

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Vectren     )  
Energy Delivery of Ohio, Inc. for Approval    ) Case No. 18-0049-GA-ALT  
of an Alternative Rate Plan.                     )

In the Matter of the Application of Vectren     )  
Energy Delivery of Ohio, Inc. for Approval    ) Case No. 18-0298-GA-AIR  
of an Increase in Gas Rate                     )

In the Matter of the Application of Vectren     )  
Energy Delivery Ohio, Inc. for Approval of    ) Case No. 18-0299-GA-ALT  
an Alternative Rate Plan.                     )

**DIRECT TESTIMONY  
OF  
JEFFREY P. HECKER**

**On Behalf of**  
**The Office of the Ohio Consumers' Counsel**  
*65 East State Street, 7<sup>th</sup> Floor*  
*Columbus, Ohio 43215-4213*

**November 7, 2018**

## TABLE OF CONTENTS

	PAGE
I. INTRODUCTION .....	1
II. EVALUATION OF THE STAFF REPORT .....	3

Attachment JPH-1

Attachment JPH-2

*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1    **I.        INTRODUCTION**

2

3    ***Q1.    PLEASE STATE YOUR NAME, ADDRESS AND POSITION.***

4    ***A1.***    My name is Jeffrey P. Hecker. My business address is 65 East State Street, 7<sup>th</sup>  
5            Floor, Columbus, Ohio 43215. I am a Senior Regulatory Analyst with the Office  
6            of the Ohio Consumers' Counsel ("OCC").

7

8    ***Q2.    PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND***  
9            ***PROFESSIONAL EXPERIENCE.***

10   ***A2.***    I achieved a Bachelor of Science Degree in Business with a major in Accounting  
11            from Miami University in Oxford, Ohio, in May 1980.

12            After graduation, I worked as an accountant/analyst at The Dayton Power and  
13            Light Company and other companies. From December 2004 until November  
14            2017, I was a Utility Specialist I and II with the Public Utilities Commission of  
15            Ohio ("PUCO") where I was mostly responsible for auditing utility financing  
16            cases (such as the Applications to Issue Stocks/Securities) and base rate and rider  
17            cases.

18

19            I joined the OCC in January 2018 as a Senior Regulatory Analyst. My primary  
20            responsibility at OCC is to assist it to participate in various regulatory  
21            proceedings before the PUCO. These proceedings include rate cases, rider cases,

*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1 cost of capital, alternative regulation, and other types of cases filed by Ohio's  
2 regulated utilities.

3

4 ***Q3. HAVE YOU PREVIOUSLY FILED TESTIMONIES OR TESTIFIED***  
5 ***BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO?***

6 ***A3.*** Yes. I have submitted testimony before the PUCO in several cases while I was  
7 employed at the PUCO. A list of these cases is shown in Attachment JPH-1.

8

9 ***Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY?***

10 ***A4.*** The purpose of my testimony is to explain and support OCC's position regarding  
11 the rate of return analysis included in the Staff Report filed on October 1, 2018,  
12 and what is a fair rate of return for VEDO to earn and for consumers to pay.<sup>1</sup>  
13 Specifically, I am explaining and supporting OCC Objections 7, 8, and 9 filed on  
14 October 31, 2018. My testimony addresses mainly those issues related to the  
15 range of 8.80% - 9.81% return on equity ("ROE") proposed in the Staff Report,  
16 Schedule D-1<sup>2</sup> as well as the range of the overall Rate of Return ("ROR" or "Cost  
17 of Capital") recommendation of 6.97% to 7.49% for Vectren Energy Delivery of  
18 Ohio ("Vectren" or "Utility").<sup>3</sup>

---

<sup>1</sup> See *In the Matter of the Application of Vectren Energy Delivery of Ohio, Inc. for Approval of an Increase in Gas Rates*, Case No. 18-298-GA-RDR, Staff Report.

<sup>2</sup> See *In the Matter of the Application of Vectren Energy Delivery of Ohio, Inc. for Approval of an Increase in Gas Rates*, Case No. 18-298-GA-RDR, Staff Report, at 21.

