

OCC EXHIBIT NO. _____

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Aqua)
Ohio, Inc. for Authority to Increase Its) Case No. 09-560-WW-AIR
Rates and Charges in Its Masury Division.)

**DIRECT TESTIMONY
of
AMR A. IBRAHIM**

**ON BEHALF OF THE
OFFICE OF THE OHIO CONSUMERS' COUNSEL
10 West Broad St., Suite 1800
Columbus, OH 43215
(614) 466-8574**

February 22, 2010

RECEIVED-DOCKETING DIV
2010 FEB 22 PM 4:36
PUCO

This is to certify that the images appearing are an accurate and complete reproduction of a case file document delivered in the regular course of business.
Technician SM Date Processed FEB 23 2010

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION.....	1
II. PURPOSE OF TESTIMONY AND RECOMMENDATIONS.....	3
III. AQUA OHIO COST OF SERVICE STUDY AND RATE DESIGN.....	4
IV. INCREASE IN RESIDENTIAL CUSTOMERS' BILLS ARE SUBSTANTIAL AND WILL CAUSE RATE SHOCK.....	11
V. A PHASE-IN APPROACH IS NECESSARY TO AVOID OR LESSEN RATE SHOCK FOR RESIDENTIAL CONSUMERS.....	16

EXHIBITS

AAI – 1

AAI – 2

AAI – 3

1 **I. INTRODUCTION**

2

3 ***Q1. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND***
4 ***OCCUPATION FOR THE RECORD.***

5 ***A1.*** My name is Amr A. Ibrahim. My business address is 10 West Broad Street, Suite
6 1800, Columbus, Ohio, 43215. I am employed by the Office of the Ohio Consumers'
7 Counsel ("OCC" or "Consumers' Counsel") as a Senior Regulatory Analyst.

8

9 ***Q2. PLEASE PROVIDE A SUMMARY OF YOUR BACKGROUND AND***
10 ***PROFESSIONAL EXPERIENCE.***

11 ***A2.*** I received a PhD (Economics) from the University of Sussex, UK, in 1988, a M.A.
12 (Economics) from the American University in Cairo in 1981, and a B.A. (Accounting)
13 from Cairo University in 1975. I am a member of the International Association of
14 Energy Economics ("IAEE"), and a member of the American Water Works
15 Association ("AWWA").

16

17 Prior to joining the OCC in October 2008, I worked as an independent Consultant with
18 several entities in the U.S. and the UK. Further, I worked for four years (2002 – 2006)
19 as a Senior Analyst, Market and Regulatory Practices, for the Independent System
20 Operator of New England ("ISO-NE"). Additionally, I was a Manager, then a Director,
21 Regulatory Affairs in Enron Corporation from 1997 to 2001. I was also a Senior Rate
22 Policy Analyst with BC Hydro (British Columbia, Canada) from 1990 to 1997 where I
23 performed cost of service studies and rate design.

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 ***Q3. PLEASE DESCRIBE YOUR EXPERIENCE RELATED TO COST OF***
2 ***SERVICE STUDIES AND ANALYSIS.***

3 ***A3.*** I have worked for several years in rates and cost of service studies analysis where I
4 provided technical and analytical support regarding various rate and cost of service
5 filings. I performed similar work (e.g., conducting cost of service studies, rate design,
6 and regulatory/economic due diligence) for electricity, gas and water systems outside
7 United States and Canada while working for Enron Corporation.

8
9 Additionally, since joining the OCC as a member of the Analytical Services
10 Department, I was an affiant in the FERC Docket Nos. ER09-134-000, *et al.* where I
11 provided an affidavit on the status of competitive electricity service and government
12 aggregation in the state of Ohio.¹ I also was responsible for providing technical support
13 to formulate OCC's position on Economic Development and Unique Arrangements
14 filed before the Public Utilities Commission of Ohio ("Commission" or "PUCO")²,
15 and OCC's positions on rate design and cost of service related to water cases filed
16 before the PUCO.³

¹ *First Energy Solution Corp., et al.*, Docket Nos. ER-09-134-000, ER09-135-000, ER09-136-000, and ER09-137-000, Affidavit of Amr Ibrahim (November 14, 2008).

² For example, *The Application for Establishment of a Reasonable Arrangement Between The Ohio Edison Company and V&M Star* (Case: 09-80-EL-AEC), and *In the Matter of the Application of Ormet Primary Aluminum Corporation for Approval of a Unique Arrangement with Ohio Power Company and Columbus Southern Power Company* (Case: 09-119-EL-AEC).

³ For example *In the Matter of the Application of Ohio American Water Company To Increase Its Rates in Its Entire Service Area for Water Service and Sewer Service*, (Case No. 09-391-WS-AIR), May 7, 2009, and *In the Matter of the Application of Aqua Ohio, Inc., for Authority to Increase its Rates and Charges in the Lake Erie Division* (Case No. 09-1044-WW-AIR), November, 20, 2009.

1 ***Q4. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE PUBLIC***
2 ***UTILITIES COMMISSION OF OHIO?***

3 ***A4.*** Yes. I have submitted written testimony before the PUCO in a Dayton Power
4 & Light proceeding in Case No. 08-1094-EL-SSO, et al., in an Ormet
5 proceeding in Case No. 09-119-EL-AEC, and in an Eramet proceeding in
6 Case No. 09-516-EL-AEC. The testimony that I provided in those cases
7 addressed, among other topics, tariff related issues.⁴

8
9 **II. PURPOSE OF TESTIMONY AND RECOMMENDATIONS**

10
11 ***Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS***
12 ***PROCEEDING?***

13 ***A5.*** I propose to the Commission for this case subsequent to the determination of the
14 appropriate level of revenue requirement to sponsor a process among the
15 different stakeholders in order to arrive at just, reasonable, and gradual rate
16 increases over a period of time in an attempt to avoid or lessen rate shock that
17 will be caused as the result of this case.

18

⁴ In the Matter of the Application of the Dayton Power and Light Company for Approval of Its Electric Security Plan (*Case No. 08-1094-EL-SSO, et. al.*), January 26, 2009, and In the Matter of the Application of Ormet Primary Aluminum Corporation for Approval of a Unique Arrangement with Ohio Power Company and Columbus Southern Power Company (*Case No. No. 09-119-EL-AEC*), April 27, 2009.

