

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF MUHLENBERG COUNTY	)	
WATER DISTRICT FOR A CERTIFICATE OF	)	
PUBLIC CONVENIENCE AND NECESSITY TO	)	CASE NO.
CONSTRUCT AND FINANCE A WATER	)	2013-00043
IMPROVEMENTS PROJECT PURSUANT TO	)	
KRS 278.020 AND 278.300	)	

ORDER

Muhlenberg County Water District ("Muhlenberg District") has applied for a Certificate of Public Convenience and Necessity ("Certificate") to replace its existing water meters with radio-read meters and for authorization to borrow \$1.25 million from Kentucky Rural Water Finance Corporation ("KRWFC") to finance the purchase of the radio-read meters.

Having considered the evidence of record and being otherwise sufficiently advised,<sup>1</sup> the Commission finds that:

1. Muhlenberg District, a water district organized pursuant to KRS Chapter 74, owns and operates facilities that distribute water to approximately 5,975 customers in Muhlenberg County, Kentucky.<sup>2</sup>

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<sup>1</sup> Muhlenberg District tendered its application on February 4, 2013. In its application, Muhlenberg District requested a deviation from 807 KAR 5:001, Section 17(2)(a). On February 19, 2013, the Commission granted the request and accepted the application for filing. No persons or entities have intervened in this matter. The Commission has received no requests for hearing and finds the record complete.

<sup>2</sup> *Report of Muhlenberg County Water District to the Public Service Commission of Kentucky for the Calendar Year Ended December 31, 2012 ("Annual Report")* at 5 and 27.

2. Muhlenberg District currently measures the volume of water supplied to its customers through mechanical meters.<sup>3</sup> These meters are read through touch-read devices.<sup>4</sup> To obtain a reading, the meter reader must come into physical contact with the metering device.

3. Four Muhlenberg District employees currently perform meter-reading duties on a monthly basis.<sup>5</sup>

4. Muhlenberg District proposes to purchase 5,800 radio-read Sensus iPERL water meters and to replace the meters currently providing service to its residential customers.<sup>6</sup> Sensus iPERL meters not initially placed into service will be used as replacements and to equip new customers.

5. Muhlenberg District also proposes to purchase a drive-by meter-reading device which can be operated from a moving vehicle to record readings of the Sensus iPERL meters and should generally eliminate the need for any physical inspection or contact with the meter.

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<sup>3</sup> Facsimile from Harold Wester, General Manager, Muhlenberg County Water District, to Gerald Wuetcher, Counsel, Public Service Commission, at 3 (Dec. 9, 2013).

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> As of December 31, 2012, Muhlenberg District had 5,720 residential customers. *Annual Report* at 27.

6. Muhlenberg District requested bids for the proposed acquisition in accordance with KRS 424.260<sup>7</sup> and has selected C.I. Thornburg Co., Inc. as the vendor to provide the radio-read meters and drive-by meter reading equipment.<sup>8</sup>

7. Total cost of the proposed acquisition of the radio-read meters, including contingencies, is \$1,247,000.<sup>9</sup>

8. The proposed Sensus iPERL replacement meters have the following characteristics:<sup>10</sup>

a. Each has no moving parts and uses solid-state electromagnetic flow technology.

b. Each has a thermal plastic external housing. The measuring device is composed of a polyphenylene sulfide alloy flow tube with externally threaded spud ends. Embedded in the flow tube are magnetic flow sensors and a replaceable strainer screen. The meter is lead-free.

c. Each meets the most recent revision of ANSI/AWWA Standard C-700 and C-770 for accuracy and pressure-loss requirements. Under normal-flow conditions (0.11 to 25 gallons per minute), it has accuracy limits between 98.5 and 101.5 percent of throughput. Under low-flow conditions (0.03 gallons per minute), it has accuracy limits between 95 and 101.5 percent of throughput. Under low flow conditions

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<sup>7</sup> Muhlenberg District's Response to Commission Staff's Request for Information, Item 3 (filed May 29, 2013).

<sup>8</sup> Muhlenberg District's Response to Commission Staff's Second Request for Information, Item 2 (filed Aug. 9, 2013).

<sup>9</sup> Application Exhibit A. This estimate does not include labor costs related to the removal of the existing meters and installation of the radio-read meters. Muhlenberg District employees will perform these tasks.