<sup>3</sup> *Id.*

**II. EVALUATION OF THE STAFF REPORT**

***Q5. WHAT IS THE STAFF REPORT'S PROPOSED RETURN ON EQUITY  
(PROFIT) AND RATE OF RETURN RECOMMENDATION?***

**A5.** Staff's proposed ROE for the PUCO to authorize VEDO to collect from customers is calculated at 9.31% with a range of 8.80% to 9.81% percent. Staff's ROR is calculated at 7.23% with a range of 6.97% to 7.49%. This is computed by averaging the results of the CAPM and DCF calculations. To calculate the CAPM rate, Staff used a forecasted yield of treasury bills to determine the "risk-free rate" portion of the CAPM calculation. This rate for the 10-year U.S. Treasury Notes used in the Staff Report was 4.16% percent. To account for the historical difference between 10-year and 30-year treasury yields, Staff added 50 basis points to produce its risk-free rate of 4.66%. To calculate the proposed ROE under the CAPM method, Staff used the following formula:

$$\text{Return on Equity} = \text{Risk-free Rate} + \text{Average beta} \times (\text{Risk Premium}), \text{ which is } 9.11\% = 4.66\% + 0.73 \times (12.1\% - 6.0\%).$$

To compute the DCF ROE, Staff used the historical stock prices of comparable companies along with dividends and growth estimates from various sources to calculate a DCF-based ROE of 9.23%. By averaging the CAPM and DCF results, Staff calculated a return on equity (or cost of equity) of 9.17%.<sup>4</sup> Because of

---

<sup>4</sup> 9.17% = (9.11% + 9.23%) / 2.

*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1       inherent uncertainty in the equity ROR calculation, Staff subtracted and added 50  
2       basis points to this figure to create a zone of reasonableness, creating a range of  
3       8.67% to 9.67%. Staff also factored in an issuance cost of 3.5% (resulting in an  
4       adjustment factor of 1.01407)<sup>5</sup>, which increased the range to 8.80% to 9.81%.  
5       Staff's cost of capital (rate of return on rate base) is calculated by using the capital  
6       structure provided in the Company's Application, which is shown on Table 1  
7       below.

8

9       **TABLE 1 Staff Report's Recommended Rate of Return Summary**

<b>Rate of Return Summary</b>				
	<u><b>Amount</b></u>	<u><b>% of Total</b></u>	<u><b>Cost</b></u>	<u><b>Weighted Cost</b></u> <u><b>%</b></u>
Long-Term Debt	\$1,817.40	48.94%	5.07%	2.48%
Preferred Stock	\$0.00	0.00%	0.00%	0.00%
Common Equity	\$1,896.10	51.06%	7.82% - 8.82%	3.99% - 4.50%
Total Capital	\$3,713.50	100.00%		6.47% - 6.98%

10

---

<sup>5</sup> See Staff Report at 122.

1   ***Q6.   WHAT IS YOUR OPINION REGARDING THE METHODOLOGY AND***  
2           ***DATA USED IN THE STAFF REPORT IN RECOMMENDING VECTREN'S***  
3           ***RETURN ON EQUITY AND RATE OF RETURN?***

4   ***A6.***   I generally agree with the methodology and data used in the Staff Report  
5           in this case with some exceptions. In my experience at rate of return  
6           analysis, I have seen that many companies and analysts use the same or a  
7           similar method of calculating the return on equity and rate of return.  
8           Specifically, I agree with the use of the Utility's cost of debt rate of 5.07%  
9           and proposed capital structure in the Staff Report. I also do not object to  
10          the results of the DCF analysis in the Staff Report. However, I am  
11          concerned about the excessive "risk-free rate" of 4.66% used in the CAPM  
12          analysis.<sup>6</sup> I believe this risk-free rate chosen by the Staff is overstated and  
13          unreasonable, as is the resulting return on equity and rate of return  
14          recommendations.

