. I testified before the Commission on behalf of Sierra Club in
connection with Kentucky Utilities Company’s (“KU”) and Louisville Gas and
Electric Company’s (“LG&E”; together with KU, the “Companies”) applications
for certificates of public convenience and necessity for their 2011 environmental
compliance plan in Case Nos. 2011-00161 & 2011-00162, as well as Kentucky
Power Company’s application for approval of its 2011 environmental compliance
plan in Case No. 2011-00401.
Q  What is the purpose of your testimony?

A  My testimony addresses the Companies’ proposal to continue their power purchases from the Ohio Valley Electric Corporation (“OVEC”), and the Companies’ proposal to adopt a higher purchased power cost from OVEC due to OVEC’s debt repayment obligations. Further, my testimony scrutinizes the value of, need for, and risks of OVEC’s power, including whether “it is economic for the Companies to continue purchasing energy from OVEC” under the Inter-Company Power Agreement (“ICPA”), and a number of related questions previewed more fully in Section 2, which follows immediately below.

My testimony is organized fundamentally as follows: First, I provide an introduction to OVEC, the ICPA contract, and the Companies obligations under that contract. Next, I review the economics of OVEC, including by examining assessments conducted by OVEC, other OVEC member utilities, and ratings analysts. Then, I review known and emerging risks to OVEC, including the recent withdrawal of FirstEnergy Solutions (“FES”) and the impact of that withdrawal on the Companies, and also significant prospective environmental compliance obligations, among other issues. Finally, I assess whether the Companies’ OVEC commitment reasonably serves the needs of the Companies and their ratepayers.

2. SYNOPSIS: CONCLUSIONS AND RECOMMENDATIONS.

Q  Will you briefly summarize your conclusions?

A  The Companies last received Commission authorization to enter into a long-term purchase agreement with OVEC in 2011, shortly after that contract was amended by the parties thereto. Since that time, circumstances have fundamentally changed, such that the factual record on which the Commission’s 2011 approval

1 See, e.g., Direct Testimony of Lonnie Bellar (Sept. 28, 2018), at 10:3-4. (LG&E and KU’s respective applications (including direct testimony) and discovery responses are materially identical in each case with respect to OVEC except as may be noted otherwise.)

2 See, e.g., Direct Testimony of David Sinclair (Sept. 28, 2018), at 31:12-20.

3 E.g., Company Response to AG 1-4(c) (Nov. 29, 2018); see also, e.g., Company Response to SC 1-2 (Dec. 6, 2018) (in responding to Sierra Club, incorporating company’s response to AG 1-4(c) by reference).
relied is no longer valid. Moreover, the value of OVEC has steadily declined and now poses a substantial liability to the Companies’ customers. Yet, despite a host of new and emerging risks, the Companies have not, to the best of my understanding, sought to reassess whether their contractual relationship with OVEC is cost-effective or otherwise reasonable on behalf of their customers. To these ends, I provide the following summary conclusions, each of which I discuss in greater detail later in my testimony:

1. The ICPA obligates the Companies to pay a portion of both the existing and the forthcoming costs of two old coal-fired power plants. Major decisions about investments in and maintenance of these aging, outmoded plants are made through a process at OVEC over which the Companies’ have little information and exert relatively little control.

2. When the Companies sought approval of the amended ICPA in 2011, they represented that the cost of the contract was relatively low and would remain so for decades. This was based on certain specific factual characterizations and assumptions about the OVEC units’ operating levels, about compliance with environmental regulations, and about cost competitiveness. Those assumptions are no longer valid today, however. Instead, the cost and risks of the OVEC contract now is, and will continue foreseeably to be, substantially higher and worse than those of alternatives.

3. Since the Commission’s 2011 approval, the Companies apparently have not meaningfully informed themselves about the projected costs or performance of the OVEC units, both of which subjects are concerning, nor do they now evince an interest in doing so.

4. Since 2011, the Companies have not sought to determine if the OVEC plants or the contract remain in the best interests of their customers, or the range of alternatives for protecting customers against the high cost of the ICPA. Rather, they have been essentially on ‘autopilot' with respect to their increasingly risky
relationship with OVEC and their increasingly uneconomic power purchases under the ICPA.

5. The Companies were or should have been aware of certain troubling analyses conducted by OVEC, other member utilities in OVEC, and ratings analysts. These analyses demonstrated that the OVEC plants and ICPA obligations are high-cost and high-risk, in both the short term and over the long term.

6. In that vein, information presented in 2016 to the OVEC Board of Directors, including Company representatives, demonstrated that the value of the ICPA had declined. Moreover, a recent Ohio Public Utilities Commission docket initiated by OVEC Sponsor Duke Energy Ohio demonstrated that the value of the ICPA had declined to a liability of $68 million \( (i.e., \text{a value of } -$68M) \) through 2026, scaled to the Companies’ share.

7. Further, an ongoing bankruptcy proceeding for fellow OVEC Sponsor FirstEnergy Solutions (“FES”) demonstrates that the value of the ICPA has declined to a liability $277 million \( (i.e., \text{a value of } -$277M) \) through 2040, scaled to the Companies’ share.

8. The Companies face high exposure to the possible defection or loss of other OVEC members, in addition to FES, and are already paying a surcharge to cover certain debt obligations due to FES’s bankruptcy.

9. OVEC’s aging power plants are very likely to require significant environmental compliance capital expenditures in the next five years, requiring substantial additional debt and amortization payments by OVEC’s member utilities, including the Companies.

10. The OVEC power units have a poor operating performance history. The Companies are unaware of the causes of and mitigations for their high forced outage rate.
12. The Companies have not expressly assessed the impact of removing the OVEC plants from their portfolios on either cost or reliability.

13. All available evidence suggests that the energy and capacity that the Companies obtain from OVEC are not necessary to the Companies’ reliable operations and provision of power to their customers.

Below, I elaborate on each of these points, which militate for a fresh, deliberate, fulsome reexamination—by the Companies and the Commission—of whether the Companies’ OVEC obligations, costs, and risks amount to a fair, just, and reasonable deal for the Companies’ ratepayers.

Q: What are your recommendations to the Commission regarding the Companies’ OVEC obligations and their request in these rate cases to continue recovering revenues to pay for power purchases from OVEC?

A: I have the following two fundamental recommendations:

First, the Commission should expressly reaffirm the Companies’ obligation to obtain Commission approval (as fair, just, and reasonable) of any future OVEC-related changes that the Companies may wish to implement and that may impact the Companies’ ratepayers. Such possible changes would include, at a minimum:

(a) any forthcoming amendment of the ICPA that the Companies may wish to execute and effectuate; and

(b) any additional OVEC debt obligations (whether explicit or implied, such as in the form of reserve pre-payments) or any other form of additional debt obligations that the Companies may be poised to take on.

Second, in light of significant changes in material circumstances since the Commission last approved of the ICPA in 2011, the Commission should timely initiate a new docket dedicated to investigating whether the Companies’ OVEC payments and other obligations under the ICPA are fair, just, and reasonable now
and in the foreseeable future. Such investigation should examine whether key
determinations in the Commission’s 2011 approval remain valid, including:

(a) whether the Companies do not and will not act as guarantors of
OVEC’s debts, nor issue securities or other evidence of indebtedness for
the purpose of financing their participation in the ICPA;

(b) whether the OVEC units are in fact expected to be operational
at or near their historic operating levels through 2040;

(c) whether the OVEC units are in fact expected to be in
compliance with existing and pending environmental requirements; and

(d) whether the OVEC units do in fact provide relatively low-cost
generation.

Such investigation should also examine the extent of the Companies’ risk
exposure under the ICPA, in addition to any other questions relevant to whether it
is reasonable for the Companies to maintain their OVEC commitment and to
continue recovering revenue for their OVEC power purchases.

3. INTRODUCTION TO OVEC, THE ICPA, AND THE COMPANIES’ RELATED
OBLIGATIONS.

Q What is OVEC, and what is the ICPA?
A In 1952, a number of investor-owned utilities (“IOUs”) established OVEC for the
purposes of building and operating two coal-fired power plants—Kyger Creek in
Gallia County, Ohio, and Clifty Creek in Madison, Indiana—in order to supply
electricity to a uranium enrichment facility to be built by the Atomic Energy
Commission (“AEC”) near Piketon, Ohio. Those individual IOUs (or their
subsidaries or affiliates) became OVEC’s owners/shareholders and were called

4 See, e.g., Order (Dec. 30, 2004), at 2, Case No. 2004-00396, Application Of Louisville Gas and Electric
Company for an Order Pursuant to KRS 278.300 and for Approval of Long-Term Purchase Contract; see
also OVEC 2017 Annual Report, at 1, available online at
the Sponsoring Companies (“Sponsors”). OVEC, the Sponsors, and AEC’s successor, the U.S. Department of Energy (“DOE”), entered into a contract in 1952 called the DOE Power Agreement, which was a long-term contract under which OVEC would furnish DOE with the power needed for the uranium enrichment facility. In 1953, the Sponsors and OVEC entered into an Inter-Company Power Agreement (“ICPA”), pursuant to which the Sponsors could purchase any surplus power (i.e., any not required by DOE) in proportion to the Sponsors’ respective ownership interests.

Decades later, when enrichment activities at the Piketon facility ceased, DOE no longer required the power provided by the OVEC plants. In 2000, DOE gave notice to OVEC that it would cancel the DOE Power Agreement; that contract terminated in 2003. At that point, all of the OVEC units’ generation became surplus power available to the Sponsors. The OVEC units have a collective nameplate capacity of approximately 2,390 MW, between Kyger Creek’s five units totaling 1,086 MW and Clifty Creek’s six units totaling 1,304 MW.5

In 2004, the Sponsors—including LG&E and KU—amended the ICPA, which was then set to terminate in 2006, to extend to 2026. In August 2011, the Sponsors again extended the ICPA, this time to 2040. As discussed below, LG&E and KU sought Commission approval for each of those two contractual revisions, and the Commission granted approval premised on specific determinations of contemporaneous cost-effectiveness and reasonableness, based on the respective records of those dockets.

