

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Ohio )  
Edison Company, The Cleveland Electric )  
Illuminating Company and The Toledo )  
Edison Company for Authority to Provide for )  
a Standard Service Offer Pursuant to R.C. )  
4928.143 in the Form of an Electric Security )  
Plan )

Case No. 14-1297-EL-SSO

**SECOND SUPPLEMENTAL TESTIMONY OF JOSEPH P. KALT, PH.D.  
ON BEHALF OF THE PJM POWER PROVIDERS GROUP  
AND THE ELECTRIC POWER SUPPLY ASSOCIATION**

**December 30, 2015**

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**I. Introduction, Purpose of Testimony, and Summary of Conclusions**

**Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

**A1.** My name is Joseph P. Kalt. I am the Ford Foundation Professor (Emeritus) of International Political Economy at the John F. Kennedy School of Government, Harvard University. The Kennedy School of Government is Harvard's graduate school for public policy and public administration. I also work as a senior economist with Compass Lexecon. Compass Lexecon is an economics consulting firm with offices in various cities throughout North America, South America, and Europe. My business address is 4280 N. Campbell Avenue #200, Tucson, Arizona 85718.

**Q2. WHAT IS THE PURPOSE OF YOUR SECOND SUPPLEMENTAL TESTIMONY?**

**A2.** I have been asked by P3 and EPSA to review and analyze the Third Stipulation<sup>1</sup> filed by the Companies in this proceeding and evaluate whether approval by the Public Utilities Commission of Ohio ("PUCO") of the Third Stipulation would be in the public interest. I also consider in my analysis the fifth supplemental testimony of Eileen M. Mikkelsen which was filed in association with the Third Stipulation.<sup>2</sup>

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<sup>1</sup> Before the Public Utilities Commission of Ohio, Case No. 14-1297-EL-SSO, December 1, 2015, Third Supplemental Stipulation and Recommendation (hereinafter "Third Stipulation").

<sup>2</sup> Fifth Supplemental Testimony of Eileen M. Mikkelsen on behalf of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company, Case No. 14-1297-EL-SSO, December 1, 2015, hereinafter, "Mikkelsen Fifth Supplemental."

1 **Q3. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS PROCEEDING?**

2 **A3.** Yes. On December 22, 2014 and May 11, 2015, I submitted Direct Testimony on behalf  
3 of the PJM Power Providers Group (“P3 Group”) and the Electric Power Supply  
4 Association (“EPSA”).<sup>3</sup>

5 **Q4. WHAT WAS THE PURPOSE OF YOUR PREVIOUS TESTIMONIES IN THIS**  
6 **MATTER?**

7 **A4.** I was asked by the P3 Group and EPSA to provide an economic analysis of the Electric  
8 Security Plan (“ESP”) filed by FirstEnergy Corp.’s (“FirstEnergy”) three Ohio monopoly  
9 transmission and distribution utilities: Ohio Edison Company, The Cleveland Electric  
10 Illuminating Company, and The Toledo Edison Company (the “Companies”). As  
11 detailed in my previous testimonies, the Companies initially proposed to implement an  
12 ESP which would entail a long-term Power Purchase Agreement (“PPA”) whereby they  
13 would purchase generating unit-contingent power for 15 years from their Federal Energy  
14 Regulatory Commission (“FERC”) regulated affiliate company, FirstEnergy Solutions  
15 Corporation (“FES”).

16 The proposed PPA represents a scheme by which the Companies’ captive  
17 ratepayers would be required to effectively guarantee the Companies that they will be  
18 able to recover the costs plus a full return to their debt and equity investors associated  
19 their affiliate FES’ Davis-Besse (nuclear-fueled) and Sammis (coal-fueled) generating  
20 units (together, the “Plants”), as well as FES’ 4.85% entitlement in Ohio Valley Electric

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<sup>3</sup> Direct Testimony of Joseph P. Kalt, Ph.D. on behalf of the PJM Power Providers Group and the Electric Power Supply Association, December 22, 2014, errata filed January 30, 2015 (hereinafter Kalt Direct Testimony) and Supplemental Testimony of Joseph P. Kalt, Ph.D. on behalf of the PJM Power Providers Group and the Electric Power Supply Association, May 11, 2015 (hereinafter Kalt Supplemental Testimony).

Corporation (“OVEC”).<sup>4</sup> The plan would operate by, first, having the Companies purchase all power products from the Plants and FES’ OVEC entitlement at prices sufficient to cover all of FES’ associated costs plus covering debt and yielding FES’ shareholders a profit no less than they could expect to earn in alternative investments of comparable risk. Upon purchasing all of the power products yielded by the Plants and the OVEC entitlement, the Companies would then resell the acquired power products into the FERC-regulated PJM wholesale power markets. Any losses that the Companies might experience in these transactions (i.e., because prices turn out to be lower in the wholesale power market than amount paid to FES) would be covered by a non-bypassable charge – a so-called Retail Rate Stability Rider (“Rider RRS”) – paid by the Companies’ captive local ratepayers. Meanwhile, any gain that might be realized would be flowed through to those same ratepayers by the Rider RRS.

**Q5. WHAT CONCLUSIONS DID YOU REACH REGARDING THE COMPANIES’ PRIOR VERSION OF THEIR PROPOSAL?**

**A5.** I found that, apart from various interest groups that the Company promised to compensate with one-off payments, exemptions from portions of the Rider RRS, or other support for those groups’ causes – the proposed PPA and Rider RRS plan is unambiguously contrary to the interests of the general ratepaying public of Ohio served by the Companies. The proposed plan would shift very large risks from FES’ debt and equity investors onto the Companies’ captive ratepayers. The economics of the Companies’ own calculations showed that their proposed plan would burden the

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<sup>4</sup> As I explained in my direct testimony, the OVEC share corresponds to a relatively small amount of generation capacity in comparison to Sammis and Davis-Besse not controlled by the Companies and I have not specifically analyzed the economics of the OVEC share.

1 Companies' captive ratepayers with \$220 million of uncompensated risk.<sup>5</sup> It would do  
2 this without any compensating benefits or return to the general ratepaying public. The  
3 plan, in short, is what is commonly called a "bailout."