15

16   ***Q7.   PLEASE EXPLAIN.***

17   ***A7.***   This risk-free return of 4.66% is based on Staff's own estimated yields of the U.S.  
18          Treasury 30-year Bonds. This is in turn derived from the average (4.16%) of the  
19          two forecasted yields on 10-year U.S. Treasury Notes published by the U.S.  
20          Bureau of Labor Statistics (4.3%) and the U.S. Energy Information

---

<sup>6</sup> See *In the Matter of the Application of Vectren Energy Delivery of Ohio, Inc. for Approval of an Increase in Gas Rates*, Case No. 18-298-GA-RDR, Staff Report, at 21.

*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1 Administration (4.02%) plus 50 basis points (chosen by the Staff without  
2 explanation or support) to account for the so-called “historical difference”  
3 between yields of the 10-year U.S. Treasury Notes and 30-year U.S. Treasury  
4 Bonds.<sup>7</sup>

5  
6 This risk-free return of 4.66% is overstated and unreasonable for two reasons.  
7 First, the use of forecasted yields of U.S. Treasury bonds has been shown to be  
8 unreliable and unsupported by financial theory or current market conditions. And  
9 second, the exclusive use of the yield of the 30-year U.S. Treasury Bonds and the  
10 addition of the 50 basis points to the forecasted 10-year U.S. Treasury Notes yield  
11 is also unreasonable. This proposed risk-free rate is simply not supported by  
12 current financial market conditions. I believe that, by using the historical average  
13 of the 10-year and 30-year U.S. Treasuries and averaging the two results, there is  
14 no need to add 50 basis points or other artificial “addor” to account for the  
15 historical difference.

16  
17 In addition, the methodology used in this Staff Report in calculating the risk-free  
18 rate for the CAPM is a significant departure from the methodology that has been  
19 used by the PUCO Staff in many prior rate cases. In fact, in the recently-  
20 completed Dayton Power and Light Company rate case (PUCO Case No. 15-  
21 1830-EL-AIR et al.), the PUCO Staff used the actual historical yields of the 10-

---

<sup>7</sup> Id.



*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1        year and 30-year U.S. Treasury bonds in estimating the risk-free return of 2.55%.<sup>8</sup>  
2        In this case, as discussed further later in my testimony, the average yields, using  
3        the same method used by the PUCO Staff in the Dayton Power and Light  
4        Company rate case, is 2.954%. The use of an inflated and unreasonable risk-free  
5        return of 4.66% will unnecessarily and unreasonably increase the cost of gas  
6        services to Vectren's residential customers.

7

8        ***Q8.    WHAT IS YOUR RECOMMENDATION ON THE RISK-FREE RATE USED***  
9        ***IN THE CAPM?***

10      ***A8.***    For the risk-free rate portion of the CAPM calculation, the proven method that I  
11      used is to base the risk-free rate on the actual daily yields for the 10-year and 30-  
12      year U.S. Treasury securities over an extended period of time (such as one year).  
13      The underlying daily yields data for the period of October 2, 2017 to October 1,  
14      2018 are shown in Attachment JPH-2. As I stated above, there is no need to  
15      include a 50-basis point (bp) adder to account for the difference in the 10-year and  
16      30-year treasury yields. The difference between the one-year 10-year and 30-year  
17      average daily yields is less than 19 bp during the most recent one-year period.  
18      See Table 2. There is also no need to include a gross-up for the hypothetical and  
19      generic issuance cost of 3.5% as proposed in the Staff Report.

---

<sup>8</sup> See PUCO Case No. 15-1830-EL-AIR et al., Staff Report (March 12, 2018) at 19.

*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1                   **TABLE 2      Average Yields for 10-year and 30-year treasuries**

2		<b>10-year</b>	<b>30-year</b>
	Last 63 days	2.9264%	3.0658%
	Last 126 days	2.9175%	3.0744%
	Last 188 days	2.8510%	3.0489%
	Last 251 days	2.7471%	3.0006%
	Daily average	2.8605%	3.0474%
	Average of 10 and 30 year		2.9540%