Q What is required of Sponsors under the ICPA?
A In a nutshell, the ICPA requires that the Sponsors pay an energy charge, a demand charge, and a transmission charge.6 The energy charge is largely comprised of

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5 See OVEC 2017 Annual Report, at 1 (Exhibit JIF-02); see also EIA Form 860, 2017 (providing nameplate capacity).

6 ICPA § 5.01 (current ICPA as supplied by the Companies in response to SC 1-1) (attached as Exhibit JIF-03).
fuel and reagent costs, while the transmission charge pays for firm transmission.\(^7\)
The demand charge is used to collect fixed operations and maintenance (“O&M”), the amortization of debt, taxes, and decommissioning costs.\(^8\)

In return, each Sponsor is entitled a share of the energy and capacity of OVEC, proportional to the Sponsor’s ownership fraction.\(^9\)

**Q** What are the Companies’ fractional responsibilities for OVEC under the ICPA?

**A** LG&E’s ownership interest is 5.63 percent, while KU’s ownership interest is 2.5 percent, which also represent the proportions of OVEC’s power output to which the Companies’ are entitled.\(^10\) This combined 8.13 percent translates into about 194 MW of nameplate capacity,\(^11\) or 152 MW of net summer capacity.\(^12\)

**Q** Have the Companies previously requested authorization of the ICPA?

**A** Yes, twice—first in 2004, then again in 2011, for the purpose of extending the Companies’ commitment period.

First, in 2004, the Sponsors agreed among themselves to amend the ICPA, which was then set to expire in 2006, to extend until 2026. The Companies subsequently sought Commission authorization for extending their power purchase obligations under the ICPA until 2026.\(^13\) The Commission granted approval on December 30, 2004, finding that, in the years 1999 through 2003, “the OVEC purchases were

\(^7\) Id. §§ 5.02, 5.04.

\(^8\) Id. § 5.03.

\(^9\) Id. § 4.03.

\(^10\) See, e.g., Company Response to SC 1-18(a)-(b).

\(^11\) Author’s calculation based on AEO Form 860 (2017) and ownership fraction.


\(^13\) Application (Oct. 1, 2004), Case No. 2004-00396, Application Of Kentucky Utilities Company for an Order Pursuant to KRS 278.300 and for Approval of Long-Term Purchase Contract; Application (Oct. 1, 2004), Case No. 2004-00396, Application Of Louisville Gas and Electric Company for an Order Pursuant to KRS 278.300 and for Approval of Long-Term Purchase Contract.
made at a lower cost per kWh than [each Company’s] own cost of generation,”
and determining that “allowing [each Company] to continue to receive its share of
OVEC’s generation in exchange for payment of OVEC’s relatively low costs.”
Later, in 2010, the Sponsors again agreed to amend the ICPA, this time to extend
the agreement until 2040. The Companies executed that amended ICPA in
October 2010 and filed for Commission approval in March 2011. The
Commission again obliged, in August 2011, similarly finding that OVEC’s power
was low-cost and appeared poised to continue as low-cost, among other
determinations. In doing so, the Commission relied on a series of factual
assertions in the record in those cases that are not valid today, as explained below.

Q Have there been any material changes among the OVEC Sponsors since the
Commission authorized the current ICPA in 2011?
A Yes. Perhaps most significantly, in March 2018, OVEC Sponsor FirstEnergy
Solutions (“FES”) filed for bankruptcy. An Ohio-based utility and wholly-
owned subsidiary of FirstEnergy Corp., FES has a 4.85 percent share of OVEC
under the ICPA. In proceedings in federal bankruptcy court, FES moved the
court allow it to exit the ICPA and reject its commitments thereunder. In doing
so, FES made special note of the burdensome, uneconomic nature of OVEC and
its ICPA obligations, citing them as a key reason why FES was unable to make

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15 Verified Application (Mar. 16, 2011), Case No. 2011-00099, Verified Application Of Louisville Gas and
Electric Company for an Order Pursuant to KRS 278.300 and for Approval of Long-Term Purchase
Contract; Verified Application (Mar. 16, 2011), Case No. 2011-00100, Verified Application Of Kentucky
Utilities Company for an Order Pursuant to KRS 278.300 and for Approval of Long-Term Purchase
Contract.
17 See Stipulation (Doc. 1047, filed July 27, 2018), In re FirstEnergy Solutions Corp., No. 18-50757 (AMK)
(Bankr. N.D. Ohio) (“FES Bankruptcy Stipulation”) (attached as Exhibit JIF-05), ¶ 10.
18 Id. ¶ 9; see also OVEC 2017 Annual Report (Exhibit JIF-02) at 1. Two other Sponsors that are also
FirstEnergy Corp. subsidiaries or affiliates, Allegheny Energy Supply Company LLC and Monongahela
Power Company, have 3.01 percent and 0.49 percent shares, respectively, such that the collective share of
the three FirstEnergy entities is 8.35 percent—just above the 8.13 percent share of OVEC held by the
Companies. OVEC 2017 Annual Report (Exhibit JIF-02) at 1.
reasonable margins. Indeed, as FES represented and supported in the bankruptcy proceedings:

Rejection of the OVEC ICPA will relieve [FES] of the near term losses of approximately $12 million on an annual average basis (2018 to 2023) and will eliminate the approximately $268 million in continuing losses over the remaining life of the contracts [i.e., through 2040].

It is my understanding that FES has, at least as of this time, ceased paying its participation share in OVEC. I also understand that the bankruptcy court’s approval of FES’s rejection of its OVEC obligations is being appealed. I discuss the FES bankruptcy and its implications in more detail in Section 8 of my testimony, below.

Q Did the Commission’s approvals of the ICPA’s respective extensions in 2004 and 2011 contain any caveats?

A Yes. For one, the 2011 Order stated:

As in the past, LG&E and KU will not act as guarantors of OVEC’s debts nor will they issue securities or other evidence of indebtedness for the purposes of financing their participation in the amended ICPA.

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19 See Motion for Entry of an Order Authorizing FirstEnergy Solutions Corp. and FirstEnergy Generation, LLC to Reject a Certain Multi-Party Intercompany Power Purchase Agreement with the Ohio Valley Electric Corporation as of the Petition Date (Doc. 44, filed Apr. 1, 2018), In re FirstEnergy Solutions Corp., No. 18-50757 (AMK) (Bankr. N.D. Ohio) (“FES Motion to Reject ICPA”) (attached as Exhibit JIF-06), ¶¶ 15, 26, 32.

20 FES Motion to Reject ICPA (Exhibit JIF-06), ¶ 32. OVEC, among other parties, did not dispute that conclusion in the bankruptcy proceedings. See FES Bankruptcy Stipulation (Exhibit JIF-05) ¶ 13 (agreement that “FES also asserts and has offered evidence that the OVEC ICPA is burdensome to the Debtors’ estates and that rejection of the OVEC ICPA will relieve it of near-term losses of at least $10 million on an annual average basis (2018 to 2023)”).

The Commission’s 2004 Order contained similar language, among other caveats and record-specific findings underlying the Commission’s legal conclusions, discussed in greater depth below.\textsuperscript{22}

Yet, that disclaimer notwithstanding, the ICPA requires that Sponsors pay, as part of the demand charge, the amortization of debt incurred by OVEC, as I explain below.\textsuperscript{23} The amount of debt held by OVEC varies over time, and the Sponsors are not free to exit the contract at will.

Moreover, Sponsors are also obligated to pay their pro rata share of post-retirement and decommissioning costs (including demolition of the plants and any remediation of the sites) when the OVEC units are ultimately retired—significant future costs creating financial “exposure” whose gravity the Companies assert “is not presently determinable.”\textsuperscript{24}

\textbf{Q} Has OVEC acquired any additional debt since the Commission approved the ICPA in 2011?

\textbf{A} Yes. According to OVEC’s financial statements, OVEC acquired $100 million of new variable-rate bonds in 2011, and $200 million of fixed-rate bonds as well as $100 million of variable-rate bonds in 2012. In 2017, OVEC refinanced $100 million in bonds, pushing back the payment period to the mid-2020s.\textsuperscript{25}


\textsuperscript{23} ICPA § 5.03(a) (Exhibit JIF-03).

\textsuperscript{24} Company Response to SC 1-18(b) (Dec. 6, 2018); see also ICPA §§ 5.03(f), 7.04 (Exhibit JIF-03); LG&E Attachment to Filing Requirement 807 KAR 5:001 Section 16(7)(k), pp. 56, 96 (Garrett).

Q What is OVEC’s outstanding debt?

A As of the close of 2017 (which is the most recently available financial statement), OVEC had nearly $1.4 billion in outstanding debt, nearly $700 million of which is due between 2019 and 2022.26

To put this in perspective, the Companies will pay, on average, more than $14 million per year—or $76/kW-yr—over the next four years for OVEC debt repayment alone.

Q Are the Companies guarantors of OVEC’s debt?

A While not listed as formal guarantors in an immediate sense, the Companies do act as guarantors of OVEC’s debt in practice, at the least. There are several points to note in this vein.

First, Moody’s Investors Service, like other ratings agencies, considers the credit quality of the OVEC Sponsors themselves when allocating an overall credit rating to OVEC, which shows implicitly the assumption that OVEC’s debts must and will be covered by OVEC’s Sponsors.27

Second, as noted above, in March 2018, OVEC Sponsor FES petitioned for bankruptcy and ceased paying its 4.85 percent share of OVEC’s costs. OVEC subsequently filed a rejection damages claim of $540 million against FES, indicating that OVEC considers its Sponsors to be bound through the ICPA to pay for, amongst other costs, the cost of debt.28

Third, the Companies themselves explain that “under the ICPA…[,] [each] is responsible for a pro-rata share of certain OVEC obligations, which primarily

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26 Id.