1 **Q6. WHAT DOCUMENTS HAVE YOU REVIEWED IN PREPARATION OF**
2 **YOUR TESTIMONY?**

3 **A6.** I have reviewed the Aqua Ohio, Inc., August 7, 2009 Application requesting to
4 increase the rates charged in its Masury Division (Application) and the testimony
5 and exhibits presented with the filing. I also have analyzed various relevant
6 information and documents obtained through discovery as well as reviewing the PUCO
7 Staff Report submitted on January 21, 2010.⁵

8
9 **III. AQUA OHIO COST OF SERVICE STUDY AND RATE DESIGN**

10
11 **Q7. PLEASE DESCRIBE AQUA OHIO'S AUGUST 7, 2009 APPLICATION.**

12 **A7.** On August 7, 2009, Aqua Ohio filed its Application to increase the rates charged in its
13 Masury Division.⁶ Aqua Ohio purports that the "Masury Division urgently requires
14 additional revenues to enable that Division to continue to render reliable and efficient
15 utility service."⁷ In support of the Application, Aqua Ohio submitted "Aqua Ohio,
16 Inc. Masury Division Cost of Service and Tariff Design Studies."⁸ That study was
17 undertaken for the purpose of determining the appropriate cost of supplying water
18 service to the various customer classes, and to design rates that may permit the

⁵ Staff's Report of Investigation. *In the Matter of the Application of Aqua Ohio, Inc. for Authority to increase its Rates and Charges in its Masury Division, Case No. 09-560-WW-AIR*, January 21, 2010.

⁶ *In the Matter of the Application of Aqua Ohio, Inc. for Authority to Increase its Rates and Charges in its Masury Division, Case No. 09-0560-WW-AIR*, at 2.

⁷ *Id.* at 2.

⁸ *Id.*, Schedule E-3.2, Witness responsible David R. Monie PE.

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 Company to collect revenues equal to the cost of service.⁹ The total revenues that
2 Aqua Ohio is seeking to collect through the new proposed rates are \$872,432.¹⁰ If
3 compared to the present Pro Forma rates which collect \$482,460,¹¹ the proposed rates
4 will result in an overall increase to Aqua's consumers of approximately eighty one
5 percent (80.83%, exactly). It is noteworthy the tariffs currently on file with the
6 Commission were established by a PUCO Entry in Case No. 00-713-WW-AIR, which
7 became effective in March 2001.¹²

8

9 ***Q8. PLEASE DESCRIBE THE COST OF SERVICE STUDY AND THE PROPOSED***
10 ***TARIFFS AS FILED BY THE COMPANY***

11 ***A8.*** The filed Cost of Service Study ("COSS") was based on the operating and financial
12 information that were presented in the Application to constitute the cost of providing
13 service to all customer classes. The Company states that the study followed the base-
14 extra capacity method of allocating costs; this methodology is outlined in the American
15 Water Works Association ("AWWA") Manual of Water of Supply Practices.¹³ The
16 Company states that the study arrived at the Customer Charge for a typical customer

⁹ The study took 2008 as a test year and used actual data for the 12 month period. See Id, at "Title Sheet".

¹⁰ Id., at Table 14.

¹¹ Id. at Table 14.

¹² Staff's Report of Investigation. *In the Matter of the Application of Aqua Ohio, Inc. for Authority to increase its Rates and Charges in its Masury Division*, Case No. 09-560-WW-AIR, January 21, 2010, at 13.

¹³ American Water Works Association. Manual of Water Supply Practices--M1. Fifth Edition.. Principles of Water Rates, Fees and Charges. (See Chapter 7). Tables 1, 9 and 5 in Schedule E-3.2, depict the different allocations percentages used in the study.

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 with a 5/8 inch meter using the method that is recommended by the PUCO Staff,¹⁴ and
2 then arrived at the Customer Charge for the other meter sizes proportional to the
3 AWWA meter capacities. The Company further indicates that once revenues from
4 customer charges (including revenues from private and public water protection) were
5 determined, the usage commodity charges were increased to produce revenues equal to
6 the Company's target revenue requirement of \$872,432.¹⁵

7
8 The proposed rates would collect \$576,928 in revenues from the residential customer
9 class which is close to the cost of serving the class of \$549,181 (i.e., a revenue-to-cost
10 ratio of 1.05) based on the Company's COSS. At the proposed rates, residential
11 customers will experience an increase in their rates of 80.19%. The proposed rates for
12 the commercial customer class would collect revenues of \$136,771 which suggests a
13 revenue-to-cost ratio of 1.16 when compared to the cost of their service of \$117,911.
14 At the proposed rates, commercial customers will experience an increase in their rates
15 equal to 73.07%. Tariffs for fire protection (both private and public), however, do not
16 offer the opportunity to fully collect their allocated cost of service as their revenue-to-
17 cost ratios are less than one. Although the proposed tariffs increased their rates by
18 100%, the filed COSS indicates that other customer classes would provide a subsidy to
19 private fire protection of approximately \$24,000 and subsidy of around \$40,000 to

¹⁴ See Direct Testimony of David R. Monie on Behalf of Aqua Ohio, Inc. Masury Division at 5/6, August 20, 2009. Also see Staff's Report of Investigation. *In the Matter of the Application of Aqua Ohio, Inc. for Authority to increase its Rates and Charges in its Masury Division, Case No. 09-560-WW-AIR*. January 21, 2010, at 23.

¹⁵ See Direct Testimony of David R. Monie on Behalf of Aqua Ohio, Inc. Masury Division at 6.

Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR

public fire protection.¹⁶ All residential customers pay for the public fire protection through a monthly fixed charge (currently \$3.065).¹⁷ Table 1 depicts a summary of the revenues at present and proposed rates. It is noteworthy that proposed rates do not include the System Improvement Charge ("SIC") of 3% that is in the current tariff structure. The present and proposed rates are depicted in Exhibit AAI-1.

Table 1: Filed Summary of Revenues at Present and Proposed Rates by Aqua Ohio.