3

4   ***Q9.    WHAT IS YOUR RECOMMENDED RETURN ON EQUITY AND RATE OF***  
5   ***RETURN FOR VECTREN?***

6   ***A9.*** My recommended return on equity is 8.32%, which is calculated by taking the  
7   average of the two methods of calculating the ROE, the CAPM and the DCF  
8   methods. To calculate the ROE using the CAPM, I use the above risk-free rate of  
9   2.954%, the market risk premium of 6.1% and average beta of 0.73 (both are the  
10   same as those proposed in the Staff Report), to arrive at a CAPM of 7.41%.  
11    $7.41\% = 2.95\% + 0.73 \times (12.1\% - 6.0\%)$

*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1 My recommended ROE of 8.32% is the average of the Staff's DCF result (9.23%)  
2 and my own CAPM calculation.<sup>9</sup> Because there is a level of uncertainty in this  
3 calculation, I assume a range of 100 basis points. Therefore, my recommended  
4 ROE for Vectren in this proceeding is a range of 7.82% to 8.82%.

5

6 For the overall rate of return, I accepted the capital structure of 48.94% debt and  
7 51.06% equity proposed in the Staff Report. I also accepted the long-term debt  
8 rate of 5.07%. In using these numbers, I calculated a rate of return of 6.72% and  
9 a recommended range of 6.47% to 6.98%. See Table 3 below.

10

11 **TABLE 3 OCC's Recommended Rate of Return Summary**

	<u>Amount</u>	<u>% of Total</u>	<u>Cost</u>		
Long-Term Debt	\$1,817.40	48.94%	5.07%	2.48%	
Preferred Stock	\$0.00	0.00%	0.00%	0.00%	
Common Equity	\$1,896.10	51.06%	8.80% - 9.81%	4.49% - 5.01%	
Total Capital	\$3,713.50	100.00%		6.97% - 7.49%	

12

---

<sup>9</sup> 8.32% = (7.41% + 9.23%)

*Direct Testimony of Jeffrey P. Hecker  
On Behalf of the Office of the Ohio Consumers' Counsel  
PUCO Case No. 18-0298-GA-AIR, et al.*

1    ***Q10. WHY DO YOU RECOMMEND A RANGE FOR THE RETURN ON EQUITY***  
2    ***AND RATE OF RETURN FOR VECTREN IN THIS PROCEEDING?***

3    ***A10.*** The calculation of ROE and ROR inherently has an uncertainty to it and there is  
4       no exact calculation. Therefore, a range of reasonableness is calculated. Because  
5       the ROE is calculated with a range, then it would follow that the ROR is also  
6       calculated as a range. In my opinion an authorized rate of return that falls in the  
7       range of 6.47 percent to 6.98% can be considered as reasonable.

8

9    ***Q11. WILL VECTREN'S FINANCIAL INTEGRITY BE ADVERSELY AFFECTED***  
10   ***IF YOUR RECOMMENDED RETURN ON EQUITY AND RATE OF***  
11   ***RETURN PERCENT WERE ADOPTED BY THE PUCO?***

12   ***A11.*** No. In my opinion Vectren's financial integrity (that is the availability of  
13       financial resources to conduct its normal business) or ability to access capital at  
14       reasonable costs would not be adversely affected if my proposed return on equity  
15       and rate of return were adopted by the PUCO.

1   ***Q12.   WOULD THE RETURN ON EQUITY AND RATE OF RETURN PROPOSED***  
2           ***IN THE STAFF REPORT RESULT IN CHARGES THAT ARE***  
3           ***UNREASONABLY HIGH FOR VECTREN'S RESIDENTIAL CUSTOMERS?***

4   ***A12.*** Yes. The PUCO Staff's recommended ROE (profit) of 8.80% to 9.81% (with a  
5           midpoint of 9.31%) and rate of return of 6.97% to 7.49% (with a midpoint of  
6           7.23%) would, if adopted by the PUCO, result in charges that are unreasonably  
7           high for residential and other customers. And because residential customers pay  
8           most (about 68.06%<sup>10</sup>) of the total cost (or total revenue requirement) of  
9           Vectren's base rates collected, residential customers would be expected to pay a  
10          larger portion of the unreasonably high return on equity (profit) and overall rate of  
11          return.