27 See, e.g., Moody’s Rating Action: Moody's affirms OVEC at Ba1, changes outlook to stable from negative (Dec. 11, 2018), available at https://www.moodys.com/research/Moodyys-affirms-OVEC-at-Ba1-changes-outlook-to-stable-from--PR_392565 (last accessed Jan. 15, 2019) (attached as Exhibit JIF-08) at 1 (considering “the credit quality and outlooks of OVEC's non-defaulting sponsors”); id. at 2 (naming as one “[f]actor[,] that could lead to a downgrade” of OVEC’s rating “further declines in the credit quality of any sponsors”).

28 Id at 1; In re FirstEnergy Solutions Corp., No. 18-50757 (AMK) (Bankr. N.D. Ohio), Claim #1356 (Oct. 15, 2018) (filed by OVEC against FES on in the amount of $544,319,498).
include OVEC’s debt service, post-retirement and decommissioning costs, as well as any shortfall from amounts included within a demand charge.”

Sections 5.03(f) and 7.04 of the ICPA undergird, and elaborate on, that affirmation.

Fourth, OVEC clearly considers the Sponsors to be the guarantors of OVEC’s debt, at least practically speaking. Upon FES’s declaration of bankruptcy and request to terminate its share of the ICPA, OVEC filed a complaint before the Federal Energy Regulatory Commission (“FERC”), stating the following:

Further, the ICPA similarly requires the Sponsoring Companies to pay all of OVEC’s borrowing costs. As result of OVEC’s construction of significant emissions’ control equipment at both of its plants, as of December 31, 2017, OVEC’s outstanding debt obligations were approximately $1.4 billion. FirstEnergy’s 4.85% pro rata responsibility for this debt amounts to $67.9 million. However, if FirstEnergy is allowed to reject its obligations under the ICPA, OVEC and the remaining Sponsoring Companies would need to come up with some way to close the gap in OVEC’s recovery of its costs, which would likely result in further increased debt and borrowing costs for OVEC’s remaining Sponsoring Companies, with a disproportionately adverse effect on the costs of OVEC’s power and energy to them and their customers.

Finally, as of January 2017, OVEC started charging “advance billing [to] the Sponsoring Companies,” amounting to $30 million by the end of 2017.

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29 Company Response to SC 1-18(b).


According to Moody’s, this pre-payment surcharge was created specifically to cover the shortfall created by the FES debt:

Fortunately for OVEC, the shortfall created by the FES default is relatively modest and, as there was ample warning of FES’ impending default, management was able to take steps to mitigate its impact. These steps include funding a debt reserve at a rate of about $30 million per year (current balance is about $60 million), and the retention of the return on equity portion of its rates (approximately $2.5 million per year) as a cushion. This equity cushion would be sufficient to cover future FES shortfalls in the event the current FES shortfall is covered by short-term borrowing.\(^3\)

It is thus clear that OVEC and its creditors consider the several Sponsors, including the Companies, to be guarantors of OVEC’s debt; and the Companies concede at least that they are ultimately on the hook for a \textit{pro rata} share of OVEC’s ultimate debt obligations in the future. That debt is substantial. Later in my testimony I discuss the risks incumbent in that debt, and the potential cost implications on Kentucky customers.

4. **The Companies do not regularly assess OVEC’s performance or cost-competitiveness, and they have little information about how OVEC does.**

Q: **What is the nature of the relationship between the Companies and OVEC?**

A: As noted above, the Companies are contractual Sponsors of OVEC under the ICPA and are shareholders of OVEC’s common stock; and they also have two representatives on OVEC’s 15-member Board of Directors, namely Mr. Paul Thompson, the Companies’ Chairman, Chief Executive Officer, and President,

and Mr. Lonnie Bellar, the Companies’ Chief Operating Officer.\textsuperscript{33} According to the Companies, OVEC’s Board of Directors is responsible for, among other things, approving all capital investments or projects needed for environmental compliance.\textsuperscript{34}

**Q** Do the Companies have substantial knowledge of the day-to-day operations of OVEC, or of OVEC’s incumbent risks?

**A** Surprisingly, the Companies seem to have relatively little information about their obligations or risks vis-à-vis OVEC. There are numerous pieces of core information that the Companies indicated they do not have and are unable to access, or disclaimed as having just been “provided by OVEC,” and information provided by the Companies was sometimes internally inconsistent in a way that indicated it had not been reviewed by a knowledgeable party.

For example:

- The Attorney General (“AG”) requested that the Companies provide “the most recent data regarding the extent to which the Clifty Creek and Kyger Creek stations have been depreciated [as well as] each station’s net book value.”\textsuperscript{35} This is basic information that informs key metrics such as the annual depreciation expense. The Companies responded that they “do not have access to OVEC’s detailed corporate, accounting, or operating information,” and instead referred the AG’s office to OVEC’s public financial records.\textsuperscript{36} According to OVEC’s 2017 Annual Report, OVEC has $1.3 billion, or about $612/kW, of undepreciated plant balance remaining at the plants.\textsuperscript{37}

- Sierra Club asked the Companies about OVEC’s anticipated need to install substantial new capital projects to mitigate coal ash and effluent pollution—

\textsuperscript{33} See, e.g., Company Responses to SC 1-18(b), 1-3(b).
\textsuperscript{34} E.g., Company Response to SC 1-3(b).
\textsuperscript{35} AG 1-5(h) (Nov. 13, 2018).
\textsuperscript{36} Company Response to AG 1-5(h) (Nov. 29, 2018).
\textsuperscript{37} OVEC 2017 Annual Report (Exhibit JIF-02) at 5.
risks discussed later in my testimony—and about the impact of these projects on outages operations and maintenance costs, heat rates, or unit availability. The Companies’ response was that “the Companies do not have access to this information.” When Sierra Club followed up and asked why not, the Companies responded that “OVEC has not provided such documents to the Companies.”

- Sierra Club asked about the assessment of the sufficiency of OVEC’s funding to support decommissioning subsequent to OVEC’s closure. In response, the Companies provided a September 2017 OVEC letter to the Board members discussing the fact that an updated decommissioning study was being completed by the end of that month and would be discussed with the Board’s environmental subcommittee the following month, but the Companies said they did not have the letter “or any other responsive documents.”

- Sierra Club asked the Companies to provide historic forced outage data for the OVEC units. In response, the Company provided unit-specific data for the period 2013-2015 and only-plant average data for 2016-2017. The forced outage rates for 2013-2015 were startling: most years were in excess of 10 percent, with some units approaching or exceeding 20 percent. Sierra Club asked for detail with respect to unplanned outages, the causes, and mitigation steps taken. The response was that “the Companies do not have access to this information.”

- Sierra Club asked the Companies to provide both projected future charges under the ICPA, as well as projected future performance of the OVEC units,

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38 Company Response to SC 1-3(c)(iii) and (v)-(viii).
40 Company Response to SC 1-8 and attachment (Dec. 6, 2018).
41 Company Response to SC 1-9(d) (Dec. 6, 2018).
42 Company Response to SC 1-11 (Dec. 6, 2018).
43 Company Response to SC 1-5 (Dec. 6, 2018).
including costs. The responses and projections provided by the Companies were mutually inconsistent in substance, as demonstrated in the next section. Moreover, they did not indicate that the Companies had performed their own assessment or projection, but rather relied on information provided by OVEC without independently considering it.

Q What conclusions do you draw with respect to the amount of information that the Companies have—or don’t have—about the historic operations and costs of the OVEC units?

A I conclude that the Companies have little such knowledge—and apparently little concern about that either. It appears that the Companies’ stance regarding OVEC is a remarkably hands-off, uninformed approach of essentially just assuming that the OVEC units will simply continue operating and charging their Sponsors through 2040, in light of the ICPA’s 2011 approval. That is, they Companies do not really know, nor is it apparent that they regularly reexamine, whether OVEC’s operations current and future operations are economical and otherwise sensible for ratepayers.

The Companies’ response to one AG inquiry is particularly telling. The AG asked the Companies to “explain whether continued operation, and subsequent Company ownership, of OVEC is economic.” The Companies responded:

It is economic for the Companies to continue purchasing energy from OVEC, given the Companies’ obligation to participate through 2040 in the Inter-Company Power Agreement, which was amended in 2010 and approved by the Kentucky Public Service Commission in Case Nos. 2011-00099 and 2011-00100.

However, the economics of OVEC’s energy and the benefit (or lack thereof) to ratepayers, on the one hand, is distinct from the Companies’ contractual

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44 Company Response to SC 2-10 and attachment (Jan. 2, 2019).
45 Company Response to AG 1-4(c) (emphases added).
commitment to participate in the ICPA. True, the Company may in fact be
obligated to participate in the ICPA under the current contract as blessed by the
Commission in the past. It does not follow, however, that OVEC is economical or
needed to provide the Companies’ customers with power. The Companies appear
to imply that their execution of the ICPA and the Commission’s 2011 approval
thereof effectively moot the question of the OVEC units’ actual economics.

While I am not a lawyer, it is not my understanding that a Commission approval
of a long-term contract at one point in time necessarily forever binds the utility
through the term of the contract. This seems particularly true, at least, when
material circumstances have changed, in intervening years, such that the express
factual predicates of the Commission’s prior determination no longer exist.

In any event, I can say definitively that, as a matter of economics, the mere
existence of a long-term wholesale energy contract does not guarantee that the
arrangement will remain economical or otherwise in retail ratepayers’ interests.

Q Would you agree that it is essentially a moot question whether OVEC is
economical for the Companies’ ratepayers?
A Not at all. The Companies have a statutory obligation to continually assess their
resource options in the course of reasonably choosing low-cost ways to reliably
meet their customers’ needs. Renegotiating the ICPA, or revisiting their
participation in it at all, could lead to considerably lower costs and lower risk for
the Companies’ ratepayers. Therefore, the Companies should meaningfully and
informedly assess those options, at the least.