4 The Companies' claimed (and still do) that their ESP plan would give captive  
5 ratepayers hundreds of millions of dollars of net benefit relative to having to satisfy  
6 ratepayers' demands through power purchases on the open market. At the same time, the  
7 Companies' previously claimed (although now leaving the matter ambiguous) that the  
8 subject plants might close if FES' investors could not shift the risks of the decisions those  
9 investors had made to the Companies' captive ratepayers. I pointed out, however, that  
10 the economic risks of the plants do not go away under the plan; they are merely shifted  
11 from FES' stockholders and lenders to the captive consuming public. Thus, it is not  
12 economically coherent to assert that the plants are gross money losers if FES has to  
13 continue to bear their risks and compete with other sellers in the open wholesale  
14 marketplace to sell the plants' output, but somehow would far outperform the market if  
15 captive ratepayers would take on those same risks and guarantee FES' stockholders and  
16 lenders cost recovery plus profit.<sup>6</sup>

17 I also found that, if we were to believe the Companies' own calculations of costs  
18 and revenues, it would make no economic sense and would be fiduciarily irresponsible  
19 for FES or a new owner to close the plants *and* no bailout by captive ratepayers would be  
20 required to keep the plants open.<sup>7</sup> Moreover, I explained that if the Companies'  
21 calculations of costs and revenues were too optimistic and the plants actually could not be

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<sup>5</sup> Kalt Hearing transcript at 5688:17-24.

<sup>6</sup> Kalt Direct at 9:14-10:7; Kalt Supplemental Testimony at 5:14-6:3.

<sup>7</sup> Kalt Direct at 51:12-16.

1 expected to be able to cover their going-forward costs and revenues, forcing captive  
2 ratepayers to keep the plants operating via the proposed ESP would certainly enrich FES'  
3 investors, but would impose unambiguous economic damage on the Companies' captive  
4 Ohio ratepayers.<sup>8</sup> In fact, keeping the plants open via the proposed bailout, or artificially  
5 subsidizing their costs by shifting risks away from FES' owners, would more generally  
6 harm the broad public interest of Ohioans and beyond by distorting the efficiency of the  
7 federally-regulated wholesale PJM markets.<sup>9</sup>

8 Finally, notwithstanding the contradictions created by arguing that the plants  
9 would be money makers if the Commission would force captive ratepayers to assume all  
10 costs and risks, but would somehow be compelled to close if FES' investors were to have  
11 to continue to bear the costs and risks of the plants, the Companies averred that the ESP  
12 would benefit ratepayers by diversifying PJM's supply system and thereby stabilizing  
13 retail electricity prices for ratepayers. In making such claims of rate stabilization,  
14 however, the Companies actually produced no evidence, only assertion. I found,  
15 however, that the evidence on implied links between wholesale spot market power prices  
16 in PJM and retail rates in the Companies' service territories showed that: (i) there is no  
17 relationship indicating that the volatility actually experienced in PJM's wholesale power  
18 prices translates into volatility of retail rates in the Companies' service territories;<sup>10</sup> and  
19 (ii) competition in the retail marketplace under Ohio's system of customer choice is

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<sup>8</sup> Kalt Direct at 46:1-16.

<sup>9</sup> Kalt Direct Testimony at 8:14-21.

<sup>10</sup> Kalt Direct at 40:3-13; Kalt Supplemental Testimony at 25-29.

1 already satisfying, and can only be expected to continue to satisfy, consumers' demands  
 2 for retail rate stability.<sup>11</sup>

3 **Q6. DOES THE COMPANIES' THIRD STIPULATION MATERIALLY CHANGE**  
 4 **YOUR CONCLUSIONS?**

5 **A6.** No. The latest stipulation does not change the basic economics of the proposed ESP.

6 Thus, the conclusions that follow from those economics do not change. The plan  
 7 continues to be an unambiguous bailout that would benefit FES' stockholders and  
 8 lenders.<sup>12</sup> It achieves its key objective of channeling benefits to FES' investors and  
 9 lenders by guaranteeing them cost recovery plus a return on the plants.<sup>13</sup> It also channels  
 10 benefits from the general public ratepayers' guarantees to certain favored interest groups  
 11 to which the Companies and FES' have targeted compensation of some form under the  
 12 stipulations. It benefits these interest groups and FES' stockholders and lenders by  
 13 shifting uncompensated risks to not-favored captive ratepayers and requiring those  
 14 ratepayers to cover the plants' embedded past costs and their going-forward costs, plus a  
 15 profit return on the plants. In either keeping plants open that are not economic (in the  
 16 sense that the power and capacity they will provide going-forward can be replaced by less  
 17 expensive power and capacity available on the open wholesale markets) or subsidizing  
 18 otherwise economic-to-operate plants, the plan will distort the efficiency of PJM's  
 19 federally-regulated wholesale markets – to the detriment of the public interest of Ohioans  
 20 and the broader national public.

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<sup>11</sup> Kalt Supplemental Testimony at 26:13-27:13.

<sup>12</sup> FES' top management would also benefit to the extent that investors and lenders would hold management responsible (e.g., in their compensation and/or tenure) for taking on risk, disappointing profitability, and/or failure to successfully manage the political and regulatory process so as to yield a bailout.

<sup>13</sup> See, also, note 12 above.



1           The Companies’ now claim (through Ms. Mikkelsen) that, under the Third  
 2           Stipulation, the proposed plan would have a positive net present value (“NPV”) of  
 3           approximately \$260 million for general ratepayers. I find that, as before, this claim that  
 4           captive ratepayers will realize a net benefit from having to step in and take on FES’  
 5           stockholders’ and lenders’ risk by guaranteeing to cover the subject plants’ entire costs  
 6           and give those stockholders and lenders a profit is economically nonsensical. As I  
 7           explain below, this conclusion arises because:

- 8           • Absent the imposition of the plan on them, ratepayers would be able to acquire  
 9           the electricity and power capacity represented by the plan at going market prices  
 10          *without* having to bear the risks shifted to them by FES’ stockholders and lenders;
- 11          • The Companies’ own NPV calculations employ projected natural gas and, hence,  
 12          electricity prices that far exceed the prices observed in any credible forecasts  
 13          extant in the marketplace;
- 14          • The Companies’ calculations of a positive NPV for ratepayers would require the  
 15          plants to operate on a sustained basis at substantially higher rates of output than  
 16          FES has been able to operate them over at least the last decade.
- 17          • The Companies continue to commit allowing certain interest groups to avoid part  
 18          or all of the burden of paying off FES’ debt and equity investors by agreeing to  
 19          exempt those interest groups from certain provisions of the Rider RRS and/or  
 20          paying for benefits those interest groups want.

21           In fact, as I show below, even small changes *in the directions supported by the*  
 22           *marketplace evidence* to the price and output assumptions the Companies’ have built into  
 23           their NPV calculations (while accepting all of their calculations’ other assumptions<sup>14</sup>)  
 24           turns the Companies’ claim of a net benefit for ratepayers into a massive net negative.  
 25           That is the realistic outcome of the proposed ESP plan for the Companies’ captive  
 26           ratepayers.