12  
13         Using Staff's recommended rate base, a summary of the estimated yearly cost  
14         difference to residential customers comparing the Staff Report's ROR vs. OCC's  
15         ROR is shown in Table 4. It is shown that solely from the higher than justified  
16         rate of return proposed in the Staff Report, the residential customers as a group  
17         would pay approximately \$2.7 million more than justified each year.

---

<sup>10</sup> See *In the Matter of the Application of Vectren Energy Delivery of Ohio, Inc. for Approval of an Increase in Gas Rates*, Case No. 18-298-GA-RDR, Staff Report, Table 3 at 29.

*Direct Testimony of Jeffrey P. Hecker*  
*On Behalf of the Office of the Ohio Consumers' Counsel*  
*PUCO Case No. 18-0298-GA-AIR, et al.*

**TABLE 4 Effect of Higher ROR**

	Staff		OCC	
	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Rate Base	621,788,925	621,788,925	621,788,925	621,788,925
Proposed Rate Rate of Return	6.97%	7.49%	6.47%	6.98%
Required Operating Income	43,338,688	46,571,990	40,229,743	43,400,867
Difference from Staff	3,108,945	3,171,124		
Gross Revenue Conversion Factor	1.2658228	1.2658228		
Grossed up amount to account for GRCF	3,935,373	4,014,080		
Percent residential	68.06%	68.06%		
Additional cost of Staff's recommendation	2,678,414.86	2,731,983.15		

1    ***Q13. DOES YOUR ANALYSIS HERE REPRESENT OCC'S RECOMMENDED***  
2    ***REVENUE REQUIREMENTS IN THIS CASE?***

3    ***A13.***    No. The discussion of the overall recommended revenue requirement (after  
4           OCC's proposed adjustments in rate base, operating expenses and other items) is  
5           provided by another OCC witness Ralph Smith. My discussion here is mainly to  
6           illustrate the additional and unreasonable financial burden that would be placed  
7           on Vectren's residential customers if the Staff Report's recommended ROR is  
8           used to determine the revenue requirement. The ROE (profit) and ROR proposed  
9           by VEDO, which are 10.75% and 7.88%<sup>11</sup>, respectively. would be even more  
10          unreasonable for customers than the PUCO Staff's proposal.

11

12   ***A14. DOES THIS CONCLUDE YOUR TESTIMONY?***

13   ***A14.***    Yes. However, I reserve the right to supplement my testimony in the event that  
14          additional testimony is filed, or if new information or data in connection with this  
15          proceeding becomes available.

---

<sup>11</sup>See *In the Matter of the Application of Vectren Energy Delivery of Ohio, Inc. for Approval of an Increase in Gas Rates*, Case No. 18-298-GA-RDR, Application, Schedule D-1A.

## **CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing *Direct Testimony of Jeffrey P. Hecker* on behalf of the Office of the Ohio Consumers' Counsel has been served upon those persons listed below via electronic service this 7th day of November 2018.

/s/ William J. Michael  
William J. Michael  
Counsel of Record

### **SERVICE LIST**

werner.margard@ohioattorneygeneral.gov  
mjsettineri@vorys.com  
glpetrucci@vorys.com  
joliker@igsenergy.com  
mnugent@igsenergy.com  
slesser@calfee.com  
mkeaney@calfee.com  
talexander@calfee.com  
tony\_long@hna.honda.com  
mfleisher@elpc.org  
cmooney@ohiopartners.org

campbell@whitt-sturtevant.com  
whitt@whitt-sturtevant.com  
rust@whitt-sturtevant.com  
kennedy@ehitt-sturtevant.com  
fdarr@mcneeslaw.com  
mpritchard@mcneeslaw.com  
jstephenson@vectren.com  
Thomas.jernigan.3@us.af.mil  
Andrew.unsicker@us.af.mil

Attorney Examiner:  
Gregory.price@puc.state.oh.us  
patricia.schabo@puc.state.oh.us