However, rather than perform such periodic reassessment, the Companies appear
to be of the belief that once a wholesale energy contract is executed and
authorized, the Companies’ obligation to ensure that such contract serves
ratepayer interests discontinues and is never refreshed, even years later in light of
critical intervening developments.
5. **THE COMPANIES HAVE NOT MEANINGFULLY ASSESSED IF OVEC IS ECONOMICAL SINCE 2011.**

Q **What do the Companies pay for power from OVEC?**

A In 2017, the Companies paid $60.41/MWh in the form of an energy and demand charge,\(^{46}\) costing $14,790,155.\(^{47}\) According to the Companies, during the Test Period of this case, the OVEC Energy and Demand Charge is $75.31/MWh.\(^{48}\)

Q **How does the OVEC charge compare to the cost of market economy purchases or market prices?**

A According to the Companies, they were able to acquire “market economy purchases,” at $16.99/MWh in 2017, or about one quarter of the price they pay for OVEC’s power. The Companies disclaim that the appropriate comparison is against “average market prices” (or all hours), which they state were $27.84/MWh in 2017, or a little less than half the cost of OVEC.\(^{49}\) For the Test Period, the Companies identify average market prices at $27.12, or about one third of the cost of OVEC during the Test Period.\(^{50}\)

Q **How was the ICPA characterized in the Commission’s 2011 approval of it?**

A The Commission’s 2011 approval relied on a number assessments provided by the Companies.\(^{51}\) In the period since that authorization, many of the representations have turned out to be substantively incorrect, as I discuss throughout this testimony.

\(^{46}\) Company Response to AG 2-26.

\(^{47}\) Company Response to SC 1-4, attachment.

\(^{48}\) Company Response to AG 2-26.

\(^{49}\) *Id.*

\(^{50}\) *Id.*

\(^{51}\) These studies were commissioned by OVEC and performed by URS Corporation, as noted in the Commission’s Order.
There are several key representations that were promoted in the Companies’ application and responses to Commission discovery requests, including assumptions that:

(a) the OVEC costs were low cost relative to alternatives,

(b) the units would operate in a sustained baseload mode, and produce a continuously high output year-on-year,

(c) the units forced outage rate would remain low,

(d) the units would not be subject to emerging environmental compliance obligations such as coal ash remediation, and

(e) the Companies would not as guarantor for OVEC’s debt or other securities.

I describe of each of those representations below, explaining why none is valid today.

Q **How did the Companies represent the notion that the OVEC costs were low relative to alternatives?**

A In at least three instances, the Companies’ 2011 application stated that OVEC’s costs were “low cost” or “relatively low.”

In 2010, the cost of OVEC’s energy averaged $45.9/MWh to the Companies.

That put it squarely in the middle of the cost for other non-KU/LG&E transactions. The second-largest seller (by volume) to the Companies in that year was the City of Owensboro, at $44.5/MWh.

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53 FERC Form 1 data as downloaded through S&P Global interface (accessed January 14, 2019).
54 Id.
Table 1. Wholesale electricity purchases and purchase prices, 2010 and 2017.55

<table>
<thead>
<tr>
<th>Year</th>
<th>OVEC Purchases (MWh)</th>
<th>OVEC Cost ($/MWh)</th>
<th>Next Largest Purchase (MWh)</th>
<th>Next Largest Purchase Cost ($/MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>1,213,740</td>
<td>$45.89</td>
<td>585,148 Owensboro</td>
<td>$44.54</td>
</tr>
<tr>
<td>2017</td>
<td>793,729</td>
<td>$60.59</td>
<td>52,785 EKPC</td>
<td>$61.29</td>
</tr>
</tbody>
</table>

By 2017, OVEC costs had risen by 32% to over $60/MWh.56 In contrast, the equivalent “average market price” was less than $28/MWh,57 and only one bilateral transaction (purchases from Eastern Kentucky Power Cooperative) was more expensive than OVEC power, at $61/MWh.

Q **How did the Companies represent the notion that the OVEC units would remain “baseload”?**

A In response to the Company’s application, the Commission requested a report from URS Corporation (a consultancy) commissioned by OVEC to assess the remaining life and production capabilities of the OVEC units.58 The Companies provided the URS report (“2011 URS Report”), which purported to assess the operational health of the OVEC units. Several times in the report, URS notes that the units operate as baseload units:

> The units are all being operated as base load units with limited thermal cycling in the evenings and weekends. Thermal swings are limited by the need to keep the SCR’s on line.59

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55 Id.
56 Id.
57 Company Response to AG 2-26.
58 See, e.g., Commission Staff supplemental discovery request to Louisville Gas and Electric (June 14, 2011), Case No. 2011-00099, Question 1.
The 2011 URS Report projected that the system would continue operating at a relatively high output, noting that 2010 generation had produced an equivalent of a 75 percent capacity factor: 60

The overall system produced a low of 15.84 GWhours [sic61] in 2010 of electrical output to a maximum of 17.92 GWhours [sic] in 2006. Twenty (20) year budget projections are based on 15.6 to 15.8 GWhours [sic] per year. 62

Aside from confusing gigawatthours (GWh) with terrawatthours (TWh), the 2011 URS Report also reported gross generation (i.e., before plant internal uses). In fact, the OVEC units produced net 14.6 TWh, a 70 percent capacity factor. Significantly, shortly after the production of the URS report, OVEC’s generation dropped by about one third, to about a 50 percent capacity factor, and has not achieved its historical performance since—see Figure 1, below.

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60 Author’s calculation based on a nameplate capacity of 2,390 MW.
61 Actual system generation in 2010 was 15.84 *terrawatthours (TWh)*.
In addition, the 2011 URS Report identified that the OVEC units were not designed to operate in a load-following manner. The report states:

Should the units be changed to load following or more severe cycling operation, it is expected that life expectancy would be adversely affected by adding significant thermal cycles to equipment, and by operating equipment at less than optimum conditions. **No contingency is included in this evaluation for potential future cycling operation.**

**Q** Do the OVEC generators cycle today?

**A** Yes. In 2017, the OVEC units had 153 starts between them (i.e., starting from non-operational), or fourteen per unit, on average. The units also swung from

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65 2011 URS Report, supra n. 59, at 44 (emphasis added).
their maximum output (about 200 MW gross) to minimum output (about 120 MW gross), on average about 40 days each. Clifty Creek units 1 through 5 spent about a quarter of their time in 2017 at or near their minimum operational output, and on many of those days the units cycled between their maximum and minimum output.\(^{66}\)

By any reasonable assessment and characterization, the OVEC units cycle today.

**Q** How did the Companies then represent the notion that the OVEC units were performing reliably?

**A** The 2011 URS Report stated that the performance of the units had been good, and expected to remain low and trend downward:

> Each unit has been operating primarily in a base loaded mode with recent forced outage rates of less than 5% to 11% at Kyger and 50/0 to 9.2% at Clifty. **Forced outage rates are trending downward and it is reasonable to expect the downward trend to continue** as there are major boiler tube replacements being performed. \(^{67}\)

In a later section of the report, it again emphasized the reliability of the plants:

> The average forced outage rate for the overall plant was less than 5.5% each year through 2005. In 2006 through 2008 it increased to a maximum of 11.170/0, and then has been decreasing since. \(^{68}\)

However, the forced outage rate at the OVEC plants increased substantially after this report was issued, and has maintained a relatively high level, as I show later in my testimony.

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\(^{66}\) Author’s calculation, based on US EPA CAMD Data, 2017.

\(^{67}\) 2011 URS Report, *supra* n. 59, at 1 (emphasis added).

\(^{68}\) *Id.* at 17.
Q How did the Companies’ 2011 application represent the construct that the OVEC units would not have new, substantially costly environmental compliance obligations?

A The 2011 URS Report—which, again, was provided as the most substantial source of information about the OVEC units in the 2011 application docket—stated that:

OVEC believes there will be no significant changes to comply with the CCR rule with the exception of possibly installing a mercury treatment system at Clifty Creek. OVEC believes EPA has no basis to classify ash as a special waste subject to hazardous waste rules under Subtitle C. Therefore, no upgrade studies have been initiated to consider this option, given the low risk that this waste would be subject to Subtitle C.69

As a consequence of this assertion, URS assigned no risk or assessment of the costs for compliance with coal waste, or with wastewater effluent streams. By contrast, OVEC currently believes that there are impending requirements to mitigate both coal ash and effluent at both OVEC plants, as discussed below.

Q How did the Companies’ 2011 application represent their obligation with respect to OVEC’s debt?

A The Companies’ 2011 application set a clear expectation that the Companies’ obligations under the ICPA do not include bailing out OVEC’s debts, but are limited to the liability for basic capital projects and post-retirement costs:

The Company has not and will not act as a guarantor for OVEC’s debt or other securities; however, the Amended ICPA requires the Sponsors to pay for replacement costs, additional facility costs,

69 Id. at 41 (emphasis added).
post-retirement benefits costs, and the costs associated with
decommissioning the OVEC units.\textsuperscript{70}

Q In your opinion, are the Companies currently acting as guarantors for
OVEC’s debt, at least functionally speaking?
A Yes. As I described in Section 3 above (“Introduction to OVEC, the ICPA, and
the Companies’ related obligations”) the Company appears to be fulfilling OVEC
debt obligations beyond its ratable share through a pre-payment surcharge.

Q You have described elements of the 2011 URS Report that was used to
support the Companies’ application to approve their 2011 application for
Commission approval of the amended ICPA. What was the significance of
this report overall to the Commission’s approval decision?
A As far as I am able to discern the 2011 URS Report was the only substantial
evidence submitted by the Companies in supporting their 2011 application. As
such, the report’s assessment of the viability of the OVEC units appears to have
provided the sole (or at least the primary) evidentiary basis underlying the
Commission’s decision to approve the Companies’ commitment to extend their
agreement to accept power from OVEC beyond 2026, through 2040.