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<sup>14</sup> Including the ignoring of the costs of the very large risks shifted onto ratepayers.

## II. Assessment of the Companies' Third Stipulation

### Q7. PLEASE DESCRIBE THE THIRD STIPULATION FILED BY THE SETTLING PARTIES?

#### A7. The Third Stipulation includes the following key provisions:

- As before, a Rider RRS would still impose a non-bypassable charge on captive ratepayers to guarantee that FES' investors earn the return they want, that the Companies do not lose money by entering into the PPA, and that captive ratepayers cannot avoid the Rider RRS charges and take advantage of more attractive prices that arise in the wholesale power markets over the term of the PPA.
- The proposed term of the PPA is reduced from 15 years to 8 years commencing June 1, 2016 and extending through May 31, 2024;
- The initial return on equity is reduced to 10.38% from the previously proposed 11.15%.
- The Companies agree to ensure that captive ratepayers under specific circumstances realize PPA cost credits of \$10 million in year 5 of the PPA; \$20 million in year 6 of the PPA; \$30 million in year 7 of the PPA; and, \$40 million in year 8 of the PPA;
- The Companies commit to filing a grid modernization plan;
- The Companies commit to transitioning to decoupled rates (i.e., to move to multi-part fixed and variable rates); and,
- The Companies continue to commit allowing certain interest groups to avoid part or all of the burden of paying off FES' debt and equity investors by agreeing to exempt those interest groups from certain provisions of the Rider RRS and/or paying for benefits those interest groups want.

Regarding the latter, the Companies have garnered the support of certain business groups, labor unions, municipalities, and educational organizations with promises of support for their various causes.<sup>15</sup>

<sup>15</sup> In addition to the Companies, the Third Stipulation was signed by: Ohio Power Company, Council for Economic Opportunities in Greater Cleveland, Ohio Energy Group, City of Akron, Council of Smaller Enterprises, Consumer Protection Association, Cleveland Housing Network, Citizens Coalition, Nucor Steel Marion, Inc., Material Sciences Corporation, Association of Independent Colleges and Universities of Ohio,

1 **Q8. ARE THERE KEY PARTIES THAT HAVE NOT SIGNED THE STIPULATION?**

2 **A8.** Yes, notably missing from the signatory list are millions of the Companies' captive  
 3 ratepayers in Ohio. Indeed, the state's Office of the Ohio Consumer's Counsel ("OCC"),  
 4 which represents the 4.5 million rank and file captive residential ratepayers of Ohio has  
 5 noticed its disapproval of the proposed ESP plan.<sup>16</sup> The OCC has explicitly found that  
 6 the general, rank and file ratepayers of the Companies will be harmed by the proposed  
 7 PPA and Rider RRS.<sup>17</sup> The Companies' largest customers—like those that are members  
 8 of the Ohio Energy Group—and various other interests groups which have signed on to  
 9 plan may have obtained benefits by negotiating with FES/the Companies for one-off  
 10 payments and/or special rates under the stipulations. The vast majority of the Companies'  
 11 captive customers, however, will bear the risks of the subject plants economic  
 12 performance and will pay a profit to FES' investors.

13 It is also not surprising that no competitive wholesale power market generation  
 14 companies have signed the Third Stipulation. Such entities stand to be harmed by having  
 15 to compete on an uneven playing field in the federally-regulated wholesale markets with  
 16 plants that either stay open despite being uneconomic or that have their costs artificially  
 17 depressed via the shedding of their risks onto captive retail consumers.

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International Brotherhood of Electrical Workers Local 245, Kroger, EnerNoc, Inc., Ohio Partners for Affordable Energy and the Staff of the Public Utilities Commission of Ohio.

<sup>16</sup> The OCC is the State of Ohio's residential utility consumer advocate and represents the interests of 4.5 million households in proceedings before state and federal regulators and in the courts (see <http://www.occ.ohio.gov/>).

<sup>17</sup> See "Ohio Consumers' Counsel and Northeast Ohio Public Energy Council call for protecting Ohioans from FirstEnergy's filing for a corporate bailout," available at: <http://www.occ.ohio.gov/news/2015/pressreleases/NOPEC-OCC-Joint-Press-Release-12-1-15.pdf>.

**Q9. BUT DON'T THE COMPANIES CLAIM THAT THEIR CAPTIVE RATEPAYERS WILL REALIZE OVERALL NET BENEFITS UNDER THE ESP PLAN AS IT IS NOW SET OUT IN THE THIRD STIPULATION?**

**A9.** Yes, as noted above, the Companies' claim (through Ms. Mikkelsen) that the proposed plan would have collective net benefits for the Companies' ratepayers totaling \$260 million in net present value over the 8-year term of the proposed plan.<sup>18</sup>

**Q10. IS THIS AN ACCURATE AND REASONABLE MEASURE OF THE OVERALL IMPACT OF THE COMPANIES' ESP PLAN ON THEIR CAPTIVE RATEPAYERS?**

**A10.** No, it is neither accurate nor reasonable. Allow me to explain. As discussed above, the Rider RRS will generate credits or extra burdens on captive ratepayers depending on whether the rates implied by having to cover the subject plants' costs plus profit are less than or greater than the rates the Companies' realize when they sell their affiliate's (FES') output and capacity from the subject plants into the wholesale PJM markets. In the Companies' calculations of ratepayer impact, whether or not credits or penalties are projected to produce credits to the benefit of captive ratepayers or penalties to their detriment turns on four factors that the Companies have embedded in their NPV calculations: (1) the market price of electricity projected in the calculations; the volumes of power products projected as being acquired from the plants and (re)sold by the Companies; the projected costs (plus profit component) of producing those products; and (4) the discount rate used to bring future monetary values back to present (today's) value.

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<sup>18</sup> As noted, the Third Stipulation provides credits in the last four years of the plan of at least \$10, \$20, \$30, and \$40 million, respectively. According to the calculations provided by Ms. Mikkelsen, the plan's credits would always exceed these amounts in the final four years. Thus, the "guarantee" of credits would not be invoked.