Customer Class	Cost of Service		Pro Forma Present		Pro Forma Proposed		Percent Increase
	Amount	Percent	Amount	Percent	Amount	Percent	
	(1)	(2)	(3)	(4)	(5)	(6)	((5 - 3) / 3)
Metered Revenue:							
Residential (1)	549,181	62.95%	320,181	67.8%	576,928	67.5%	80.19%
Commercial (1)	117,911	13.52%	79,026	16.7%	136,771	16.0%	73.07%
Total Metered	667,091	76.46%	399,207	84.6%	713,699	83.5%	78.78%
Private Fire Protection (1)	54,470	6.24%	15,645	3.3%	30,379	3.6%	94.18%
Public Fire Protection (1)	150,871	17.29%	57,190	12.1%	111,048	13.0%	94.17%
SIC	0	0.00%	Included Above	0.0%	0	0.0%	0.00%
Other Service Revenues	0	0.00%	10,419	0.00%	17,292	0.00%	65.97%
Total Revenues	<u>872,432</u>	<u>100.00%</u>	<u>482,460</u>	<u>100.0%</u>	<u>872,417</u>	<u>100.0%</u>	<u>80.83%</u>

(1) Revenues in proposed rates are inclusive of SIC.

(2) Source: Table 14, in Schedule E-3.2

Q9. IS THE BASE-EXTRA CAPACITY AN APPROPRIATE METHOD TO USE IN THIS CASE?

¹⁶ See Schedule E-3.2, Witness responsible David R. Monie PE, Table 14.

¹⁷ See Aqua Ohio answer to OCC Int-54 attached as AAI-2.

1 **A9.** Yes. The Company's methodology is consistent with the AWWA guidelines
2 pertaining to allocating costs of service to the different cost components
3 including the base costs, the extra capacity costs and customer costs.
4

5 **Q10. IS THE COMPANY'S PROPOSED RATE DESIGN ACCEPTABLE IN**
6 **THIS CASE?**

7 **A10.** Yes. The Company's proposed rate design is a set of rates that applies to all
8 customer classes, not a complex structure with rates by different customer class.
9 As for the level of tariffs (i.e., the charges in the rate schedules), it shall be
10 determined once the Commission authorizes the appropriate revenue
11 requirement. When this level is determined, the resulting tariffs should provide
12 Aqua Ohio with the opportunity to recoup the approved revenues but it will
13 expose customers to rate shock because the rates proposed by the Company
14 reflect an increase, on average, of over 80%. Such a large increase goes against
15 the principle of gradualism, and as discussed further below, it shall cause a rate
16 shock to residential customers.
17

18 **Q11. WERE THERE ANY DISTINGUISHING FACTORS THAT YOU TOOK**
19 **INTO CONSIDERATION IN YOUR EVALUATION OF BOTH THE**
20 **METHODOLOGY USED THROUGHOUT THE COMPANY'S PROPOSED**
21 **COST OF SERVICE STUDY AND PROPOSED RATE DESIGN IN THIS**
22 **CASE?**

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 **A11.** Yes

2

3 **Q12. WHAT WERE THOSE CONSIDERATIONS?**

4 **A12.** It is important to highlight that in my evaluation of both the methodology used
5 throughout COSS and the structure of the proposed rate design I took into
6 consideration that the Masury Division is a small utility servicing only 1387
7 residential customers and 86 commercial customers (of whom three are actually
8 industrial). Further, the Company no longer serves a large customer that once
9 purchased 75% of all water sold by the Division (Trumbull County, 2004).¹⁸
10 Additionally, the Company's current rates were established by the PUCO in Case
11 No. 00-713-WW-AIR and became effective in March 2001, almost nine years ago.

12

13 The very small size of the Company and the departure of a large customer make
14 alternative approaches to rate design (e.g., rates by customer class) impractical.
15 The small size also mandates that a more rigorous COSS with dedicated studies
16 to arrive at more accurate allocation factors be neither necessary nor cost-
17 effective. This size will also make the utility's customers susceptible to
18 relatively large fire protection charges. Fire protection requires a large volume of
19 water that bigger systems are in a more advantageous position to allocate the
20 associated costs to a larger pool of customers. These attributes make the Masury

¹⁸ See letter of J. Bentine, Counsel for Consumers Ohio Water Company to the PUCO on February 19, 2003.

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 Division a unique case in several ways and unlike other water cases currently
2 before the Commission such as the Ohio American Water Company (Case 09-
3 391-WS-AIR) and The Aqua Ohio, Inc, (Case 09-1044-WW-AIR).¹⁹ .
4

5 ***Q13. WHAT IS THE PUCO STAFF'S POSITION REGARDING THE***
6 ***COMPANY'S COST OF SERVICE STUDY AND RATE DESIGN?***

7 ***A13.*** The PUCO Staff reviewed the Company's COSS and rate design in section
8 "Rates and Tariffs" of their Report.²⁰ The Staff found the results of the
9 methodology used and distribution of revenues among the different classes of
10 services reasonable. ²¹ The Staff also agreed with the calculation methodology
11 and results followed to arrive at the customer charge for 5/8" Meter (\$10.93 per
12 month). For this charge, the Staff suggested that "[s]hould the Commission
13 authorize a revenue different than that proposed by the Applicant, Staff
14 recommends Staff proposed customer charge be approved as present in this

¹⁹ *In the Matter of the Application of Ohio American Water Company To Increase Its Rates for in Its Entire Service Area for Water Service and Sewer Service, Case 09-391-WS-AIR, and In the Matter of the Application of Aqua Ohio, Inc., for Authority to Increase its Rates and Charges in the Lake Erie Division. Case 09-1044-WW-AIR.*

²⁰ Staff's Report of Investigation. *In the Matter of the Application of Aqua Ohio, Inc. for Authority to increase its Rates and Charges in its Masury Division, Case No. 09-560-WW-AIR.* January 21, 2010, at 13 - 28.

²¹ *Id.* at 22.