<sup>10</sup> See Case No. 2011-00233, *Application of Graves County Water District for Approval of Construction and Issuance of a Certificate of Convenience and Necessity for the Purchase and Installation of Automated Meter Reading Equipment* (Ky. PSC Nov. 3, 2011) at 4 – 5.

(0.03 gallons per minute), it has accuracy limits between 95 and 101.5 percent of throughput.

d. Each meter is powered by an internal battery that the manufacturer warrants for a 20-year period.

e. Each meter's accuracy is warranted by its manufacturer for a 20-year period.

f. Each meter has magnetic tamper and low-field alarms that indicate any attempt to tamper with the meter's magnetic field.

g. The meter can store consumption data for a 45-day period.

9. The following benefits are expected to result from installation and operation of the proposed meters and meter-reading system:

a. A significant reduction of labor costs associated with meter reading by reducing from 12 days to two days the number of work days devoted monthly to meter reading.<sup>11</sup>

b. A reduction in the number of vehicles devoted to meter reading from four to one and an estimated monthly fuel savings of \$852.<sup>12</sup>

c. More frequent meter reading and the development of a more accurate picture of a customer's usage.

d. Reduction of non-revenue water by quicker identification of water leaks, meter tampering, and theft of service.

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<sup>11</sup> Application Exhibit A.

<sup>12</sup> Facsimile from Harold Wester, General Manager, Muhlenberg County Water District, to Gerald Wuetcher, Counsel, Public Service Commission, at 3 (Dec. 9, 2013).

e. Reduction of employee injuries through the elimination of meter reader visits to areas with fenced yards, animals and hazardous landscaping.

f. More accurate registration of customer water usage, especially at low water flows.<sup>13</sup>

10. For the calendar year ended December 31, 2012, approximately 23.4 percent of Muhlenberg District's total produced and purchased water was non-revenue water.<sup>14</sup>

11. For the period from 2006 through 2011, approximately 27 percent of Muhlenberg District's total produced and purchased water was non-revenue water.<sup>15</sup>

12. The proposed replacement of existing meters with radio-read meter and the purchase and use of drive-by meter-reading equipment will not result in the wasteful duplication of facilities.

13. Public convenience and necessity require the proposed replacement of Muhlenberg District's existing residential meters with radio-read meters.

14. Muhlenberg District proposes to borrow \$1,250,000 from KRWFC to finance the cost of the proposed purchase of the radio-read meters and meter-reading equipment.

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<sup>13</sup> The meter's manufacturer contends that the meters register with 100 percent accuracy at flows as low as .03 gallons per minute. In contrast, most mechanical meters fail to register any flows at .03 gallons per minute and only 50 percent of flows at 0.05 gallons per minute. See Gregory L. Richards, Michael C. Johnson, and Steven L. Barfuss, *Apparent Losses Caused By Water Meter Inaccuracies at Ultralow Levels*, J. AWWA 123 (May 2010).

<sup>14</sup> *Annual Report* at 29. 490,135,000 gallons (Total Produced and Purchased) – 375,553,000 gallons (Total Water Sales) = 114,582,000 gallons (Total Non-Revenue Water). 114,582,000 gallons ÷ 490,135,000 gallons = 0.2337. "Non-revenue water" is defined as "those components of system input volume that are not billed and produce no revenue; equal to unbilled authorized consumption plus apparent losses plus real losses." American Water Works Association, *Water Audits and Loss Control Programs* (3d ed. 2009) at 271.

<sup>15</sup> Case No. 2012-00009, *Alternative Rate Adjustment Filing of Muhlenberg County Water District* (Ky. PSC Apr. 30, 2012) at 4.

15. The proposed loan with KRWFC will have an interest rate that varies from 2.40 to 3.30 percent per annum and will be payable over a ten-year period.

16. The annual principal payments for the proposed KRWFC loan are shown in Table I below.<sup>16</sup>

<b>Year</b>	<b>Principal Payment</b>
1-3	\$115,000
4-5	\$120,000
6	\$125,000
7	\$130,000
8-9	\$135,000
10	\$140,000

17. The total estimated principal and interest payment under the proposed loan is \$1,463,166.<sup>17</sup>

18. The Commission has previously authorized Muhlenberg District to assess, a monthly surcharge of \$1.91 per customer and to use the proceeds of this surcharge to purchase and install meters to replace Muhlenberg District's meters.<sup>18</sup> This surcharge is designed to produce total revenues of \$1,332,255.