Q Did the 2011 URS Report expressly highlight any risks associated with the
OVEC plants, apart from the implicit risks disclaimed by the assumptions
and predictions already discussed whose validity is no longer valid?
A Yes. The final paragraph of the report reads as a disclaimer on the outlook
provided in the prior pages:

\begin{quote}
A different type of risk could be a combination of a major shift in
fuel prices (e.g. coal vs. gas), early wide deployment of new
technologies such as IGCC, and onerous new environmental
regulations that would cause a shift from coal as a low cost
\end{quote}

\textsuperscript{70} Verified Application (Oct. 1, 2004), Case No. 2011-00099, at ¶ 10.
producer to other energy sources, and particularly impact on older coal plants perhaps having high heat rates. **Combinations of such circumstances could produce a radical change in the Kyger and Clifty positions in the power markets and tend to shorten economic life.** However, such combinations of circumstances are not currently anticipated over the next twenty to thirty year horizon.\(^{71}\)

In fact, those very risks have indeed manifested since then: there have been “major shift[s] in fuel prices”; “early deployment of new technologies” like renewable energy and storage; and significant new regulations that—in concert—have indeed “cause[d] a shift from coal as a low cost producer to other energy sources.” And, notwithstanding URS’s misguided sense that such developments were “not currently anticipated over the next twenty to thirty year horizon,” those changes have dramatically shortened the economic life of existing coal plants—particularly the OVEC units. As I show in the next two sections, there is substantial evidence that the OVEC units’ economic life is already over, by any reasonable measure based on current information. Today, the plants lose money for OVEC’s Sponsors, and are expected to be a substantial net liability into the future.

**Q** Since the 2011, have the Companies sought to reassess if OVEC provides a net benefit for their customers?

**A** No, not as they have indicated or as I can tell otherwise. I have found no evidence that the Companies have ever reviewed, since the 2011 proceedings, whether OVEC’s power is cost-competitive for them or the ICPA is otherwise in the best interests of their retail customers.

In fact, Sierra Club directly asked the Companies to provide any studies or analyses “performed or obtained” subsequent to the 2011 Authorization that

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\(^{71}\) 2011 URS Report, *supra* n. 59, at 51 (emphasis added).
assess the cost-competitiveness of the contractual relationship with OVEC or power and capacity from OVEC. The best that the Company could do was (a) to incorporate by reference their response to the AG, which stated that “it is economic for the Companies to continue purchasing energy from OVEC, given the Companies’ obligation to participate through 2040 in the Inter-Company Power Agreement”—a conclusory non-sequitur whose illogic I discussed above; and (b) to add tersely that “[its] share of OVEC was evaluated in the 2018 IRP Reserve Margin Analysis.” The latter assertion implies that the Companies evaluated, in the context of their reserve margin assessment, whether the OVEC units were economically reasonable for customers. The referenced study did not even purport to do that, however, let alone actually support the conclusion that OVEC is economical.

Q How did the Companies’ 2018 IRP Reserve Margin Analysis review the OVEC units, or not?

A The 2018 IRP Reserve Margin Analysis was designed to look at the potential loss of load expectation (“LOLE”) and generation cost of adding or removing blocks of generation capacity. To do so, the model characterized all of the generating resources in the Companies’ system, and then selectively added or removed units. The OVEC units were merely included in the Companies’ portfolio; they were neither removed nor modified. Therefore, the 2018 IRP Reserve Margin Analysis provides no valuation of the cost or benefit to ratepayers of the OVEC units, and is irrelevant to the question of the OVEC units’ relative cost-competitiveness. To be sure, in one ancillary table in the study, the Companies characterized the marginal resource costs of various units, noting that the OVEC units are the most expensive unit in their system on a marginal cost basis at $92/kW-yr (2021$).

This table is replicated below.

\[72 \text{ See supra n.45 and text that follows.} \]
\[73 \text{ Company Response to SC 1-2.} \]
\[74 \text{ See supra n.12 (introducing the Companies’ 2018 IRP Reserve Margin Analysis).} \]
Figure 2. Table 9 from Companies’ 2018 IRP Reserve Margin Analysis, showing marginal resource costs of Companies’ various generating resources.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Stay-Open Cost ($/kW-year)</th>
<th>Average Energy Cost ($/MWh)</th>
<th>Stay-Open Costs + Average Energy Costs ($/MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base/Load</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown 3</td>
<td>87.3</td>
<td>34</td>
<td>84</td>
</tr>
<tr>
<td>Ghent 1</td>
<td>84.1</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td>Ghent 2</td>
<td>65.1</td>
<td>22</td>
<td>32</td>
</tr>
<tr>
<td>Mill Creek 1</td>
<td>71.3</td>
<td>23</td>
<td>35</td>
</tr>
<tr>
<td>Mill Creek 2</td>
<td>81.0</td>
<td>23</td>
<td>37</td>
</tr>
<tr>
<td>Mill Creek 3</td>
<td>78.0</td>
<td>24</td>
<td>37</td>
</tr>
<tr>
<td>OVEC</td>
<td>92.3</td>
<td>25</td>
<td>47</td>
</tr>
<tr>
<td>Peak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown 5, 6, 9, 10, &amp; 11</td>
<td>11.5</td>
<td>41</td>
<td>79</td>
</tr>
<tr>
<td>Brown 6 &amp; 7</td>
<td>20.5</td>
<td>31</td>
<td>66</td>
</tr>
<tr>
<td>Paddy’s Run 13</td>
<td>16.3</td>
<td>30</td>
<td>52</td>
</tr>
<tr>
<td>Trimble County 5 &amp; 6</td>
<td>29.7</td>
<td>30</td>
<td>64</td>
</tr>
<tr>
<td>Small-Frame SCCGs</td>
<td>3.4</td>
<td>80</td>
<td>406</td>
</tr>
<tr>
<td>DSM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Conservation Programs (“DCP”)</td>
<td>25.6</td>
<td>145</td>
<td>460</td>
</tr>
</tbody>
</table>

However, the extent to which the 2018 IRP Reserve Margin Analysis “assessed” the value of the OVEC units stopped there, which would not support finding OVEC economical. In the actual reserve margin assessment, OVEC was assumed to operate in each and every scenario, providing no information on the incremental costs or benefits of the OVEC units—key to the question at hand in the instant discussion.

**Q** Is there other evidence that Companies have failed since 2011 to assess if OVEC provides a net benefit for customers?

**A** Yes. Sierra Club also asked if “the Companies’ representatives and/or other OVEC board members regularly consider, as a consideration in discussions regarding whether to continue operations [at OVEC], the question of the relative net impact on OVEC members’ customers’ retail rates”; and the Companies (which have two of their own executives on the OVEC Board) responded simply that they “were not aware of such discussions.”75 That is fairly shocking—and

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75 Company Response to SC 2-1(f) (Jan. 2, 2019).
telling. It suggests that the Companies have simply assumed that this contract and
obligation will continue unabated.

Q  Does OVEC’s Board of Directors have the responsibility to determine if the
OVEC units should continue operations?
A  Yes. According to the Companies, “OVEC’s continued operation is determined
by its board.”

Q  What conclusions do you draw with respect to Company representatives’
participation on the OVEC Board, and the OVEC Board’s obligation to
assess the economics of the OVEC units and the ICPA?
A  The evidence suggests that the Companies do not and have not considered
themselves to be obligated periodically to assess the relative value of the OVEC
units’ power, or the ratepayer impacts effectively imposed by the ICPA, including
whether their customers would be better served through a modification or
termination of the ICPA.

Overall, the Companies appear to have taken the Commission’s record-specific
authorization for the ICPA in 2011 to be, effectively, a blanket protection of the
contract through 2040—regardless of OVEC’s costs or ratepayer impacts, and
regardless of whether intervening developments otherwise run counter to the
assumptions predating the Commission’s 2011 authorization.

As I show in the next section, the impact on customers is in fact quite substantial.
There is ample evidence to suggest that the overall contract imposes costs that are
well above what could be considered reasonable energy or capacity costs.

76 Company Response to AG 1-4(c).
Q You have explained that the Companies have not produced their own recent
assessments of the costs or benefits, or ratepayer impact, of OVEC and their
commitment under the ICPA. Are you aware of such assessments conducted
by other entities, whether OVEC, other Sponsors, or third parties?
A Yes, I am. First, the Companies eventually provided to Sierra Club two
“Merchant Analyses” presented by OVEC staff to the OVEC Board. Second, two
assessments were recently conducted on behalf of OVEC Sponsors Duke Ohio
and FES. Finally, Moody’s recently assessed the creditworthiness of OVEC, and
produced a brief assessment of the net market liability of the OVEC units.
I discuss each of these analyses in turn below.

6. THE COMPANIES HAVE FAILED TO TAKE INTO ACCOUNT THE MERCHANT
ANALYSES PROVIDED BY OVEC.

Q What are the OVEC “Merchant Analyses”?
A The OVEC Merchant Analyses are two studies conducted by OVEC staff “to
compare OVEC’s projected cost components to a projection of market energy and
capacity prices.” In essence, these studies.

The Companies provided two such analyses, one conducted in
2015 and the other conducted in 2016.

While a number of assumptions are not made explicit, we can assess quite a lot
from OVEC’s assessment of the study and simple graphics, produced below.
OVEC’s Board meeting minutes from December 1, 2015 state the following:

At the request of Mr. McCullough [of American Electric Power, or
“AEP”], Mr. Ken Tamms of the AEP Service Corporation

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77 Company Response to SC 2-4(a).
78 See Company Response to SC 2-4(a), attachment (contains Confidential Information).
reviewed the merchant plant analysis. A handout was provided to
the Board, which indicated that

The basis of this statement can be seen in the reproduction of the slide’s graphic,
provided as Confidential Figure 3 below. It shows

It is notable that the analysis appears to

79 Company Response to SC 1-13, attachment (contains Confidential Information), at 3.
81 Confidential Company Response to SC 2-4 at 2.
Even as of this 2015 analysis, it was clear that OVEC...robust assessment would have demonstrated—based on the 2015 assessment—that...

Q Were any of the Companies’ representatives present at the 2015 OVEC Board Meeting?
A Yes. Mr. Paul Thompson was present at the meeting, at AEP’s corporate headquarters in Columbus, Ohio.\(^83\)

Q How did the OVEC Merchant Analysis presented to the OVEC Board change in 2016?
A On December 1, 2016, OVEC staff again presented a Merchant Analysis to the OVEC Board. Again, Mr. Thompson was present at the meeting.\(^84\) The meeting minutes state that AEP’s CEO (now Mr. Akins) again directed the presentation of the Merchant Analysis. He indicated\(^85\)

\(^{83}\) Attachment to Company response to SC 1-13, attachment, at 1.
\(^{84}\) Id. at 7 (contains Confidential Information).
\(^{85}\) Id. at 9 (contains Confidential Information).
Q: What is the purpose of these assessments?