1 chart." The presented chart is identical to the Company's proposed customer
2 charges." ²²

3
4 **IV. INCREASE IN RESIDENTIAL CUSTOMERS' BILLS ARE**
5 **SUBSTANTIAL AND WILL CAUSE RATE SHOCK**
6

7 ***Q14. HOW MUCH WILL THE AVERAGE RESIDENTIAL WATER BILL***
8 ***INCREASE UNDER THE COMPANY'S PROPOSED REVENUE***
9 ***REQUIREMENT AND PROPOSED RATE DESIGN?***

10 ***A14.*** As highlighted earlier, the proposed rate design aims at collecting the revenue
11 requirement that Aqua Ohio estimated at \$872,432. If the PUCO authorizes the
12 Company's proposed revenue requirement then the average residential
13 consumer in Aqua Ohio Masury Division with a monthly consumption of 3,790
14 gallons shall see her/his bill increasing from \$18.82 to \$34.90 (i.e., by 85.5%).
15 Given that all residential customers in Masury Division also pay the public fire
16 protection charge, the monthly bill shall increase from \$21.88 to \$41.04; this is
17 a rate of increase of 87.6%. Table 2 below depicts the current and proposed
18 monthly bill for an average customer in the Aqua Ohio Masury Division.
19

20 ***Q15. DID THE PUCO STAFF AND OCC CALCULATE A REVENUE***
21 ***REQUIREMENT?***

²² Id. p. 26. Also see E-3.2, Table 10 (Exhibit AAI-1)

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 **A15.** Yes. The PUCO Staff recommends a reduction in the authorized revenues that
2 varies from \$813,452 as an upper bound to \$795,156 as a lower bound (mid-
3 point \$804,304). Although the PUCO Staff's proposed revenues are lower than
4 the Company's proposal, it still represents a substantial increase over the current
5 revenues of between 68.6% and 64.81%.²³ In this context, even using the
6 lower revenue requirement calculation by OCC of \$769,878, the percentage
7 increase (59.6%) is still very substantial,²⁴ and, as will be discussed below, is
8 contrary to the principle of gradualism.

9

10 **Q16. HOW MUCH WILL THE AVERAGE RESIDENTIAL WATER BILL**
11 **INCREASE UNDER THE REVENUE REQUIREMENTS CALCULATED**
12 **BY THE PUCO STAFF AND OCC?**

13 **A16.** The increase will be slightly lower if the PUCO accepts the revenue
14 requirement as proposed by its Staff (i.e., \$804,304 as a mid-point value). In
15 such an eventuality, the monthly water bill for an average customer shall
16 increase from \$18.82 to \$32.18 (i.e., 71% increase). The same bill with Fire
17 Protection shall reach \$37.84 per month, which translates into an increase of
18 72.9%. Further reductions in the rate increase may take place upon the
19 Commission's acceptance of the disallowances suggested by OCC (i.e., revenue

²³ Id, at 33.

²⁴ See testimony of OCC witness S. Hines, at Exhibit SBH-11.

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

requirement of \$769,878). If the Commission accepts OCC's adjustments as outlined in the testimony of OCC witnesses Hines and Duann, in addition to the PUCO Staff's revenue requirement, then the lower revenue requirement shall cause the monthly bill for the same average customer to be \$30.80 exclusive of Fire Protection, and \$36.22 with Fire Protection. These monthly bills translate into increases of 63.7% and 65.5%, respectively, over the current rates.

Table 2: Current and Proposed Monthly Bill for an Average Customer in Aqua Ohio Masury Division.

	Current Rates	Proposed Rates Revenue Requirement		
		Aqua Ohio	PUCO Staff	OCC
Revenue Requirement	482,460	872,432	804,304	769,878
Monthly Bill Exclusive of Fire Protection	18.82	34.90	32.18	30.80
% increase		85.5%	71.0%	63.7%
Monthly Bill Inclusive of Fire Protection	21.88	41.04	37.84	36.22
% increase		87.6%	72.9%	65.5%
CPI 2001 = 100	100	121.13	121.13	121.13

Sources: Average user data is calculated from Table 9 of Schedule E-32. Aqua Ohio current and proposed rates are from Table 10 of Schedule E-32. Monthly bills assuming Revenue Requirement as recommended by the Company and PUCO Staff and as calculated by OCC are estimated in proportion to that filed by Aqua Ohio. CPI: See footnote 25 below.

Q17. WOULD THESE INCREASES IN RATES CAUSE RATE SHOCK?

A17. Yes, they would. At present, the best case scenario for residential customers in the Masury Division is for the PUCO to accept the lowest revenue requirement

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 calculated by the OCC (i.e., \$769,878). Even then, the average residential
2 customer shall expect to see an increase in their monthly expenditure on water
3 (inclusive of fire protection service) to increase by 65.5%. The worst case
4 scenario is for the water bills of residential customers escalating to levels
5 corresponding to the requested revenue requirement requested by Aqua Ohio of
6 \$872, 432, as then the monthly bill shall increase by 87.6%.

7
8 To put these increases into perspective, the Consumer Price Index ("CPI") is
9 used as measure for price increase over time.²⁵ As depicted in Table 2, CPI has
10 increased in the same period (2001 – 2009) by only 21.1%. The best case
11 scenario (i.e., based on OCC's calculated revenue requirement) for the
12 residential customers is to manage an increase in expenditure for water service
13 that is 200% higher than average inflation rate in the same period. The worst
14 case scenario is to manage with the ramification of an increase in monthly water
15 cost of 314% higher than of the average inflation rate.²⁶

²⁵ See Department of Labor, Bureau of Labor Statistics See <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiait.txt>. CPI data are spliced from 1913 – 2009 data series setting year 2001 as base as follows:

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
CPI	177.1	179.1	184.0	188.9	195.3	201.6	207.0	215.0	214.5
2001 = 100	100	101.13	103.90	106.66	110.28	113.83	116.88	121.40	121.13

²⁶ Calculated as $[(65.5-21.1)/21.1] * 100$, and $[(87.6-21.1)/21.1 * 100]$, respectively.

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 It is important to highlight that AWWA recommends comparing the proposed
2 rate increase and the applicable inflation rate to determine the reasonableness of
3 the proposed rate increase. To quote (emphasis added):

4 "Typically, they [*cross section of community stakeholders*] want to
5 know how the proposed rate adjustment will affect their particular
6 account, homeowner's association, apartment complex, or business.
7 When dealing these groups, it is often appropriate and meaningful
8 to compare the proposed rate increase to the rate of inflation,..."²⁷
9

10 However, given that, in general, rates should provide the utility with the
11 opportunity to recover the PUCO approved revenue requirement, it is important
12 to remember that avoiding rate shock and ensuring gradualism are attributes of
13 sound rate design. The importance of ensuring gradualism and avoiding rate
14 shock in rate design are very well documented in the relevant utility regulation
15 literature.²⁸

²⁷ American Water Works Association. Manual of Water Supply Practices—M54. First Edition (2004). Developing Rates for Small Systems, at 41.

²⁸ This concept is best left to J.C. Bonbright (et.al.) to explain further. To quote from his description of one of the main "Attributes of a Sound Rate Structure" (emphasis added):

"Stability and predictability of the rates themselves, with a minimum of unexpected changes seriously adverse to rate payers and with a sense of historical continuity".