Consider, first, the last item in the list above. The calculations of the net present value of the proposed ESP plan on ratepayers that Ms. Mikkelsen has proffered repeats the Companies' prior error of using FES' cost of capital – *after it has been reduced by shifting risk off of FES' investors onto FES' affiliates' captive ratepayers* – as the discount rate applicable to measuring the net present value of the proposed rate plan on ratepayers.<sup>19</sup> Using FES' artificially reduced discount rate as the discount rate applicable to ratepayers ignores the fact that the proposed rate plan *raises* the risks borne by the latter. As I explained in my Supplemental Testimony and at the prior hearing,<sup>20</sup> with the plan forcing captive ratepayers to bear the risks otherwise borne by stockholders, the proper discount rate to apply to a calculation of ratepayer impacts is FES' cost of capital absent the plan. Doing so in the case of the Companies' new calculations and accepting, for the moment and for the sake of argument, all of the calculations' other assumed values for gas prices, output volumes, electricity prices and costs, the figure of \$260 million for purported ratepayer benefit is overstated by approximately \$75 million. In fact, this latter figure is the capital market's measure of the cost that the plan imposes on ratepayers in the form of risk bearing.

**Q11. YOU SAY “FOR THE SAKE OF ARGUMENT”, THE FOREGOING ACCEPTS THE COMPANIES’ PROJECTIONS OF GAS PRICES, ELECTRICITY PRICES AND THE LIKE IN THE NPV CALCULATIONS PROFFERED BY MS. MIKKELSEN. DO YOU FIND THOSE PROJECTIONS UNRELIABLE OR UNREASONABLE?**

**A11.** Yes, decidedly so. Let us consider the natural gas price (and, hence, power price) forecasts that are embedded in the calculations. Inspection of the calculation of the net

<sup>19</sup> Kalt Supplemental Testimony at 10:4-10.

<sup>20</sup> Kalt Supplemental Testimony at 10:3-11:4; Kalt Hearing transcript at 5686-5689.

1 present value of the proposed plan's impact on the Companies' ratepayers submitted by  
 2 Ms. Mikkelsen reveals that the asserted overall net positive figure of \$260 million is the  
 3 result of sharply negative values in the first several years of the plan's 8-year term being  
 4 more than offset by substantially positive values the later years. The early negative  
 5 values arise because the calculations project that the plants' costs (plus profit factor) will  
 6 exceed marketplace revenues that can be realized in the early years; the converse takes  
 7 over in the later years. This pattern, which is critical to the claim of a positive net present  
 8 value for ratepayers – is strikingly inconsistent with extant evidence on the factors  
 9 driving the Companies' calculations.

10 The primary driver of the Companies' estimated net positive present value for  
 11 ratepayers in the latter years of the proposed PPA is their projection of high and rising  
 12 power prices over the 8-year term of the plan now proposed in Third Stipulation. This  
 13 increase in power prices is largely the result of projected natural gas prices, which the  
 14 Companies' calculations show as [REDACTED].<sup>21</sup> However, the Companies'  
 15 gas price forecast—provided by Mr. Rose—is now clearly now long out-of-date and  
 16 [REDACTED] with current natural gas price forecasts available from the  
 17 marketplace. In fact, Mr. Rose's [REDACTED]  
 18 [REDACTED] being relied upon by market participants over both the near term and  
 19 the longer term. With [REDACTED] of the proposed  
 20 ESP plan, the Companies' calculations of ratepayer impacts are *underestimating* the  
 21 harms to ratepayers in the early years, and *overestimating* claimed positive impacts on  
 22 ratepayers in the later years. Indeed, as I show below, the latter cannot realistically be

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<sup>21</sup> The Companies also project increasing PJM capacity prices which contribute to its later year positive benefits.

1 seen as positive; the proposed plan harms ratepayers in all years and only realistically  
 2 yields them a large net negative present value.

3 **Q12. HOW DOES MR. ROSE'S GAS PRICE FORECAST ON BEHALF OF THE**  
 4 **COMPANIES COMPARE TO OTHER AVAILABLE FORECASTS?**

5 **A12.** [REDACTED] to reflect the  
 6 sharp declines in the markets for spot and future gas that are now evident and that  
 7 rationally affect forecasts. Attachment JPK-SS-1, for example, provides a comparison of  
 8 the natural gas price forecast used by Mr. Rose in his August 2014 forecasting analysis  
 9 (and employed in the Companies' latest NPV calculations) against more recent natural  
 10 gas price forecasts that incorporate the recent significant decline in U.S. natural gas  
 11 prices.<sup>22</sup> Attachment JPK-SS-1 shows that not long after Mr. Rose had completed his  
 12 analysis, the U.S. federal government's Energy Information Administration ("EIA")  
 13 came out with its 2015 Annual Energy Outlook ("AEO"). Released in April 2015, this  
 14 outlook recognized the softening in U.S. natural gas markets and forecast softening  
 15 natural gas prices going forward, [REDACTED]  
 16 [REDACTED]. EIA's forecasted  
 17 gas prices in the short-term subsequently were even lower with the release of its latest  
 18 short-term forecast in December 2015 (see Attachment JPK-SS-1).

19 Gas markets (and fossil fuel markets more generally) continued to soften  
 20 throughout 2015. The impact on near and long term forecasts is evident in the  
 21 projections of such widely cited sources as Argus (as shown in Attachment JPK-SS-1).

22 [REDACTED]

<sup>22</sup> Each of these natural gas price forecasts is for the Henry Hub delivery point in Louisiana.

1 [REDACTED]

2 [REDACTED]

3 Most tellingly, Attachment JPK-SS-1 shows the comparison between Mr. Rose

4 August 2014 forecast of gas prices and actual forecasts in the marketplace in the form of

5 NYMEX futures prices. The latter have particular significance because they do not

6 represent mere opinion. Rather, they represent a concise marketplace summation of the

7 best available information on future natural gas prices. They arise from market

8 participants of all kinds “putting their money where their mouths are” by buying and

9 selling futures contracts. In this sense, the prices struck on the NYMEX represent the

10 balance point between those who believe prices will go up from their current level and

11 those that think they will go down. In my experience over several decades, NYMEX

12 futures prices are properly and routinely relied upon as the *markets’* forecasts in the

13 energy sector. The highest actual NYMEX prices in Attachment JPK-SS-1 (which occur

14 in the later years) [REDACTED]

15 as used by the Companies’ in asserting that ratepayers would benefit from their proposed

16 bailout of FES’ stockholders and lenders.<sup>23</sup>

17 **Q13. IS THERE OTHER EVIDENCE SUCH SIGNIFICANT REDUCTIONS IN**

18 **FORECASTED NATURAL GAS PRICES?**

19 **A13.** Yes. For example, Moody’s Investors Service has just lowered its projected near-term

20 Henry Hub prices to \$2.25/MMBTU in 2016, \$2.50/MMBTU in 2017 and

21 \$2.75/MMBTU in 2018.<sup>24</sup> Similarly, Raymond James recently lowered its near-term

<sup>23</sup> See, also, note 12 above.