19. Muhlenberg District's proposed loan is for a lawful object within its corporate purposes, is necessary, and is appropriate for and consistent with the proper performance of its service to the public, will not impair Muhlenberg District's ability to perform that service, and is reasonably necessary and appropriate for such purpose.

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<sup>16</sup> Application Exhibit B.

<sup>17</sup> *Id.*

<sup>18</sup> Case No. 2012-00009, Staff Report on Muhlenberg County Water District (filed Mar. 30, 2013) at 5.

20. Muhlenberg District should be authorized to use the proceeds from the surcharge authorized in Case No. 2012-00009 for interest and principal payments on the proposed KRWFC loan.

21. All new water meters must be tested for accuracy before being placed into service<sup>19</sup> and must be “in good working order and . . . adjusted as close to the optimum operating tolerance as possible.”<sup>20</sup>

22. When tested for accuracy, a new 5/8-inch x 3/4-inch meter must be subjected to three actual flow tests of 1/4 gallons per minute (“gpm”) at the minimum rate, 2 gpm at the intermediate rate, and at the maximum rate of 15 gpm.<sup>21</sup>

23. Accuracy testing on a new meter must be performed by an agency or utility that is approved by the Commission for that purpose and that employs meter testers that the Commission has certified.<sup>22</sup>

24. Depending upon the basic standard use to test meters, the standard or equipment used by the testing agency must be certified for accuracy by the Commission either annually or every three years.<sup>23</sup>

25. The Commission certified Muhlenberg District’s meter-testing facility on August 15, 2013, for a three-year period.

26. Muhlenberg District currently employs persons whom the Commission has certified as meter testers.

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<sup>19</sup> 807 KAR 5:006, Section 17(1); 807 KAR 5:066, Section 15(2).

<sup>20</sup> 807 KAR 5:006, Section 17(1).

<sup>21</sup> 807 KAR 5:066, Section 15(2).

<sup>22</sup> 807 KAR 5:006, Section 17(2) and (4).

<sup>23</sup> 807 KAR 5:066, Section 14(3).

27. The Commission last certified the meter-testing facilities of Sensus Metering Systems on October 9, 1992.

28. The Sensus iPERL meter is a solid-state, battery-operated, electromagnetic-flow measurement system with no moving parts.

29. Commission regulations do not prescribe accuracy or test flow requirements specifically for electromagnetic flow meters.

30. In the absence of specific accuracy or test flow requirements for electromagnetic-flow meters, 5/8-inch x 3/4-inch electromagnetic flow meters should be subject to the same accuracy and test flow standards as 5/8-inch x 3/4-inch displacement meters.<sup>24</sup>

31. Given that the deployment of electromagnetic meters is a recent development, Muhlenberg District should develop a sample testing program for the proposed metering equipment after its deployment in order to ensure it is operating within acceptable limits and accurately registering water usage.<sup>25</sup>

32. Muhlenberg District proposes to sample of 100 Sensus iPERL meter meters each year in the first five years after the deployment of the Sensus iPERL meters and 1,000 meters each year for the five years thereafter.<sup>26</sup>

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<sup>24</sup> See 807 KAR 5:066, Section 15(2).

<sup>25</sup> The iPERL was introduced in 2010. See Susan Forsgard, *Go With the Flow of Advanced Water Meter Technology*, *Water Technology* 1 (Oct. 2010) (available at <http://www.watertechonline.com/articles/go-with-the-flow-of-advanced-water-meter-technology>). Over one million iPERL meters are currently in service. See Muhlenberg District's Response to Commission Staff's Second Request for Information, Item 10(a) (filed Aug. 9, 2013).

<sup>26</sup> Muhlenberg District's Response to Commission Staff's Request for Information, Item 7 (filed May 29, 2013).



IT IS THEREFORE ORDERED that:

1. Muhlenberg District is granted a Certificate to proceed with the proposed purchase of Sensus iPERL meters and replacement of its existing residential meters.