**ATTACHMENT  
JPH-1**

**Jeffrey P. Hecker**

**List of Testimonies Filed Before the PUCO**

1. *Application of Columbia Gas of Ohio, Inc. for Authority to Amend its Filed Tariffs to Increase the Rates and Charges for Gas Services and Related Matters*, Case No.08-0072-EL-AIR (October 9, 2008).
2. *In the Matter of the Application of Duke Energy Ohio, Inc. for an Increase in Electric Distribution Rates*, Case No. 08-709-EL-AIR (March 30, 2009).
3. *In the Matter of the Application of Ohio American Water Company to Increase its Rates for Water and Sewer Services Provided to its Entire Service Area*, Case No. 09-391-WS-AIR (January 21, 2010).
4. *In the Matter of the Application of Duke Energy Ohio, Inc. to Establish and Adjust the Initial Level of its Distribution Reliability Rider* (Hurricane Ike damages), Case No. 09-1946-EL-RDR (May 19, 2010).
5. *In the Matter of the Application of Duke Energy Ohio to Adjust Rider DR-IM and Rider AU for 2009 SmartGrid Costs*, Case No. 10-867-GE-RDR (December 20, 2010).
6. *In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company for Authority to Establish a Standard Service Offer Pursuant to 4928.143, Ohio Rev. Code in the Form of an Electric Security Plan (Modified ESP)*, Case Nos. 11-346-EL-SSO, et al (August 4, 2011).
7. *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Electric Distribution Rates*, Case No. 12-1682-EL-AIR (March 19, 2013).
8. *In the Matter of the Application of Ohio Power Company to Update Its Transmission Cost Recovery Rider Rates*, Case No. 13-1406-EL-RDR (October 22, 2013).
9. *In the Matter of the Application of Duke Energy Ohio for Authority to Establish a Standard Service Offer Pursuant to 4928.143, Revised Code, in the Form of An Electric Security Plan, Accounting Modifications and Tariffs for Generation Service*, Case No. 14-841-EL-SSO (October 2, 2014).

10. *In the Matter of 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 (September 18, 2015)*

**ATTACHMENT  
JPH-2**

**Vectren Energy Delivery of Ohio  
10- and 30-Year Treasure Rates  
For CAPM Calculation and ROR  
Calculation**

	<b><u>10 year</u></b>	<b><u>30 Year</u></b>
2017-10-02	2.34	2.87
2017-10-03	2.33	2.87
2017-10-04	2.33	2.87
2017-10-05	2.35	2.89
2017-10-06	2.37	2.91
2017-10-10	2.35	2.88
2017-10-11	2.35	2.88
2017-10-12	2.33	2.86
2017-10-13	2.28	2.81
2017-10-16	2.30	2.82
2017-10-17	2.30	2.80
2017-10-18	2.34	2.85
2017-10-19	2.33	2.83
2017-10-20	2.39	2.89
2017-10-23	2.38	2.89
2017-10-24	2.42	2.92
2017-10-25	2.44	2.95
2017-10-26	2.46	2.96
2017-10-27	2.42	2.93
2017-10-30	2.37	2.88
2017-10-31	2.38	2.88
2017-11-01	2.37	2.85
2017-11-02	2.35	2.83
2017-11-03	2.34	2.82
2017-11-06	2.32	2.80
2017-11-07	2.32	2.77
2017-11-08	2.32	2.79
2017-11-09	2.33	2.81
2017-11-10	2.40	2.88
2017-11-13	2.40	2.87

2017-11-14	2.38	2.84
2017-11-15	2.33	2.77
2017-11-16	2.37	2.81
2017-11-17	2.35	2.78
2017-11-20	2.37	2.78
2017-11-21	2.36	2.76
2017-11-22	2.32	2.75
2017-11-24	2.34	2.76
2017-11-27	2.32	2.76
2017-11-28	2.34	2.77
2017-11-29	2.37	2.81
2017-11-30	2.42	2.83
2017-12-01	2.37	2.76
2017-12-04	2.37	2.77
2017-12-05	2.36	2.73
2017-12-06	2.33	2.71
2017-12-07	2.37	2.76
2017-12-08	2.38	2.77
2017-12-11	2.39	2.77
2017-12-12	2.40	2.79
2017-12-13	2.36	2.74
2017-12-14	2.35	2.71
2017-12-15	2.35	2.68
2017-12-18	2.39	2.74
2017-12-19	2.46	2.82
2017-12-20	2.49	2.88
2017-12-21	2.48	2.84
2017-12-22	2.48	2.83
2017-12-26	2.47	2.82
2017-12-27	2.42	2.75
2017-12-28	2.43	2.75
2017-12-29	2.40	2.74
2018-01-02	2.46	2.81
2018-01-03	2.44	2.78
2018-01-04	2.46	2.79
2018-01-05	2.47	2.81
2018-01-08	2.49	2.81
2018-01-09	2.55	2.88
2018-01-10	2.55	2.88