<sup>24</sup> Moody’s sharply lowers oil price assumptions on threat of prolonged oversupply, Moody’s Investor Service, Global Credit Research December 15, 2015, available at: [https://www.moodys.com/research/Moodys-sharply-lowers-oil-price-assumptions-on-threat-of-prolonged--PR\\_341345](https://www.moodys.com/research/Moodys-sharply-lowers-oil-price-assumptions-on-threat-of-prolonged--PR_341345).



1 forecast saying, “Put simply, there is plenty of U.S. natural gas to meet rising demand at  
 2 prices of \$3.25 [per MMBTU] (or possibly lower) for the next five years.”<sup>25</sup> Finally,  
 3 Natural Gas Intelligence reported that Goldman Sachs also recently lowered its expected  
 4 2016 Henry Hub price projection to \$2.85/MMBTU and indicated: “Longer term, we  
 5 believe that continued efficiency gains in shale drilling will help accommodate the  
 6 demand phase of the shale revolution with prices at \$3.00/MMBTU.”<sup>26</sup> Numerous other  
 7 near-term projections also show considerably lower gas prices expected over the next few  
 8 years.<sup>27</sup> In contrast, [REDACTED].

9 Not surprisingly, others at Mr. Rose’s firm, ICF International, are also  
 10 recognizing that production from the Marcellus and Utica shale is growing faster than  
 11 had been previously expected stating: “improvements in technology have driven the  
 12 estimated ultimate recovery per [well] completion from an average of 3 Bcf in 21010 to  
 13 more than 7 Bcf today;” and “ICF projects that Marcellus and Utica production will  
 14 continue to grow rapidly, rising to upwards of 35 Bcf/d by 2025 and to more than 40  
 15 Bcf/d by 2035.”<sup>28</sup> This stands in contrast to Mr. Rose’s projection of Marcellus and  
 16 Utica shale production growth reported on October 20, 2015 when he noted that ICF  
 17 expected production to double from 17 Bcf/d to 35 Bcf/d by 2030.<sup>29</sup> In fact, ICF has now  
 18 reduced the time for Marcellus/Utica Shale production to double by 5 years to 2025.

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<sup>25</sup> Energy, Industry Update, U.S. Research, Published by Raymond James & Associates, September 1, 2015 at 1.  
<sup>26</sup> Goldman Cuts U.S. NatGas Price Forecast Again, Natural Gas Intelligence, October 21, 2015, available at:  
<http://www.naturalgasintel.com/articles/104096-goldman-cuts-us-natgas-price-forecast-again>.  
<sup>27</sup> See, for example, <http://knoema.com/ncszerf/natural-gas-prices-long-term-forecast-to-2020-data-and-charts>,  
 where various additional near-term natural gas price forecasts are reported.  
<sup>28</sup> Petak, K., Chikkatur A., and Manik, J., ICF Quick Take, Marcellus Juggernaut, ICF International, December 1,  
 2015, available at: <http://www.icfi.com/insights/white-papers/2015/marcellus-juggernaut-white-paper>.  
<sup>29</sup> Rebuttal Testimony of Judah L. Rose on behalf of Ohio Edison Company, The Cleveland Electric Illuminating  
 Company, and The Toledo Edison Company, Case No. 14-1297-EL-SSO, October 20, 2015 (“Rose Rebuttal  
 Testimony”) at 58:8-23.

In summary, Mr. Rose's gas prices – used by the Companies' to calculate claimed ratepayer impacts -- start at \$[REDACTED]/MMBTU in 2016. They then rise to [REDACTED]/MMBTU [REDACTED] and more than [REDACTED]/MMBTU by the end of the 8-year term of the Companies' ESP proposal. [REDACTED] for the same time periods supported by actual market participants in transactions on NYMEX and the prices forecast by numerous analysts and federal agencies. For the reasons I have explained above, the effect can only be to inflate the Companies' projections of the subject plants' revenues under their proposed ESP, and to thereby understate ratepayer losses and overstate ratepayer gains.

**Q14. HAVE YOU INVESTIGATED HOW SENSITIVE THE COMPANIES' CLAIMS OF NET BENEFIT TO CAPTIVE RATEPAYERS ARE?**

**A14.** Yes, I have. In Attachment JPK-SS-2, I have taken the NPV calculations upon which Ms. Mikkelsen relies in her Fifth Supplemental Testimony and adjusted them to reflect downward adjustments to Sammis and Davis-Besse revenues based on up-to-date NYMEX prices.<sup>30</sup> As Attachment JPK-SS-2 shows, the application of current NYMEX futures prices increases captive ratepayer costs significantly in the plan's early years *and*

<sup>30</sup> To estimate the impact of reduced natural gas prices I first calculate the percentage difference in projected annual delivered natural gas prices based on NYMEX Henry Hub prices and Mr. Rose's delivered natural gas prices. I then reduce Mr. Rose's reported weekly on- and off-peak energy market prices by the product of this percentage difference in natural gas prices and an estimate of the percentage of hours that natural gas would be the marginal fuel during on-peak hours, 50%. (Note that the PJM Independent Market Monitor, 2015 Quarterly State of the Market Report for PJM: January through September, © 2015 Monitoring Analytics, LLC, at 14, available at: [http://www.monitoringanalytics.com/reports/PJM\\_State\\_of\\_the\\_Market/2015/2015q3-som-pjm.pdf](http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2015/2015q3-som-pjm.pdf), reports natural gas is on the margin 35% of all hours; I assumed my delivered gas price impact only affects 50% of the on-peak hours). For off-peak hours I estimated that prices would decline 25% based on the expectation that natural gas will be on the margin during some number of off-peak hours given the lower prices used in my analysis. I then constructed a straightforward dispatch model like that I understand Mr. Lisowski used where I dispatched the Sammis generation units individually against these prices and estimated resulting production, revenues and costs (I conservatively ignore unit start-up costs). I used the results of my Sammis realized energy revenues to adjust the Davis-Besse energy revenue rates to capture its reduction in revenues too.

eliminates any projected future benefits. The latter effect is especially evident beginning in 2020, where actual NYMEX prices show no support for Mr. Rose's forecast of a [REDACTED].<sup>31</sup> The results of my analysis show that the projected impact on the Companies' captive ratepayers is a net present value *loss* of \$858 billion.