2. Prior to placing the proposed meters in service, Muhlenberg District shall ensure that each is tested for accuracy by an approved agency or utility and a Commission-certified meter tester and that it meets the standards set forth in 807 KAR 5:066, Section 15.<sup>27</sup>

3. Should Muhlenberg District rely upon the meter manufacturer's testing to comply with 807 KAR 5:066, Section 15, it shall file with the Commission prior to placing any of the purchased meters into service evidence of the meter-testing facility's traceability to National Institute of Standards and Technology standards.

4. Muhlenberg District shall notify the Commission in writing upon completion of the installation of the Sensus iPERL meters.

5. Muhlenberg District shall test for accuracy 100 of the installed Sensus iPERL meters in each year of the first five years following the deployment of the Sensus iPERL meters and shall test for accuracy 1,000 meters of the installed Sensus iPERL meters each year of the following five years.

6. Beginning in 2016, Muhlenberg District shall file with the Commission, along with the financial and statistical report that 807 KAR 5:006, Section 4(2), requires,

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<sup>27</sup> In its response to Commission Staff's Second Request for Information, Muhlenberg District provided evidence regarding the testing methodology that Sensus Metering Systems uses to calibrate and test the accuracy of the iPERL meters. See Muhlenberg District's Response to Commission Staff's Second Request for Information, Item 10(a) (filed Aug. 9, 2013). This testing methodology does not meet the requirements of 807 KAR 5:066, Section 15, and, unless a deviation from that regulation is authorized, will not satisfy the requirements of that regulation.

the results of the sample meter testing conducted in accordance with ordering paragraph 5.

7. In addition to the testing required by ordering paragraph 5, Muhlenberg District shall continue to test its meters in accordance with 807 KAR 5:066, Section 16(1).

8. In accordance with 807 KAR 5:006, Section 26, Muhlenberg District shall continue to systematically perform and maintain appropriate records of annual inspections of its facilities, including, specifically, meters, meter settings, and valves.

9. Muhlenberg District is authorized to enter into an agreement with KRWFC for a loan in an amount not to exceed \$1,250,000 at interest rates ranging between 2.40 to 3.30 percent per annum and payable over a ten-year period.

10. The proceeds of the loan agreement with KRWFC shall be used only for lawful purposes specified in Muhlenberg District's application.

11. If the final cost for the purchase of meters approved in this Order exceeds the estimated cost (with contingency included), Muhlenberg District shall notify the Commission in writing within 30 days of determining the final cost and shall provide a written explanation for the additional cost.

12. Muhlenberg District is authorized to use the proceeds of the monthly surcharge that the Commission approved in Case No. 2012-00009 to pay debt service payments on its loan with KRWFC.

13. Within 30 days of executing the proposed Assistance Agreement with KRWFC, Muhlenberg District shall file with the Commission a copy of the executed loan

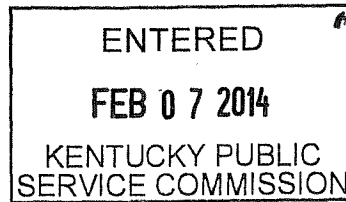
agreement and any documents referenced in the executed loan agreement that Muhlenberg District has not previously filed with the Commission.

14. Any documents filed in the future pursuant to this Order shall reference this case number and shall be retained in the utility's general correspondence file.

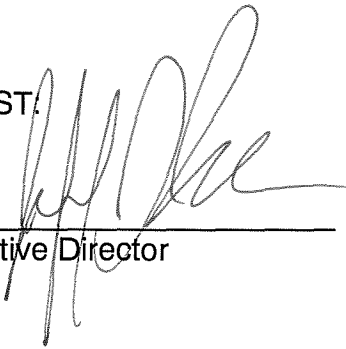
~~15. The Executive Director is delegated authority to grant reasonable extensions of time for the filing of any documents required by this Order upon the showing of good cause for such extension by Muhlenberg District.~~

Nothing contained herein shall be construed as a finding of value for any purpose or as a warranty on the part of the Commonwealth of Kentucky or any agency thereof as to the securities authorized herein.

By the Commission



ATTEST:

  
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Executive Director

Honorable W. Randall Jones  
Attorney at Law  
Rubin & Hays  
Kentucky Home Trust Building  
450 South Third Street  
Louisville, KENTUCKY 40202