A: A “Merchant Analysis” is a fairly standard valuation technique used by vertically-integrated utilities to assess if an asset has system value. Ultimately these analyses are designed to assess if, and how much, a merchant generation company would be willing to pay for a generation asset. If an asset is consistently cheaper than market prices, a merchant generation company might be willing to purchase the asset at a positive value. If an asset is consistently more expensive than market prices, a merchant would probably not chose to acquire the asset (or at least at a positive value).
These assessments are missing the critical element of the net present value
(“NPV”) of the asset, relative to the NPV of the market alternative, which roughly
represents the value a merchant would be willing to pay to acquire the asset. The
cumulative present worth (“CPW”) illustrates the risk incumbent in the asset over
time. Using an assumed 65% capacity factor for the OVEC units and the
Companies’ fractional ownership share, we can scale the Merchant Analyses to
the Companies’ incumbent risk in 2015 and 2016 (shown in 2015$ for
consistency). The sequence of cumulative present worth values from OVEC’s
Merchant Analysis, scaled to the Companies’ OVEC share, are shown below in
Confidential Figure 5.87

The December 2015 OVEC Merchant Analysis assessed [REDACTED]. However, the analysis
indicated that [REDACTED].
The December 2016 Merchant Analysis assessed...Just a year later, OVEC was projecting that the OVEC units...In your assessment, based on the 2016 analysis conducted by OVEC and presented to Mr. Thompson and other Board members, would reasonable a merchant operator acquire a share in OVEC, if presented with the choice? No, it would not.

The Companies have failed to take into account other assessments of OVEC as a substantial net loss, by fellow OVEC sponsors as well as independent ratings analysts.

Have other OVEC Sponsors recently sought to assess their costs and obligations under the ICPA? Yes. Below I discuss two analyses of the ICPA, conducted by respectively on behalf of two different OVEC Sponsors: one for Duke Energy Ohio (the “Duke OVEC Analysis”), the other for FES (the “FirstEnergy OVEC Analysis”). Both of these analyses were conducted in the 2017-2018 timeframe, and both reflect current conditions at OVEC.

In addition, I discuss an assessment provided by Moody’s in late 2018, having considered downgrading OVEC’s credit rating.

What is the Duke OVEC Analysis? In March 2017, Duke Energy Ohio (“Duke”) proposed to implement a rate rider, incorporating the net costs of the ICPA into customer rates. Duke offered that
customers would pay for the full costs of the ICPA, and receive as a credit any revenues accrued through wholesale market sales of its OVEC share PJM.\textsuperscript{88}

As part of Duke’s application, the utility retained the consulting firm ICF to conduct an analysis, not dissimilar to the OVEC Merchant Analysis described above. The case was procedurally delayed, and in June 2018, Duke submitted supplemental testimony on economic value of OVEC, including an update to ICF’s analysis, assessing the value of maintaining the ICPA in rates through May 31, 2025.

Q What was the result of the Duke OVEC Analysis?

A ICF’s analysis revealed that in the base case, Duke’s customers would lose approximately $77 million from 2018 through 2025 by incorporating the ICPA into rates, as shown below in Figure 6.\textsuperscript{89}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
\textbf{Case} & \textbf{Sunk Costs Included} & \textbf{2018-May 2025} \\
\hline
Base Case & Yes & (77) \\
\hline
AEO 2018 Reference Case & Yes & (62) \\
\hline
\end{tabular}
\caption{Table from Duke OVEC Analysis, Supplemental Testimony of Mr. Judah Rose in Ohio PUC Docket 17-0872-EL-RDR}
\end{table}

\textbf{Figure 6.} Table from Duke OVEC Analysis, Supplemental Testimony of Mr. Judah Rose in Ohio PUC Docket 17-0872-EL-RDR

\textbf{Exhibit 2}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
\textbf{Duke Energy Ohio’s Share of the OVEC Portfolio Net Margins} & \textbf{(Present Value millions $)} \\
\hline
\textbf{Case} & \textbf{Sunk Costs Included} & \textbf{2018-May 2025} \\
\hline
Base Case & Yes & (77) \\
\hline
AEO 2018 Reference Case & Yes & (62) \\
\hline
\end{tabular}
\caption{Source: ICF projections with supplementary data from AEO 2018, FERC Form 1, and OVEC}
\end{table}


\textsuperscript{89} Revised Public Version of Supplemental Testimony of Mr. Judah L. Rose on behalf of Duke Energy Ohio, Inc. (July 10, 2018) (excerpted and attached as Exhibit JIF-11), at 20, Exhibit 2, Ohio PUC Docket 17-0872-EL-RDR, accessible at http://dis.puc.state.oh.us/CasesByYearIndustry.aspx.
Q  Is Duke’s OVEC Analysis relevant to the Companies with respect to the
instant discussion in these Kentucky proceedings?

A  Yes. This analysis was conducted by an independent third party on behalf of
Duke. Originally, Duke’s assessment marginally supported the inclusion of the
ICPA in customers’ rates. A re-evaluation just a year later, and still sponsored by
the utility, changed that finding substantially. This is particularly noteworthy
since Duke Ohio and the Companies are neighboring utilities and broadly subject
to similar market conditions and commodity prices.

I understand that beginning in 2016, OVEC bid 90 percent of its energy into the
PJM interconnection on behalf of the Sponsors. Sponsors pay their share of fuel
costs and receive a pro-rata share of energy market revenues. Duke holds 9
percent of the obligations under the ICPA, the Companies hold just over 8 percent
of the obligations.

Scaled to the Companies share, Duke’s assessment would indicate that the
Companies ratepayers could be expected to lose over $68 million relative to
market alternatives by 2025.

Q  Is Duke’s OVEC Analysis generally consistent with the findings by OVEC in
2016?

A

Q  What is the FirstEnergy OVEC Analysis?

A  As noted above, in April 2018, FES declared bankruptcy. As part of FES’s
request for relief, the generating company asked the bankruptcy court to void ten
power purchase agreements, including the OVEC ICPA.90

FES’s request for relief is unequivocal regarding the harm caused through the
OVEC contract:

90 FES Motion to Reject ICPA (Exhibit JIF-06).
By this Motion, the Movants seek to reject an extraordinarily burdensome executory power purchase agreement, effective as of the Petition Date (defined below). During 2017 this contract—combined with nine other power purchase agreements the Movants separately seek to reject—accounted for just approximately 3% of the power FES bought and sold into the wholesale market. Yet movants are losing approximately $12 million per year, and are expected to lose $268 million over the remaining 22 years left on the OVEC ICPA (defined below). 91

Q What is FES’s exposure to the ICPA relative to the Companies’ exposure?

A FirstEnergy Corp.’s competitive energy services are comprised of FES and Allegheny Energy Supply Company, 92 which together hold 7.86 percent, 93 just a few basis points shy of LG&E and KU’s joint exposure. It is not clear if FES’s request for relief represents just FES alone (at 5 percent) or both competitive companies. However, conservatively assuming both and scaled to LG&E and KU’s joint share, FES’s assessment would indicate that the Kentucky Companies’ ratepayers could be expected to lose about $277 million relative to market alternatives by 2040 (i.e., the remaining 22 years of the contract cited by FES).

Q Do you have any additional information about how the FirstEnergy OVEC Analysis was conducted?

A Only in broad strokes. Similarly to Duke, FES retained ICF in April 2017 to calculate the losses of FES associated with power purchase agreements and the ICPA. 94 ICF’s consultant, Mr. Judah Rose provides this description:

91 Id. ¶ 4 (emphasis added).
92 Id. ¶ 13.
93 ICPA §1.0117.
94 Expert declaration of Judah Rose (Doc. 46, filed Apr. 1, 2018), In re FirstEnergy Solutions Corp., No. 18-50757 (AMK) (Bankr. N.D. Ohio) (attached as Exhibit JIF-12).
ICF was retained to determine the short and long-term costs of continued performance. ICF performed an initial analysis of the Executory PPAs in mid-2017, and then updated its work commencing in January 2018.95

Mr. Rose further describes his process as an in-depth modeling assessment, similar to that executed on behalf of Duke:

These calculations took into account the length of the contracts, the contract price, the expected volume using historical data, and the expected revenue streams. With respect to the OVEC ICPA, ICF took into account both fixed and variable costs such as fuel, coal, variable and fixed operations and management costs, capital expenditures, financing costs and emissions costs associated with that agreement. ICF’s calculations used an internal production cost model which simulated the specific power markets in which the Ohio Valley Electric Corporation (“OVEC”) and the other contract counterparties operate.96

Q Were you provided the opportunity to review workpapers in either the Duke OVEC Analysis or the FirstEnergy OVEC Analysis?

A I reviewed the assessment and workpapers conducted on behalf of Duke Ohio in a fair degree of detail. In my opinion, the assessment was generally credible and reasonably executed. As noted in my testimony in that case, I noted many of the additional risks (detail below) that were not included in Duke’s assessment, and took issue with some of the characterizations of the results by Duke’s witnesses. However, the core analytical technique appeared sound.

It is my understanding that the FirstEnergy OVEC Analysis was conducted using a method similar to the Duke OVEC Analysis.

95 Id. ¶ 6.
96 Id. ¶ 9.
Q: Are you aware of any other assessments of the value of OVEC?

A: Yes. In December 2018, in response to FirstEnergy’s bankruptcy declaration and subsequent move to withdraw from the ICPA, Moody’s issued a credit opinion and rating action on OVEC, holding the long-term rating at Ba1, a non-investment grade rating.97

I discuss the risks imposed by the withdrawal of FES from the ICPA in the next section, below. However, it is notable that Moody’s determined that, without any other entity taking on FES’s obligations, those obligations are being served by OVEC itself from a debt reserve.