**Q15. NYMEX FUTURES MARKETS FOR NATURAL GAS CAN BE RELATIVELY "THIN" IN VOLUME AND COVERAGE AFTER ABOUT FOUR YEARS. HAVE YOU ACCOUNTED FOR THIS PROSPECT?**

**A15.** Yes. In Attachment JPK-SS-3, I show results using only the first three years of current NYMEX futures prices, and then letting projected gas prices rise after 2018 at the rate of change seen in the EIA's long-term AEO forecast of April 2015.<sup>32</sup> As Attachment JPK-SS-1 indicates, [REDACTED] each shows quite similar rates of increase over time (as represented by their roughly parallel slopes). The consequence of trusting NYMEX for only its first three years of futures prices, and then turning to the U.S. Department of Energy's EIA forecast for the rate of price increase after 2018, is that the proposed ESP plan portends a net present value loss of \$793 million for the Companies' rank-and-file captive consumers (Attachment JPK-SS-3).

<sup>31</sup> Mr. Rose explains this large natural gas price increase in his rebuttal testimony as associated with increased natural gas demand underlying his modeling coming up against decreased supplies (Rose Rebuttal Testimony at 54:12-17). However, it appears recent natural gas production increases are greater than ICF had previously projected presumably reducing what would have previously been found to have been a potential supply contraction.

<sup>32</sup> [REDACTED] Following the third year of his forecast, Mr. Rose ignores NYMEX prices in favor of his own much higher forecasts. See SC Set 1-RPD-4 Attachment 2-Confidential, Rose Workpapers-Confidential, Gas Price Assumptions.

1 **Q16. DOESN'T YOUR ANALYSIS JUST SHOW THAT THERE IS A LOT OF**  
2 **UNCERTAINTY AS TO WHAT NATURAL GAS AND ELECTRICITY PRICES**  
3 **WILL BE WHEN WE FORECAST OUT THROUGH THE EIGHT-YEAR TERM**  
4 **OF THE PROPOSED ESP SCHEME?**

5 **A16.** Well, it doesn't *just* show that there is considerable uncertainty. What the analyses of  
6 Attachments JPK-SS-2 and JPK-SS-3 show is that the Companies' claims that their  
7 captive ratepayers would benefit on net from the proposed ESP plan depend on our  
8 trusting price forecasts which are *sui generis* to their [REDACTED]  
9 [REDACTED] than the NYMEX marketplace and other disinterested parties foresee. The  
10 disinterested forecasts tell us that we could expect the Companies' captive ratepayers to  
11 suffer many hundreds of millions of dollars of harm from the proposed bailout of FES'  
12 private stockholders and lenders.

13 Moreover, there is, indeed, overwhelming uncertainty regarding the impact of the  
14 proposed rate plan on the Companies' rank-and-file captive ratepayers – and the  
15 Companies' proposal asks ratepayers (and the Commission) to bear that uncertainty, even  
16 when disinterested forecasts say the Companies' forecasts are grossly optimistic. So far  
17 as is known, neither Mr. Rose, the Companies, nor FES have followed the implication of  
18 Mr. Rose's forecasts and purchased massive amounts of NYMEX gas futures in the years  
19 in which Mr. Rose partially or wholly replaces NYMEX prices with his own forecasts.  
20 Economically, this means that they do not actually believe in Mr. Rose's price  
21 projections in the same way that the Companies are implicitly asking their captive  
22 ratepayers (and the Commission) to trust those forecasts. That is, in claiming that captive  
23 ratepayers will benefit from the proposed ESP scheme *given Mr. Rose's price forecasts*,  
24 the Companies are effectively asking their rank-and-file captive consumers and the

Commission to “trust” in Mr. Rose’s price forecasts and assume hundreds of many millions of dollars of obligations. It is not facetious to say that if Mr. Rose, the Companies and FES actually trusted Mr. Rose’s gas price forecasts for 2018 onward, it would be irrational for them not to “put their money where their mouths are” and purchase very large amounts of NYMEX futures. The natural gas price forecast built into the Companies’ claim that rank-and-file captive consumers will benefit from the proposed ESP plan promises exorbitant payoffs – [REDACTED] – when such futures come due. In reality, of course, it would be wholly irrational for Mr. Rose, the Companies and FES to take such risk – just as it would be wholly irrational for the Commission to impose such risk on captive ratepayers, as the Companies are asking the Commission to do.

**Q17. IF NATURAL GAS PRICES ARE EXPECTED TO BE SUBSTANTIALLY [REDACTED], DOES THAT SUGGEST THAT THE SAMMIS AND DAVIS-BESSE PLANTS ARE LIKELY TO BE RETIRED IF NOT BAILED OUT BY THE PROPOSED ESP?**

**A17.** No. For the reasons I set out in my prior testimonies, the proposed ESP is not credibly needed to keep the subject plants in operation – either by FES or, if FES is not capable of operating the plants efficiently, by another owner. For fiduciarily responsible plant owners, retirement is only reasonable when a plant cannot be expected to cover its going-forward costs. The shutdown decision ignores past, even if unrecovered costs (e.g., that may be due to lenders). So long as going-forward revenues can be expected to cover going-forward costs, positive cash flow is generated – and some positive cash flow is preferred to no cash flow (as occurs upon retirement) when it comes to shareholders and

1 lenders seeking recovery of already incurred past costs.<sup>33</sup> In the case of the Sammis and  
2 Davis-Besse plants, while lower fuel costs can be expected to result in lower electricity  
3 prices, I have shown previously that gross margins far exceed the going-forward  
4 operating and capital expenditures that the Companies' own calculations show would be  
5 needed to keep the plant operating on a positive cash flow basis.<sup>34</sup>

6 I should again point out that the suggestions by the Companies that the plants  
7 might close if FES' shareholders and lenders are not bailed out by the ESP is a red  
8 herring in this case. As noted above, with the filing of the Third Stipulation, the  
9 Companies' still do not even attempt to remedy the fact that they have never produced  
10 actual evidence of any benefit that would be created for rate payers if the proposed rate  
11 plan were to be needed to keep the subject plants from retiring.<sup>35</sup> In fact, if the rate plan  
12 were needed to keep the plants from being retired, this would clearly signal that the plan  
13 would be a very substantial net harm to the Companies' captive rate payers: If market  
14 conditions are such that the plants cannot even cover their going-forward costs, saddling  
15 captive rate payers with both those costs plus hundreds of millions of dollars of past, sunk  
16 and as-yet-unrecovered costs can only be a worse deal for ratepayers than allowing those  
17 who supply them with retail power to acquire that power on the open wholesale market.<sup>36</sup>  
18 If plants are uneconomic to operate, they are uneconomic for FES' shareholders and  
19 lenders to operate and they are uneconomic for ratepayers to pay to have them operate.