See Bonbright, J.C, Daniels, A.L, and Kamerschen, D.R. "Principles of Public Utility Rates". Public Utilities Reports, Inc., 1988, at 383. Also see Philips, CF. "The Regulation of Public Utilities", Public Utilities Reports, Inc., 1988, a, at 390/391, and 409/411.

1 **V. A PHASE-IN APPROACH IS NECESSARY TO AVOID OR LESSEN**
2 **RATE SHOCK FOR RESIDENTIAL CONSUMERS.**

3
4 ***Q18. WHAT RECOMMENDATION ARE YOU MAKING FOR THE***
5 ***COMMISSION?***

6 ***A18.*** The proposal to the Commission subsequent to the determination of the
7 appropriate level of revenue requirement in this case, is to sponsor a process
8 among the different stakeholders to arrive at just, reasonable, and gradual rate
9 increases over a period of time in an attempt to avoid or lessen rate shock. The
10 same process will provide Aqua Ohio with the opportunity to recover the
11 authorized revenue in a just and reasonable manner. A phase-in process in
12 which the rate gradually increases over time will provide Aqua Ohio an
13 opportunity to collect the revenue shortfalls through carrying charges.

14
15 ***Q19. WHAT ARE THE MECHANICS OF THIS PROPOSAL?***

16 ***A19.*** The proposal is a phase-in process in which rates gradually increase over time
17 in an attempt to avoid or lessen rate shock, but Aqua Ohio will be allowed
18 carrying charges for any under recovery of revenue due to the phase-in
19 process. Overall, Aqua Ohio would be unaffected because any under recovery
20 will be subsequently recovered through carrying charges. These carrying
21 charges are based on the interest rate applicable on Aqua Ohio's own long-

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

1 term debt (i.e., 6.34%).²⁹ Aqua Ohio's customers, including residential
2 customers, shall see a gradual and systematic increase in rates that, in the later
3 years of the phase-in period, will exceed the overall proposed rate increase.
4 The underpayment and the overpayment in present-value terms shall make
5 Aqua Ohio whole. By the end of the phase-in period, the rates would allow
6 the Company the opportunity to collect the revenue requirement as authorized
7 by the Commission.

8
9 The calculation for phase-in process is conducted for the three possible levels
10 of revenue requirement, namely \$872,432 as proposed by Aqua Ohio, \$804,304
11 as the mid-point of the estimates provided by the PUCO Staff in their Report,
12 and \$769,878 per the OCC's calculation. Aqua's long-term debt is either 6.34%
13 or 6.33% (as they differed in the Staff Report and the Application) shall be used
14 as the carrying charge. These parameters are demonstrated in Table 3 below.
15 Four different scenarios for the tariffs have been calculated. The first is a "no
16 phase-in" in which the revenue requirement shall increase from its current level
17 (\$482,460) to the levels proposed by the Company, the PUCO Staff and the
18 amount calculated by OCC. The second, third and fourth scenarios are an
19 application of the phase-in proposal with each of the three different revenue

²⁹ See the Application of Aqua Ohio, Inc. for Authority to Increase Its Rates and Charges in Its Masury Division, Schedule D-1, Page 1 of 1. In the Staff's Report of Investigation at 10, this long term debt is 6.33%. OCC witness D. Duann used 6.34% (Testimony at 6).

Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR

requirements. The later three scenarios assume that there are no base rate increases during the phase-in period, which is expected to last for a six year period to ensure gradual and reasonable increases in rates.

Table 3: Primary Inputs for the Scenarios for the Proposed Phase-in Process.

	Year 0	Revenue Requirement		
		As filed	PUCO	OCC
Revenue Requirement	482,460	872,432	804,304	769,878
Aqua's Long-term debt		6.34%	6.33%	6.34%

Under Scenario 1 there is no phase-in and Aqua Ohio customers shall be fully exposed to rates that correspond to the authorized revenue requirement as proposed by Aqua Ohio, the PUCO Staff, and calculated by OCC, respectively (Table 4). The impact on the residential customers is identical to what has been discussed above in Table 2. The resulting rate shock of this scenario is exactly what the proposed phase-in process is mitigating.

Table 4: Revenue Requirement under No Phase-In in Place

	Year						
	0	1	2	3	4	5	6
Scenario 1 – No Phase-in							
As filed	482,460	872,432	872,432	872,432	872,432	872,432	872,432
PUCO	482,460	804,304	804,304	804,304	804,304	804,304	804,304
OCC	482,460	769,878	769,878	769,878	769,878	769,878	769,878

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

Under Scenario 2, which assumes that the PUCO authorized revenue requirement is identical to what has been filed by Aqua Ohio, the different customer classes shall see an annual rate increase of 21.33% for the first five years. In year 6, Table 5 demonstrates that Aqua Ohio customers shall see a decrease by approximately 31%, so that for the revenue requirement returns to its authorized level of \$872,267. The resulting orderly and gradual increase in rates, even at the estimated 21.33%, shall cause much less of a rate shock compared to the currently proposed increase of more than 80%.

Table 5: Scenario 2 – Phased-In Revenue Requirement as Filed by Aqua Ohio.

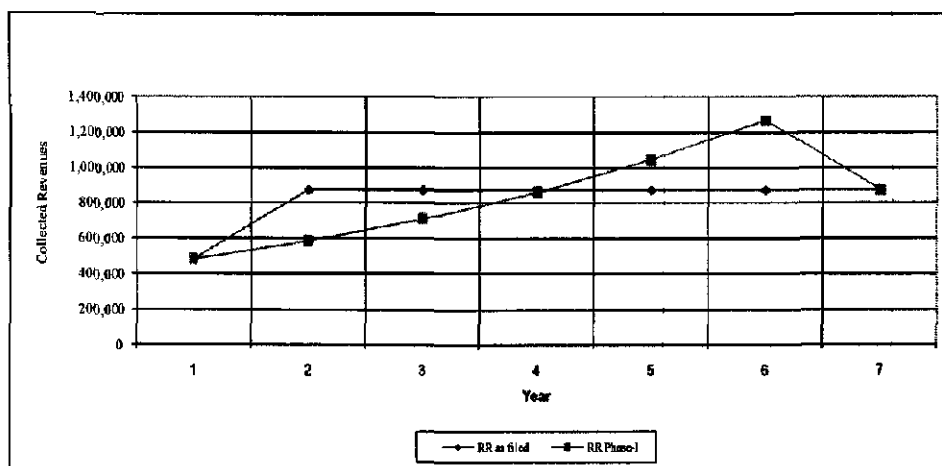
	Year						
	0	1	2	3	4	5	6
Senario 2 - As filed							
Year Target Reve	482,460	585,354	710,193	861,656	1,045,421	1,268,378	872,267
Shortage		287,078	467,518	507,935	367,149	-5,519	165
Adjusted Shortage		305,278	497,158	540,138	390,426	-5,869	
Percentage Change per annum		21.33%	21.33%	21.33%	21.33%	21.33%	-30.91%

"Adjusted Shortage" is the present value of "Shortage" using Aqua's long-term debt interest rate.
Source: Estimated.