Moody’s states that they ran their own assessment of the market value of OVEC under the ICPA:

No one has “stepped-up” for FES’ share of OVEC’s fixed cost obligations. We estimate FES’ share of OVEC’s fixed costs to be approximately $17 million per year. In sensitivity testing, **taking into account FES’ share of energy and capacity revenues that are being paid, we estimate the shortfall could be reduced to about $10-$13 million per year**; however these revenues are currently being allocated to the non-defaulting sponsors. As such, OVEC is currently bearing the entire cost of the shortfall, illustrating the exposure created by the lack of step-up provision in the current ICPA.98

In other words, if OVEC were compelled to take on the burden of FES’s share, compensating itself only from the market—as would be the case with a merchant generator—it would realize an annual shortfall of $10-$13 million per year.

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97 Moody’s Credit Opinion (Exhibit JIF-10).

98 Id. at 3 (emphasis added).
Moody’s characterizes OVEC’s financial profile as “weak,” and makes a critical note:

As a strictly merchant plant, in today’s market, the plant would not be able to generate sufficient cash flow cover its fixed costs and service its $1.4 billion of debt. 99

Moody’s assessment only looked at the share of OVEC held by FES (4.85 percent), and not the smaller fractional also held by Allegheny Energy (3.01 percent). Scaled to the Companies’ joint share, Moody’s assessment would indicate that the Companies’ ratepayers could be expected to lose about $16-21 million per year relative to market alternatives—a value even more substantial than the considerable losses estimated by FES in January 2018.

Q In sum, what conclusions do you draw with respect to the economic value of OVEC?

A There is substantial evidence from other OVEC Sponsors, and bolstered by Moody’s analysis, that both the short-term and long-run liability of OVEC imposes substantial risk on retail customers, and that the ICPA is not in their interests.

It bears repeating that, at the outset of discovery in this case, Sierra Club asked specifically whether the Companies had performed or obtained any studies or analyses regarding the cost-competitiveness of the ICPA; and the Companies suggested that they had no pertinent information. 100 Only when prodded again in the second round of discovery did they provide the Merchant Analyses. 101

99 Id. at 5 (emphasis added).
100 See Company Response to SC 1-2 (failing to provide any “study or analysis that the Company has performed or obtained, subsequent to that relied on in Case Nos. 2011-00099 and 2011-00100 before the Commission, regarding the cost-competitiveness of, or need for, its contractual relationship with OVEC or the power and capacity the Company obtains from the OVEC Units,” other than their inapposite 2018 IRP Reserve Margin Analysis addressed by my testimony above).
101 See Company Response to SC 2-4(a).
I find it concerning that the Companies apparently did not understand the Merchant Analyses to be clear examples of cost-competitiveness studies. Again, these analyses (discussed in the previous section above) were provided by OVEC to the Companies’ Board representatives.

It is further troubling that the Companies apparently did not review either of the public studies, discussed above, conducted by their fellow Sponsors to evaluate the OVEC contracts.

The Companies appear to have taken the Commission’s 2011 authorization of the amended ICPA as license to effectively disengage with further consideration of whether OVEC makes sense for the Companies’ ratepayers.

8. **THE COMPANIES’ OVEC COMMITMENT POSES SUBSTANTIAL RISKS TO THE COMPANIES AND THEIR RATEPAYERS.**

Q Are there other impending risks associated with the ICPA beyond what you have just discussed?

A Yes. The true liability of the Companies’ OVEC obligations under the ICPA goes beyond a fixed price, or even an index-priced power purchase agreement. Rather, in addition to the burden of the contractual power purchases, the Companies’ OVEC commitment must be understood as encompassing the nearly unrestricted cost and risk of owning and operating power plants with very little opportunity for recourse, as well as extraordinary near-term cost risk, above its currently non-economic status.

There are at least three categories of such risk, which I discuss below:

1. financial risk posed by possible defection OVEC Sponsors (which has already begun),
2. environmental costs and obligations, and
3. OVEC’s historical performance.
Q Will you first explain the financial risk from defecting OVEC Sponsors?
A In brief, if a Sponsor leaves the ICPA without a renegotiation, the costs of the exiting Sponsor could be reallocated to the remaining Sponsors, as noted above. This could radically increase the cost and obligations of the ICPA on remaining Sponsors, including the Companies.

The ICPA is several, and not joint, meaning that each individual Sponsor is only responsible for its own share of OVEC’s obligations, and not the obligations of the other Sponsors. At first blush, this would appear to insulate the remaining Sponsors, irrespective of the financial wherewithal of a single Sponsor. In practice, however, it means that OVEC can be left with real gaps—and no responsible party—if a single Sponsor leaves and no other entity steps in to take that ownership share. And this is not merely theoretical; it is in fact occurring today: the bankrupt FES has departed the ICPA unilaterally, and OVEC’s costs to other partners have increased as a result, as noted above.

Q Will you provide more detail on what’s occurred since FES’s bankruptcy filing?
A In April 2018, FES declared bankruptcy and asked a federal bankruptcy court in Ohio to allow it to reject the ICPA. According to Moody’s, FES “stopped paying its approximately 5% share of OVEC’s costs.” As Moody’s further explains:

Following rejection of the ICPA, the FES share of energy and capacity has been allocated to the other sponsors, who have been paying their share of OVEC’s variable costs; however, no one has “stepped-up” for FES’ share of OVEC’s fixed cost obligations. As such, OVEC is currently bearing the entire cost of the shortfall,

102 See ICPA § 9.11; see also Company response to SC 1-17(a).
103 Moody’s Credit Opinion at 3 (Exhibit JIF-10).
illustrating the exposure created by the lack of step-up provision in the current ICPA.¹⁰⁴

At the moment, OVEC’s outstanding debt is being paid for through a reserve, funded by the remaining Sponsors. According to Moody’s, prior to FES’s formal declaration of bankruptcy, the OVEC Board authorized a $44 million debt service reserve, and plans on continuing funding that reserve. OVEC’s annual report describes that in January 2017, OVEC started “advanced billing” to the Sponsors for debt service to fund a reserve.¹⁰⁵

This higher billing rate, incurred in the OVEC demand charge is also noted by Company witness Mr. Sinclair, who notes that the Companies pay “higher demand charges … due to expectations for OVEC to collect in advance for repayments of a portion of its debt due in 2019.”¹⁰⁶

The Company’s 2017 filing of FERC Form 1 goes one step further, stating:

OVEC [Sponsors] … including LG&E, have allowed implementation of a limited, partial OVEC reserve fund for debt costs and are analyzing certain potential additional credit support actions to preserve OVEC’s access to credit markets or mitigate risks or adverse impacts relating thereto, including increased interest costs and accelerated maturities of OVEC’s existing short and long-term debt.¹⁰⁷

So, although one might have expected the several liability of the OVEC contract to have protected the remaining Sponsors, in fact those Sponsors (including the Companies) have increased payments to OVEC as a result of FES’s departure.

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¹⁰⁴ Id.
¹⁰⁵ OVEC 2017 Annual Report (Exhibit JIF-02), at 11.
¹⁰⁶ Direct Testimony of Mr. David Sinclair at 31:12-15.
¹⁰⁷ Attachment to Filing Requirement. 807 KAR 5:001 Section 16(7)9k), at 103, FERC Form 1, at 123.57.
Q Are there other increased cost risks due to the defection of Sponsors, in addition to what you just explained?

A Yes. OVEC’s borrowing costs could increase substantially as its credit ratings fall. OVEC operates as an independent generation company and incurs debt and associated borrowing costs. The ICPA requires that the Sponsors pay all of OVEC’s borrowing costs, but the credit ratings governing those borrowing costs are OVEC’s. As OVEC’s credit ratings fall, borrowing costs increase, increasing the cost of existing and new debt held by OVEC—and paid for by the Companies under the ICPA.

OVEC described this borrowing cost risk in a pre-emptive filing before FERC, anticipating FES’s bankruptcy:

As an initial matter, because the Sponsoring Companies’ obligations are several and not joint, if FirstEnergy is able to reject its obligations under the ICPA, the resulting cost shortfalls are not payable by the other Sponsoring Companies and will go unreimbursed every month over the life of the contract (i.e., until at least 2040), absent the types of ameliorative changes to the filed rate discussed in Section IV.B, infra. This will further impact OVEC’s credit rating (which already has been impacted by the prospect of contract rejection), further raising OVEC’s borrowing costs. Those higher borrowing costs will directly result in higher costs to the remaining Sponsoring Companies and their customers. In the case of OVEC’s rural electric cooperative Sponsoring Companies, for example, whose customers are their owners, all of these increased costs will be borne by the ultimate ratepayers.108

And in fact, in recent years, OVEC’s credit rating has been downgraded, and is on a “negative” outlook watch from Standard and Poor’s (“S&P”). In December 2016, Moody’s downgraded OVEC’s rating from “Baa3,” the lowest investment grade, to “Ba1,” a non-investment grade. Moody’s Investors Service indicates that a further downgrade could result if FES’s payments cannot be covered by existing reserves or the “swift replacement of the defaulting party.”

How much of OVEC’s debt is outstanding?

As of October 31, 2017, OVEC had $1,356 million in long-term debt. As far as I can discern, half of this long-term debt, $774 million, is due on or before 2026. To put that number in context, the 63-year-old OVEC units have $640/kW outstanding—close to the overnight cost of a new generator.

The risks that this debt will increasingly be incurred on the Companies through increases to the demand charge is very real.

Next, will you discuss the environmental compliance costs and risk posed to the OVEC units?

The OVEC units have yet-unsatisfied compliance obligations under the respective federal environmental regulations promulgated for Coal Combustion Residuals (“CCR”), Effluent Limitation Guidelines (“ELG”), and thermal effluent (“316(b)”). As revealed in discovery responses supplied to Sierra Club and designated as confidential by the Companies, OVEC’s understanding of its obligations under the rules has continuously shifted, but OVEC currently...