2018-01-11	2.54	2.91
2018-01-12	2.55	2.85
2018-01-16	2.54	2.83
2018-01-17	2.57	2.84
2018-01-18	2.62	2.90
2018-01-19	2.64	2.91
2018-01-22	2.66	2.93
2018-01-23	2.63	2.90
2018-01-24	2.65	2.93
2018-01-25	2.63	2.89
2018-01-26	2.66	2.91
2018-01-29	2.70	2.94
2018-01-30	2.73	2.98
2018-01-31	2.72	2.95
2018-02-01	2.78	3.01
2018-02-02	2.84	3.08
2018-02-05	2.77	3.04
2018-02-06	2.79	3.06
2018-02-07	2.84	3.12
2018-02-08	2.85	3.14
2018-02-09	2.83	3.14
2018-02-12	2.86	3.14
2018-02-13	2.83	3.11
2018-02-14	2.91	3.18
2018-02-15	2.90	3.15
2018-02-16	2.87	3.13
2018-02-20	2.88	3.15
2018-02-21	2.94	3.22
2018-02-22	2.92	3.21
2018-02-23	2.88	3.16
2018-02-26	2.86	3.15
2018-02-27	2.90	3.17
2018-02-28	2.87	3.13
2018-03-01	2.81	3.09
2018-03-02	2.86	3.14
2018-03-05	2.88	3.16
2018-03-06	2.88	3.14
2018-03-07	2.89	3.15
2018-03-08	2.86	3.13
2018-03-09	2.90	3.16

2018-03-12	2.87	3.13
2018-03-13	2.84	3.10
2018-03-14	2.81	3.05
2018-03-15	2.82	3.05
2018-03-16	2.85	3.08
2018-03-19	2.85	3.09
2018-03-20	2.89	3.12
2018-03-21	2.89	3.12
2018-03-22	2.83	3.06
2018-03-23	2.82	3.06
2018-03-26	2.85	3.08
2018-03-27	2.78	3.03
2018-03-28	2.77	3.01
2018-03-29	2.74	2.97
2018-04-02	2.73	2.97
2018-04-03	2.79	3.02
2018-04-04	2.79	3.03
2018-04-05	2.83	3.07
2018-04-06	2.77	3.01
2018-04-09	2.78	3.02
2018-04-10	2.80	3.02
2018-04-11	2.79	2.99
2018-04-12	2.83	3.05
2018-04-13	2.82	3.03
2018-04-16	2.83	3.03
2018-04-17	2.82	3.00
2018-04-18	2.87	3.06
2018-04-19	2.92	3.11
2018-04-20	2.96	3.14
2018-04-23	2.98	3.15
2018-04-24	3.00	3.18
2018-04-25	3.03	3.21
2018-04-26	3.00	3.18
2018-04-27	2.96	3.13
2018-04-30	2.95	3.11
2018-05-01	2.97	3.13
2018-05-02	2.97	3.14
2018-05-03	2.94	3.12
2018-05-04	2.95	3.12
2018-05-07	2.95	3.12