It is noteworthy that shortages in collected revenues in each year are adjusted by the cost rate of Aqua Ohio's long-term debt which is the rate of carrying charges discussed above. Accordingly, the initial under-charging of Aqua Ohio customers is off-set by the over-charging in the subsequent years, and is intended so that in present-value terms, Aqua Ohio is kept whole. This is demonstrated in Figure 1

which compares the non-phased-in and the phased-in revenue requirement. The area of the two rectangles (under- and over-charges) is the same.

Figure 1: Phase-In and Non-Phased-In Revenue Requirement as Filed by Aqua Ohio



Source: Table 5

Scenarios 3 and 4 differ from Scenario 2 in the level of authorized revenue requirement and the interest level over the long-term debt. Scenario 3 is conducted under the assumption that the authorized revenue requirement is the mid-point proposed by the PUCO Staff, while Scenario 4 is based on the revenue requirement calculated by OCC. The associated annual revenue requirement for each year in both scenarios is depicted in Table 6.

*Direct Testimony Amr A. Ibrahim
On Behalf of the Office of the Ohio Consumers' Counsel
PUCO Case No. 09-560-WW-AIR*

Table 6: Scenario 3 & 4 – Phased-In Revenue Requirement as Suggested by PUCO Staff and Calculated by OCC

	Year						
	0	1	2	3	4	5	6
Scenario 3 - PUCO							
Year Target Revenue	482,460	569,930	673,258	795,320	939,512	1,109,845	804,163
Shortage		234,374	380,256	413,310	304,265	17,984	141
Adjusted Shortage		249,210	404,326	439,472	323,525	19,122	
Percentage Change per annum		18.13%	18.13%	18.13%	18.13%	18.13%	-28.77%
Scenario 4- OCC							
Year Target Revenue	482,460	562,741	656,382	765,603	893,000	1,041,595	771,249
Shortage		207,137	333,766	359,201	258,853	3,547	-1,371
Adjusted Shortage		220,269	354,926	381,974	275,264	3,772	
Percentage Change per annum		16.64%	16.64%	16.64%	16.64%	16.64%	-25.96%

Source: Estimated

As both scenarios are based on lower revenue requirements, the annual rate increases are also lower than those demonstrated in Scenario 2 above. For example, under Scenario 4, rates shall increase by 16.64% per annum for the first 5 years and then are lower by approximately 26% in year 6. Again, this orderly and gradual increase in rates will cause much less of a rate shock when compared to the Company's proposed increase of over 80%.

Q20. HOW DO YOU EXPLAIN YOUR CHOICE OF A PHASE-IN TIME PERIOD OF SIX YEARS?

A20. The purpose of the proposal is to ensure gradual and reasonable increases in rates over a reasonable period of time. A shorter than the proposed phase-in period of six year is arithmetically possible, however, the percentage increase in rates will be higher.

**Q21. HOW MUCH WILL THE AVERAGE RESIDENTIAL WATER BILL
CHANGE UNDER THE PROPOSED PHASE-IN APPROACH?**

A21. Just as the rates will increase in the first five years of the proposed phase-in, then will be reduced in year 6, so will the water bill of the average residential customer. The corresponding rates for each customer class for each year in the phase-in period for scenarios 2, 3 and 4 are represented in Exhibit AAI-3. The average residential consumer in Aqua Ohio Masury Division with a monthly consumption of 3,790 gallons shall see her/his bill increase gradually over time in a manner that will lessen rate shock. The estimated monthly bills are represented in Table 7 for each of the three revenue requirements (Scenarios 2, 3 and 4) in comparison to the monthly bill of the average customer if there is no phase-in using the Company's proposed revenue requirement.

Table 7: Phased-In Monthly Bill for an Average Customer in Aqua Ohio Masury Division Under Different Revenue Requirements. (\$/Month)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6*
Scenario 1							
Exclusive of Fire Protection	18.82	34.90	34.90	34.90	34.90	34.90	34.90
Inclusive of Fire Protection	21.88	41.04	41.04	41.04	41.04	41.04	41.04
Scenario 2							
Exclusive of Fire Protection	18.82	23.53	28.55	34.63	42.02	50.98	35.22
Inclusive of Fire Protection	21.88	27.36	33.19	40.27	48.86	59.28	40.96
Scenario 3							
Exclusive of Fire Protection	18.82	22.91	27.06	31.97	37.76	44.61	31.78
Inclusive of Fire Protection	21.88	26.64	31.47	37.17	43.91	51.87	36.95
Scenario 4							
Exclusive of Fire Protection	18.82	22.62	26.38	30.77	35.89	41.87	31.00
Inclusive of Fire Protection	21.88	26.30	30.68	35.98	41.74	48.68	36.05

Source: Estimated. * Inclusive of rounding errors.

1 ***Q22. UNDER YOUR PROPOSAL, WOULD AQUA OHIO HAVE THE***
2 ***OPPORTUNITY TO EARN THE SAME AMOUNT OF REVENUE***
3 ***AUTHORIZED BY THE COMMISSION DURING THE SIX YEARS OF***
4 ***THE PHASE-IN?***

5 ***A22.*** Yes, it would. Aqua Ohio shall receive the same amount of revenue authorized
6 by the Commission during the six years of the proposed phase-in period. Aqua
7 Ohio would be unaffected because any under recovery during the period will be
8 subsequently recovered through carrying charges.