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109 Moody’s Credit Opinion at 2 (Exhibit JIF-10).
111 Id.
113 See, e.g., Company Response to SC 1-13, Attachment at 14-15 (contains Confidential Information) (non-confidential portions of 2017 OVEC Board minutes referencing future compliance obligations, and certain corresponding costs, for each rule); Company Response to SC 1-14, at Attachment at 3, 36-40 (contains Confidential Information) (similar topics addressed in non-confidential portions of presentation slides).
anticipates anywhere from a “best case” scenario to a “worst case” scenario. As of August 1, 2018, OVEC had developed a “best case” and a “worst case.”

Even in the “best case,” OVEC still anticipates in new environmental capital costs, starting in 2021. In the “worst case,” OVEC anticipates in new environmental capital costs, with a decision date as early as mid-2019.114

The “best case” makes a series of bold assumptions: that the current administration will successfully overturn existing regulations on the books; that such action rules will be upheld in court; and that rules will not later be re-promulgated to substantially the same effect. In other words, this scenario assumes that current, duly promulgated legal obligations will not exist in the near future. In my opinion, such reliance is risky and not well-founded.

It bears recognizing explicitly here that both of these compliance obligation cases are inconsistent with express predictions and representations in the 2011 URS Report—discussed above—on which the Commission relied in 2011 in approving the extension of the ICPA through 2040.115

Q What would be the impact of the “worst case” scenario on the demand charges to OVEC’s Sponsors?

A Assuming that OVEC acquires a twenty-year bond with a 6 percent yield (judging from prior bond rates received by OVEC in the annual report), the Sponsors would see an increase to the demand charge of approximately, all else held equal, with current laws remaining on the books. However, it is not clear that OVEC is able to secure long-run debt at any reasonable rate. Almost all of OVEC’s recent borrowing has been for extremely short periods (4-5 years). If OVEC were compelled to shrink that borrowing

114 See Company Response to SC 1-14, at 36-44 (contains Confidential Information).
115 See supra nn. 51-71 and accompanying text.
period to five years, Sponsors would see an increase to the annual demand charge of approximately [REDACTED] for these environmental obligations alone, all else held equal. The Companies’ share of this incremental demand charge would be [REDACTED].

9. **THE COMPANIES’ OVEC COMMITMENT IS NOT REQUIRED TO SERVE THE COMPANIES’ NEEDS, INCLUDING FOR ADEQUATE CAPACITY.**

Q **Do the Companies require the capacity provided by OVEC to serve customer needs?**

A No, they do not. The Companies’ reserve margin—*i.e.*, the amount of excess capacity they hold in reserve for contingency above their peak requirements—is currently *well* above what they require, and would remain so if they subtracted OVEC’s relatively small fraction thereof from their portfolio.

Sierra Club asked the Companies to identify and explain any need for taking power from OVEC other than its contractual obligation under the ICPA. In response, the Companies stated simply that their 2018 IRP had shown that “with the Companies’ share of OVEC capacity, the Companies’ reserve margin falls within the target reserve margin range.”

Q **What is the Companies’ current reserve margin?**

A According to the 2018 IRP, the Companies’ 2018 reserve margin was 24.7 percent. Notably, they anticipate that margin to remain above 23 percent in every year through 2033, as presented in Figure 7 below.

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116 Company Response to SC 2-1(d).
117 2018 IRP Reserve Margin Analysis, *supra* n.12, at Table 1.
Q

What is the Companies’ “target reserve margin range”?

A

The Companies identify a reserve margin “range” of 17 to 25 percent.118 The high end of the Companies’ range is defined by a reliability criterion of (statistically) no more than one day’s loss of load event (“LOLE”) in a 10-year period (“1-in-10”). The low end was defined as the change in load that would be required to economically trigger a new capacity addition.119 The Companies’ acknowledge that the reserve margin which meets the more rigorous criterion, the 1-in-10 LOLE “does not necessarily coincide with the economically optimal reserve margin.”120

Q

What is OVEC’s contribution to the Companies’ reserve margin?

A

The OVEC units, at a 152 MW of peak summer rating contribute 2.3 percent to the Companies’ 2018 reserve margin. Without those units in 2018, the Companies’ reserve margin would have been 22.4 percent. In 2019, the Companies’ project their reserve margin will be 22.5 percent. Without OVEC’s

118 Id. at 26 (Section 5.4).
119 Id. at 24 (Section 5.2).
120 Id. at 9 (Section 3).
power, the Companies’ reserve margin would be a very comfortable 21.1 percent.  

Q  How does a reserve margin of 21 percent to 22.5 percent compare to the reserve margin of other regional entities?

A  The Companies point out that the target reserve margins of MISO, PJM, and TVA are 17.1, 15.8, and 15 percent, respectively—i.e., at or below even the low end of the Companies’ chosen target reserve margin range, and far lower than the Companies’ current reserve margin, or even their projected reserve margin without OVEC.

Q  What does the Companies’ reserve margin study imply about a reasonable target reserve margin?

A  I believe the Companies ended up identifying a range of target reserve margins because in their calculations, a range of reserve margins all achieve approximately the same total costs (comprised of the cost of capacity, generation production costs, and the value of lost load or unserved energy). Even under the most extreme scenarios (a 90th percentile load projection), costs for between a 16.9-24.6 percent reserve margin varied by only $10-$11 million. According to the Companies’ analysis, it would be difficult to identify any reliability cost with losing capacity equivalent to OVEC.

Based on that study, the Companies’ current and projected reserve margin is very comfortable even in the absence of the OVEC units, even under the Companies’ abnormally and unnecessarily high chosen target range.

Q  Did the Company test the reliability implications of shedding OVEC?

A  No.

121 Author’s calculation based on data in Figure 7, above.
122 Author’s calculation based on Tables 13 and 14 in the Companies’ 2018 IRP Reserve Margin Analysis.
Q. Have the OVEC units performed well during critical reliability events in the recent past?

A. No. The Companies’ reserve margin analysis notes that “since [2010], the Companies have experienced two annual peak demands in excess of 7,000 MW and both occurred during winter months (7,114 MW in January 2014 and 7,079 MW in February 2015).” Those two periods represent unusual cold snaps, the first of which is colloquially referred to as “the 2014 polar vortex” and provided the basis of a special reliability report from the North American Reliability Corporation (“NERC”).

During the January 2014 cold event, the maximum temperature in Louisville, Kentucky, barely broke above freezing for three days (January 6-8). During that time, while ten of the eleven OVEC units were operating near maximum output, Clifty Creek unit 3, which comprises 9 percent of OVEC’s capacity, was offline.

During the February 215 cold events, temperatures in Louisville stayed below freezing for six days (February 15-20). Temperatures stayed extremely cold through the remainder of the month, only breaking freezing on four other days. During that time, nine out of eleven units experienced an outage (excepting Clifty Creek 1 and Kyger Creek 1). At no time were more than nine of eleven units online. On the peak demand date of February 20, the OVEC units produced

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123 2018 IRP Reserve Margin Analysis at 4 (Section 2).
a gross generation of 38,000 MWh, only 65 percent of their maximum output from 2014-2015. 129

Q Do the OVEC units otherwise have a recent history of being highly reliable? Not really. The units appeared to have been fairly reliable through the early 2000s but rose towards the late 2000s. 130 However, by 2013, the forced outage rate of the OVEC units was regularly in excess of 10 percent, and often well above 20 percent. 131 As displayed below, the entirety of the six-unit Clifty Creek station had a forced outage rate of 26.1 percent in 2015. Four of five units at Kyger Creek spent twenty percent or more of their time in forced outage in 2015.

Table 2 below is a reproduction of a table provided to Sierra Club by the Companies. 132 Apparently either OVEC or the Companies ceased tracking the performance of individual OVEC units after the disastrous 2015 year. Mysteriously, the forced outage rate supposedly shrinks immediately thereafter.

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129 Maximum daily gross generation of all OVEC units 2014-2015 was 56,399 MWh, achieved January 28, 2014.
130 2011 URS Report, see supra n.59, at 65, 71.
131 See Company Response to SC 1-9(d).
132 See id.
Table 2. Equivalent forced outage rates for OVEC units, 2013-2018.

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<td>13.5%</td>
<td>9.3%</td>
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<td>5.3%</td>
</tr>
</tbody>
</table>

Q: What is your assessment of that table provided by the Companies?
A: I find the statistics reported for 2016 to 2018 to be non-credible. From January 5 to January 8, 2017, the East Coast again experienced a sharp cold snap throughout which temperatures in Louisville stayed below freezing. Yet, while every other OVEC unit turned up to near-maximum output, Kyger Creek units 3, 4, and 5 were out of commission. In addition, Clifty Creek unit 3 and Kyger Creek units 2 and 3 did not operate for about one-third of 2017, while Clifty Creek unit 6 did not generate for almost half of 2017. It seems almost impossible to align these statistics with the reported “station” 7.1 or 5.7 percent forced outage rates in 2017 shown in Table 2 above.
Q Were the Companies able to identify the reasons behind the poor reliability of the OVEC units or what actions were taken, if any, to mitigate the reliability problems of the OVEC units?

A No. 133

Q What conclusions do you draw regarding the Companies’ need for, and the reliability of, the OVEC units?

A OVEC’s power does not serve a significant, let alone critical, role in satisfying the Companies’ capacity needs. Further, the OVEC Units cannot be relied upon to consistently serve during critical events.

* * * * *

Q Do you have anything to add to your direct testimony?

A Please again see Section 2, above, for key conclusions and recommendations. I have nothing further to add at this time.

133 Company Response to SC 1-11.
CERTIFICATE OF SERVICE

This is to certify that the foregoing copy of the DIRECT TESTIMONY OF JEREMY I. FISHER, PHD, ON BEHALF OF SIERRA CLUB in Case Nos. 2018-00294 & 2018-00295, and the Exhibits being attached thereto, are true and accurate copies of the documents being filed in paper medium; that the electronic filing was transmitted to the Commission on January 16, 2017; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that a copy of the filing in paper medium is being hand delivered to the Commission.

JOE F. CHILDERES