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<sup>33</sup> Kalt Direct at 51:9-16; Kalt Supplemental Testimony at 14:19-15:8.

<sup>34</sup> Kalt Direct Testimony at Attachment JPK-7.

<sup>35</sup> As discussed above and in my prior testimonies, vague suggestions of, for example, greater retail rate stability if the plants operate are contradicted by the data. Resource diversity and retail rate stability are readily available to ratepayers and power producers on the open markets. See Kalt Direct at 36-38 and Kalt Supplemental Testimony at 26-29.

<sup>36</sup> Kalt Direct at 46:1-16.

**Q18. BEYOND ITS GAS AND CONCOMITANT ELECTRICITY PRICE FORECASTS, ARE THERE OTHER INPUTS TO THE COMPANIES' ANALYSIS WHERE SMALL CHANGES WOULD SIMILARLY *OVERTURN THE COMPANIES'* CLAIM THAT THEIR CAPTIVE RATEPAYERS STAND TO GAIN FROM THE PROPOSED ESP PLAN?**

**A18.** Yes. I have also compared the projected generation levels for the Sammis and Davis-Besse plants which are embedded in the calculations of ratepayer impacts proffered by Ms. Mikkelsen to the plants' actual historical generation levels to see if the Companies' projections are reasonable. The comparisons are shown in Attachment JPK-SS-4. The evident result is that the average levels of plant net generation that are embedded in the Companies' claim that their captive consumers would benefit on net from the proposed ESP plan [REDACTED] the average net generation the plants have actually realized over the last decade or more. In other words, the Companies are asking their captive ratepayers (and the Commission) to trust that, going forward, [REDACTED]. In particular, the projected average annual net-generation for Sammis is [REDACTED] than the historical annual average (2004-2014) and for Davis-Besse it is [REDACTED] than the historical annual average (2004-2014).

**Q19. WHAT HAPPENS TO THE COMPANIES' CLAIM OF A NET POSITIVE PRESENT VALUE GAIN FOR CAPTIVE RATEPAYERS IF THE PLANTS PERFORM MERELY AT THE AVERAGE LEVEL OF PERFORMANCE SEEN IN THE LAST DECADE OR SO?**

**A19.** The projected NPV for rank-and-file captive ratepayers changes from a positive value to a decidedly negative value. As Attachment JPK-SS-5 shows, if the projected net-generation of the plants corresponds to what we have actually witnessed on average ([REDACTED])

1 [REDACTED]  
 2 [REDACTED] captive ratepayers will realize a net present value loss \$201 million.<sup>37</sup>

3 **Q20. APART FROM THE ECONOMIC HARM THAT THE PROPOSED ESP,**  
 4 **CONDITIONED ON THE THIRD STIPULATION, WOULD IMPOSE ON THE**  
 5 **COMPANIES' CAPTIVE RATEPAYERS, WHAT IMPACT WOULD THE**  
 6 **PROPOSED PLAN BE EXPECTED TO HAVE ON THE FEDERALLY-**  
 7 **REGULATED WHOLESALE MARKETS?**

8 **A20.** As noted, the proposed rate plan would continue to have the power and capacity of the  
 9 Davis-Besse and Sammis plants sold into PJM's wholesale markets. This would occur,  
 10 however, with the retail ratepayers who are captive by state regulation being compelled  
 11 (via the Rider RRS) to subsidize the plants' presence and bidding into the wholesale  
 12 markets. As we have seen, such subsidization would take the form of allowing FES's  
 13 shareholders and lenders to shed the risks they originally took on as private investors of  
 14 the plants, with those risks shifted to the Companies' rank-and-file captive ratepayers.  
 15 Basic supply and demand principles teach that the result will be to distort the efficiency  
 16 of the federal-regulated wholesale markets.

17 In particular, while the objective of federal policy has been to allow consumers to  
 18 acquire the wholesale power they need from the least-cost mix of supply sources  
 19 available, the Companies' proposed ESP will distort the market processes that yield that  
 20 outcome. It will do so by encouraging the subject plants to bid into the marketplace at  
 21 rates that are artificially reduced by the plan's insulation from risk – i.e., risk premiums  
 22 that would otherwise be rationally built into the plants' bids on the wholesale markets  
 23 will be artificially eliminated. As I showed in my direct testimony, this can only crowd

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<sup>37</sup> In this analysis I reduce the plant's variable costs accordingly to account for those costs that are no longer incurred if the plants generate less electricity.



1 out supplies from otherwise more efficient, lower cost supply sources (whose bids will  
2 properly reflect those supply sources' risks).<sup>38</sup>

3 The effects of this crowding out of otherwise efficient power capacity and  
4 supplies is contrary to the national public's interest in an efficient power system and  
5 overall national economy. While the plan would effectively disguise the system's higher  
6 costs by having the Companies' captive ratepayers pay both for electricity and for risks of  
7 that would otherwise be borne by FES' shareholders and lenders, the overall costs (i.e.,  
8 inclusive of risks) of providing electric power to consumers in Ohio and beyond will  
9 increase. In fact, this is of particular relevance to Ohio. While some older, less-efficient,  
10 high-emitting generating facilities in Ohio have been retired in recent years, the market is  
11 bringing forth lower cost, high efficiency gas-fired power plants poised to take advantage  
12 of the increasing gas supplies being developed in Ohio. This market-driven responses is  
13 clearly providing Ohioans and beyond with the future generation resources needed to  
14 ensure electric system reliability while, at the same time, increasing the competitive  
15 pressure on remaining older, less efficient power suppliers. Indeed, this is the desirable  
16 marketplace response that ensures transition to and maintenance of an efficient, cleaner  
17 power system for Ohio and the broader federally-regulated region.

### 18 **III. Summary**

19 **Q21. CAN YOU SUMMARIZE THE ECONOMIC ISSUES AT ISSUE IN THIS CASE?**

20 **A21.** Yes. The Third Stipulation's projected captive ratepayer benefits are based on  
21 significantly out-of-date input assumptions. Simply accounting for the changes in fuel

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<sup>38</sup> Kalt Direct Testimony at Attachments JPK-3 and JPK-4. Note that this distortion is most pronounced if, in fact, the subject FES plants would rationally be retired but for the ESP bailout.