9
10 ***Q23. WOULD AQUA OHIO NEED TO FILE A NEW RATE CASE AFTER***
11 ***YEAR SIX OF THE PHASE-IN?***

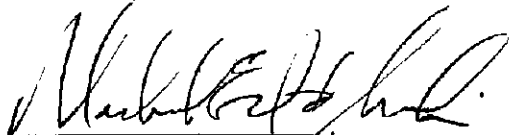
12 ***A23.*** No. Aqua Ohio would not need to file a new rate case for its Masury Division
13 after year six of the phase-in period. The revenue requirement recovered in year
14 six and thereafter would be exactly the revenue authorized by the PUCO in this
15 case.

16
17 ***Q24. DOES THIS COMPLETE YOUR TESTIMONY?***

18 ***A24.*** Yes. However, I reserve the right to incorporate new information or supplement my
19 testimony with information that may subsequently be made available to the OCC
20 through discovery. I also reserve the right to supplement my testimony in response to
21 positions taken by the PUCO Staff and any other party to this proceeding

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Direct Testimony of Amr A. Ibrahim of the Office of the Ohio Consumers' Counsel has been served upon those persons listed below by First Class U.S. Mail, postage prepaid, this 22nd day of February, 2010.



Michael Idzkowski
Assistant Consumers' Counsel

SERVICE LIST

John Jones
Sarah Parrot
Attorney General's Office
Public Utilities Commission of Ohio
180 E. Broad St., 6th Fl.
Columbus, OH 43215

Mark S. Yurick,
John Bentine
Chester Willcox & Saxbe LLP
65 East State St., Suite 1000
Columbus, OH 43215-4213

Exhibit AAI-1

Comparison of Present and Proposed Tariffs.

Comparison of Present and Proposed Tariffs.

Customer Charges - Monthly

	<u>Current</u>	<u>Proposed</u>
5/8" or 5/8" x 3/4"	\$4.99	\$10.93
3/4"	7.49	16.40
1"	12.49	27.33
1-1/2"	24.98	54.65
2"	39.97	87.44
3"	74.95	163.95
4"	124.92	273.25
6"	249.85	546.50

	<u>Current</u>		<u>Proposed</u>	
	Rate per <u>100 GAL.</u>	Rate per <u>10 CF</u>	Rate per <u>100 GAL.</u>	Rate per <u>10 CF</u>
Usage Charges:				
First 18,700 gallons Monthly	\$0.3651	\$0.2731	\$0.6330	\$0.4735
Over 18,700 Gallons Monthly	0.2707	0.2025	0.4656	0.3483
Other Utilities: (All Consumption)	0.3053	0.2284	0.5251	0.3928
Private Fire Protection: (Annual)				
"Dry" Sprinkler System				
4 " Service		\$1,189.91		\$2,379.82
6 " Service		1,804.07		3,608.14
8 " Service		3,603.33		7,206.66
Wet System				
2 " Service		580.56		1,161.12
4 " Service		2,096.74		4,193.48
6 " Service		3,915.20		7,830.40
8 " Service		5,728.85		11,457.70
Private Fire Hydrants: (Annual)		321.28		642.56
Public Fire Protection: (Monthly)				
Residential Customers		3.065		6.140
Non - Residential Customers				
2000 sq ft. or less		3.065		6.140
each additional 500 sq. ft.		0.573		1.140
SIC		3.00%		0.00%

Source: Table 10 in Schedule E-3.2

Exhibit AAI-2

Aqua Ohio, Inc. Answer to OCC Int-54

INT-54. Referring to the current Schedule "C" - Public Fire Protection tariff, how many residential customers currently pay the \$3.065 per month for this service?

RESPONSE: All residential customers are charged this amount.

Stephen J. Saluga

Exhibit AAI-3

Estimates of Tariffs and Charges in the Phase-in Period

Table 2: Estimates of Tariffs and Charges in the Phase-in Period at Filed Revenue Requirement*

Customer Charges - Monthly	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6							
5/8" or 5/8" x 1/4"	\$4.99	6.34	7.57	9.16	11.12	13.512	9.336							
3/4"	\$7.49	9.36	11.36	13.76	16.712	20.262	14.013							
1"	\$12.49	15.61	18.94	22.96	27.876	33.823	23.567							
1-1/2"	\$24.98	31.22	37.87	45.95	55.752	67.642	46.734							
2"	\$39.97	49.95	60.60	73.53	89.207	108.233	74.778							
3"	\$74.95	99.66	113.64	137.82	167.278	202.513	140.220							
4"	\$124.92	156.11	185.40	229.80	278.804	338.265	233.707							
6"	\$249.83	312.23	378.82	459.61	557.630	676.536	467.433							
Usage Charges:														
Current														
Rate per 100 GAL														
Rate per 100 CE														
First 18,700 gallons Monthly	\$0.3651	\$0.2731	0.4363	0.3413	0.5536	0.4141	0.6716	0.5024	0.8149	0.6095	0.9886	0.7395	0.6830	0.5109
Over 18,700 Gallons Monthly	0.2707	0.2025	0.3383	0.2531	0.4104	0.3070	0.4980	0.3725	0.6042	0.4520	0.7330	0.5483	0.5094	0.3788
Order Utilities: (All Consumption)	0.3053	0.2284	0.3815	0.2854	0.4629	0.3463	0.5616	0.4202	0.6814	0.5098	0.8267	0.6185	0.5712	0.4273
Private Fire Protection: (Annual)														
Current														
Rate														
"Dry" Sprinkler System														
4 " Service	\$1,189.91	1486.9926	1804.12	2188.89	2653.71	3222.10	2226.15							
6 " Service	1,804.07	2254.4887	2733.30	3318.66	4026.43	4885.15	3375.15							
8 " Service	3,603.33	4502.9666	5463.31	6628.48	8042.13	9757.28	6741.30							
Wet System														
2 " Service	\$80.56	725.5073	880.24	1067.96	1295.73	1572.07	1086.14							
4 " Service	2,096.74	2620.2291	3179.05	3857.04	4679.63	5677.66	3922.69							
6 " Service	3,915.20	4892.7005	5936.17	7202.17	8738.18	10601.77	7324.76							
8 " Service	5,728.85	7159.1611	8686.00	10538.46	12785.99	15512.86	10717.84							
Private Fire Hydrants: (Annual)	321.28	401.4934	487.12	591.01	717.05	869.98	601.07							
Public Fire Protection: (Monthly)														
Residential Customers	3.065	3.8302	4.65	5.64	6.84	8.30	5.73							
Non - Residential Customers														
2000 sq. ft. or less	3.065	3.8302	4.65	5.64	6.84	8.30	5.73							
each additional 500 sq. ft.	0.573	0.7161	0.87	1.05	1.28	1.55	1.07							
SIC	3.00%	0												