2018-05-08	2.97	3.13
2018-05-09	3.00	3.16
2018-05-10	2.97	3.12
2018-05-11	2.97	3.10
2018-05-14	3.00	3.13
2018-05-15	3.08	3.20
2018-05-16	3.09	3.21
2018-05-17	3.11	3.25
2018-05-18	3.06	3.20
2018-05-21	3.06	3.20
2018-05-22	3.06	3.21
2018-05-23	3.01	3.17
2018-05-24	2.98	3.13
2018-05-25	2.93	3.09
2018-05-29	2.77	2.96
2018-05-30	2.84	3.01
2018-05-31	2.83	3.00
2018-06-01	2.89	3.04
2018-06-04	2.94	3.08
2018-06-05	2.92	3.07
2018-06-06	2.97	3.13
2018-06-07	2.93	3.08
2018-06-08	2.93	3.08
2018-06-11	2.96	3.10
2018-06-12	2.96	3.09
2018-06-13	2.98	3.10
2018-06-14	2.94	3.05
2018-06-15	2.93	3.05
2018-06-18	2.92	3.05
2018-06-19	2.89	3.02
2018-06-20	2.93	3.06
2018-06-21	2.90	3.04
2018-06-22	2.90	3.04
2018-06-25	2.87	3.02
2018-06-26	2.88	3.03
2018-06-27	2.83	2.97
2018-06-28	2.84	2.97
2018-06-29	2.85	2.98
2018-07-02	2.87	2.99
2018-07-03	2.83	2.96

2018-07-05	2.84	2.95
2018-07-06	2.82	2.94
2018-07-09	2.86	2.96
2018-07-10	2.87	2.97
2018-07-11	2.85	2.95
2018-07-12	2.85	2.95
2018-07-13	2.83	2.94
2018-07-16	2.85	2.96
2018-07-17	2.86	2.97
2018-07-18	2.88	2.99
2018-07-19	2.84	2.96
2018-07-20	2.89	3.03
2018-07-23	2.96	3.10
2018-07-24	2.95	3.08
2018-07-25	2.94	3.06
2018-07-26	2.98	3.10
2018-07-27	2.96	3.09
2018-07-30	2.98	3.11
2018-07-31	2.96	3.08
2018-08-01	3.00	3.13
2018-08-02	2.98	3.12
2018-08-03	2.95	3.09
2018-08-06	2.94	3.08
2018-08-07	2.98	3.12
2018-08-08	2.96	3.12
2018-08-09	2.93	3.08
2018-08-10	2.87	3.03
2018-08-13	2.88	3.05
2018-08-14	2.89	3.06
2018-08-15	2.86	3.03
2018-08-16	2.87	3.03
2018-08-17	2.87	3.03
2018-08-20	2.82	2.99
2018-08-21	2.85	3.00
2018-08-22	2.82	2.99
2018-08-23	2.82	2.97
2018-08-24	2.82	2.97
2018-08-27	2.85	3.00
2018-08-28	2.88	3.03
2018-08-29	2.89	3.02



2018-08-30	2.86	3.00
2018-08-31	2.86	3.02
2018-09-04	2.90	3.07
2018-09-05	2.90	3.08
2018-09-06	2.88	3.06
2018-09-07	2.94	3.11
2018-09-10	2.94	3.09
2018-09-11	2.98	3.13
2018-09-12	2.97	3.11
2018-09-13	2.97	3.11
2018-09-14	2.99	3.13
2018-09-17	2.99	3.13
2018-09-18	3.05	3.20
2018-09-19	3.08	3.23
2018-09-20	3.07	3.21
2018-09-21	3.07	3.20
2018-09-24	3.08	3.21
2018-09-25	3.10	3.23
2018-09-26	3.06	3.19
2018-09-27	3.06	3.19
2018-09-28	3.05	3.19
2018-10-01	3.09	3.24
Last 63 days	2.9264	3.0658
Last 126 days	2.9175	3.0744
Last 188 days	2.8510	3.0489
Last 251 days	2.7471	3.0006
Daily average	2.8605	3.0474
Average of 10 and 30 year	2.9540	
Staff Beta = .73		
CAPM using Staff Beta	7.41%	2.954+.73(12.1-6)
Staff DCF	9.23%	
Equity ROR	8.32%	

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**11/7/2018 3:38:29 PM**

**in**

**Case No(s). 18-0049-GA-ALT, 18-0298-GA-AIR, 18-0299-GA-ALT**

Summary: Testimony Direct Testimony of Jeffrey P. Hecker on Behalf of The Office of the Ohio Consumers' Counsel electronically filed by Ms. Jamie Williams on behalf of Michael, William Mr.