1 and power markets over the past eighteen months shows that the Companies' latest  
2 claims of ratepayer benefit are grossly unrealistic. [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED] It is clear

8 from up-to-date inputs that the proposed rate plan of FES' Ohio utility affiliate  
9 Companies promises to impose hundreds of millions of dollars of net harm on the  
10 Companies' captive ratepayers.

11 The Companies proposed ESP would also undermine the federally-regulated  
12 competitive wholesale power markets of PJM. It would do so by using Ohio state  
13 regulation to force captive retail ratepayers to subsidize the subject plants' participation  
14 in the PJM wholesale markets. This subsidization will benefit the shareholders and  
15 lenders who own less efficient producers (i.e., Davis-Besse and Sammis), but will come  
16 at the expense of newer, more efficient and cost-effective generators that would  
17 otherwise supply additional power and/or enter the federally-regulated wholesale market.  
18 In the absence of a subsidy, the Companies' captive rate payers in Ohio will pay lower  
19 prices and the nation's energy production will have lower total cost to the economy.

**CERTIFICATE OF SERVICE**

The Public Utilities Commission of Ohio's e-filing system will electronically serve notice of the filing of this document on the parties referenced on the service list of the docket card who have electronically subscribed to the case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served (via electronic mail) on the 30th day of December 2015 upon all persons/entities listed below:

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Gretchen L. Petrucci

CONFIDENTIAL

# NPV OF CAPTIVE RATEPAYER IMPACTS BASED ON NYMEX GAS PRICES 2016-24

## Attachment JAR-1 (Revised)

### Estimated Retail Rate Stability Rider (Rider RRS) Impact (\$M)

<u>Regulatory Assumptions</u>	
ROE	10.38%
Effective Tax Rate	37.44%
Assumed Debt %	50.00%
Assumed Equity %	50.00%
Cost of Debt	4.54%
WACC	7.46%

<u>Total Under (Over)</u>	<u>Nominal</u>	<u>NPV</u>	<u>IRR</u>
Total PPA Term - 15 years	(561)	(260)	22%

Note: Under recovery results in a charge under Rider RRS. Over recovery results in a credit under Rider RRS.

Line Item	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
-----------	------	------	------	------	------	------	------	------	------	-------

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### ESP Impacts Based on NYMEX Gas Prices 2016-24

<u>TOTAL</u>										
Market Revenue Change	(140)	(222)	(211)	(228)	(295)	(301)	(291)	(301)	(162)	(2,153)
Projected Market Revenue	467	933	1,091	1,278	1,361	1,392	1,447	1,470	585	10,024
Variable Cost Change	(59)	(68)	(47)	(46)	(58)	(63)	(60)	(92)	(43)	(535)
Projected Costs	703	1,262	1,339	1,335	1,392	1,414	1,501	1,490	645	11,080
Under (Over) Recovery	236	329	248	56	31	22	55	20	59	1,057
NPV Under (Over) Recovery	220	285	200	42	21	15	33	11	31	858

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

\*Numbers in parentheses signify savings to customers.

# NPV OF CAPTIVE RATEPAYER IMPACTS BASED ON NYMEX GAS PRICES 2016-18, RISING AT U.S. EIA FORECASTED RATE OF INCREASE 2019-2024

Attachment JAR-1 (Revised)

Estimated Retail Rate Stability Rider (Rider RRS) Impact (\$M)

<b>Regulatory Assumptions</b>	
ROE	10.38%
Effective Tax Rate	37.44%
Assumed Debt %	50.00%
Assumed Equity %	50.00%
Cost of Debt	4.54%
WACC	7.46%

<b>Total Under (Over)</b>	<b>Nominal</b>	<b>NPV</b>	<b>IRR</b>
Total PPA Term - 15 years	(561)	(260)	22%

Note: Under recovery results in a charge under Rider RRS. Over recovery results in a credit under Rider RRS.

Line Item	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
-----------	------	------	------	------	------	------	------	------	------	-------

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## ESP Impacts Based on NYMEX Gas Prices 2016-18, Rising at EIA Forecasted Rate of Increase 2019-2024

<b>TOTAL</b>										
Market Revenue Change	(140)	(222)	(211)	(216)	(273)	(275)	(269)	(270)	(147)	(2,023)
Projected Market Revenue	467	933	1,091	1,291	1,384	1,418	1,469	1,501	601	10,154
Variable Cost Change	(59)	(68)	(47)	(45)	(58)	(58)	(57)	(82)	(36)	(508)
Projected Costs	703	1,262	1,339	1,336	1,392	1,419	1,504	1,500	653	11,108
Under (Over) Recovery	236	329	248	45	8	1	36	(1)	52	954
NPV Under (Over) Recovery	220	285	200	34	6	1	22	(1)	27	793

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

\*Numbers in parentheses signify savings to customers.

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# NPV OF CAPTIVE RATEPAYER IMPACTS BASED ON PLANTS' PROJECTED NET GENERATION EQUALING HISTORICAL AVERAGES

Attachment JAR-1 (Revised)

Estimated Retail Rate Stability Rider (Rider RRS) Impact (\$M)

<u>Regulatory Assumptions</u>	
ROE	10.38%
Effective Tax Rate	37.44%
Assumed Debt %	50.00%
Assumed Equity %	50.00%
Cost of Debt	4.54%
WACC	7.46%

<u>Total Under (Over)</u>	<u>Nominal</u>	<u>NPV</u>	<u>IRR</u>
Total PPA Term - 15 years	(561)	(260)	22%

Note: Under recovery results in a charge under Rider RRS. Over recovery results in a credit under Rider RRS.

Line Item	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
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## ESP Impacts with Plants' Net Generation Projected at Historical Averages

<u>TOTAL</u>										
Market Revenue Change	(76)	(138)	(145)	(164)	(180)	(182)	(188)	(191)	(81)	(1,344)
Projected Market Revenue	531	1,017	1,157	1,343	1,477	1,511	1,550	1,581	667	10,833
Variable Cost Change	(43)	(73)	(74)	(80)	(81)	(87)	(97)	(103)	(44)	(682)
Projected Costs	719	1,257	1,312	1,301	1,369	1,390	1,464	1,479	644	10,934
Under (Over) Recovery	188	240	155	(42)	(108)	(122)	(86)	(102)	(23)	101
NPV Under (Over) Recovery	175	208	125	(31)	(75)	(79)	(52)	(57)	(12)	201

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

\*Numbers in parentheses signify savings to customers.



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Summary: Testimony PUBLIC Second Supplemental Testimony of Joseph P. Kalt, Ph.D.  
electronically filed by Mrs. Gretchen L. Petrucci on behalf of PJM Power Providers Group and  
Electric Power Supply Association