* Inclusive of rounding errors

Table 2: Calculation of Tariffs and Charges in the Phase-in Period at Mid-point of PUCCO Staff Proposal*

Customer Charges - Monthly	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
5/8" or 5/8" x 1/4"	\$4.39	6.17	7.17	8.47	10.09	11.02	8.422
3/4"	\$7.49	9.11	10.77	12.72	15.023	17.747	12.641
1"	\$12.42	15.20	17.95	21.21	25.052	29.594	21.080
1 1/2"	\$24.98	30.39	35.90	42.41	50.204	59.188	42.159
2"	\$39.97	48.63	57.45	67.87	80.170	94.705	67.458
3"	\$74.95	91.19	107.73	127.26	150.331	177.586	126.495
4"	\$124.92	152.00	179.35	212.10	250.559	293.985	210.830
6"	\$235.85	304.00	359.12	424.23	501.138	591.994	421.678
Usage Charges:							
First 10,700 gallons Monthly	Rate per 100 GAL. 10 CF	Rate per 100 GAL. 10 CF	Rate per 100 GAL. 10 CF	Rate per 100 GAL. 10 CF	Rate per 100 GAL. 10 CF	Rate per 100 GAL. 10 CF	Rate per 100 GAL. 10 CF
Over 10,700 gallons Monthly	0.1651 0.2125 0.2707 0.2025	0.4442 0.3123 0.3294 0.2464	0.5248 0.3925 0.3881 0.2911	0.6139 0.4637 0.4596 0.3438	0.7243 0.5418 0.5430 0.4082	0.8551 0.6471 0.6434 0.4798	0.6162 0.4679 0.4589 0.3418
Other Utilities: (All Consumption)	0.3053 0.2284	0.3715 0.2779	0.4388 0.3283	0.5184 0.3878	0.6124 0.4581	0.7234 0.5412	0.5153 0.3855
Private Fire Protection: (Annual)	Current Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
"Dry" Sprinkler System							
4 " Service	\$1,189.91	1447.8039	1710.10	2020.37	2386.67	2819.37	2008.24
6 " Service	1,804.07	2195.0823	2593.05	3063.17	3618.52	4274.56	3044.77
8 " Service	3,603.33	4381.3121	5179.19	6118.17	7227.40	8537.73	6081.42
Water System							
2 " Service	580.56	705.3900	834.46	985.75	1164.46	1375.58	979.92
4 " Service	2,096.74	2551.1853	3013.72	3560.10	4205.55	4968.01	3538.72
6 " Service	3,915.20	4763.7765	5627.45	6647.71	7852.93	9276.67	6607.77
8 " Service	5,728.85	6970.5152	8234.27	9727.14	11490.67	13573.93	9668.71
Private Fire Hydrants: (Annual)	321.28	390.9139	461.79	545.51	644.41	761.24	542.23
Public Fire Protection: (Monthly)							
Residential Customers	3.065	3.7293	4.41	5.20	6.15	7.26	5.17
Non - Residential Customers							
2000 sq ft. or less	3.065	3.7293	4.41	5.20	6.15	7.26	5.17
each additional 500 sq. ft.	0.573	0.6872	0.82	0.97	1.15	1.36	0.97
SIC	3.008	0					

* Inclusive of rounding errors

Table 3. Calculation of Tariff and Charges in the Phase-In Period at OCC Estimated Revenue Requirement

Customer Charges - Monthly	Year 1		Year 2		Year 3		Year 4		Year 5	
	Rate per 100 GAL.	Rate per 10 CF	Rate per 100 GAL.	Rate per 10 CF	Rate per 100 GAL.	Rate per 10 CF	Rate per 100 GAL.	Rate per 10 CF	Rate per 100 GAL.	Rate per 10 CF
5/8" or 3/4" x 1/4"	\$4.39		5.89		6.98		8.76		11.096	
1"	\$7.49		9.00		10.50		13.24		16.595	
1 1/2"	\$12.49		15.03		17.50		20.41		27.174	
2"	\$24.98		30.03		35.00		40.83		55.548	
3"	\$42.87		48.02		56.01		65.53		88.681	
4"	\$74.95		90.04		108.05		122.50		166.566	
5"	\$124.92		150.18		175.05		204.18		277.784	
6"	\$249.85		300.17		350.12		408.17		555.594	
Usage Charges:										
First 18,700 Gallons Monthly	\$9.3651	50.2713	0.4986	0.3081	0.5116	0.3927	0.5967	0.4464	0.6960	0.5207
Over 18,700 Gallons Monthly	4.2107	0.2685	0.3292	0.2033	0.3783	0.2838	0.4425	0.3310	0.5161	0.3863
Other Utilities - All Consumption	0.3053	0.2234	0.3668	0.2344	0.4278	0.3201	0.4980	0.3733	0.5820	0.4384
Private Fire Protection: (Annual)		Current Rates	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
Only Sprinkler System										
4" Service	\$1,189.91		1,425.5484	1,667.43	1,924.88	2,268.51	2,645.99	1,859.23		
6" Service	1,604.07		2,167.3853	2,528.05	2,948.72	3,439.38	4,011.70	2,870.46		
8" Service	3,603.33		4,329.0118	5,049.36	5,889.57	6,865.80	8,012.70	5,933.00		
Net System										
2" Service	580.56		697.4801	813.54	948.91	1,106.81	1,290.99	955.91		
4" Service	2,896.74		3,519.0067	4,238.17	5,027.08	5,991.35	7,062.51	5,452.35		
6" Service	3,915.20		4,701.6900	5,636.38	6,639.32	7,864.16	9,306.20	6,946.51		
8" Service	5,728.85		6,882.5946	8,027.66	9,363.69	10,921.81	12,739.20	9,432.74		
Private Fire Hydrants: (Annual)										
Public Fire Protection: (Monthly)		321.28	365.9832	450.21	525.13	612.51	714.43	529.00		
Residential Customers		3.065	3.6823	4.29	5.01	5.84	6.82	5.05		
Non-Residential Customers		3.065	3.6823	4.29	5.01	5.84	6.82	5.05		
2000 sq ft. or less		0.573	0.6884	0.80	0.94	1.09	1.27	0.94		
each additional 500 sq. ft.		3.004	0							

* Inclusive of rounding errors