Exhibit No.:	512
Issues:	Building Operator Certification Program
Witness:	Daniel R. Dahler
Sponsoring Party:	Missouri Department of Economic Development – Division of Energy
Type of Exhibit:	Direct Testimony
Case Nos.:	GR-2017-0215; GR-2017-0216

MISSOURI PUBLIC SERVICE COMMISSION

SPIRE MISSOURI INC.

CASE NO. GR-2017-0215

AND

CASE NO. GR-2017-0216

DIRECT TESTIMONY

OF

DANIEL R. DAHLER

ON

BEHALF OF

MISSOURI DEPARTMENT OF ECONOMIC DEVELOPMENT

DVISION OF ENERGY

Jefferson City, Missouri
September 8, 2017

Revenue Requirement

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Laclede Gas Company's	)	**File No. GR-2017-0215**
Request to Increase Its Revenue for Gas Service	)	Tariff No. YG-2017-0195
In the Matter of Laclede Gas Company d/b/a	)	
Missouri Gas Energy's Request to Increase Its	)	**File No. GR-2017-0216**
Revenues for Gas Service	)	Tariff No. YG-2017-0196

AFFIDAVIT OF DANIEL R. DAHLER

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Daniel R. Dahler, of lawful age, being duly sworn on his oath, deposes and states:

1. My name is Daniel R. Dahler. I work in the City of Jefferson, Missouri, and I am employed by the Missouri Department of Economic Development – Division of Energy as an Economic Development Incentive Specialist II.
2. Attached hereto and made a part hereof for all purposes is my Direct Testimony (Revenue Requirement) on behalf of the Missouri Department of Economic Development – Division of Energy.
3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge.

Daniel R. Dahler

Subscribed and sworn to before me this 8th day of September, 2017.

LAURIE ANN ARNOLD
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: April 26, 2020
Commission Number: 16808714

Notary Public

My commission expires: 4/26/20

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I. INTRODUCTION

Q. Please state name and business address.

A. My name is Daniel R. Dahler. My business address is 301 West High Street, Suite 720, PO Box 1766, Jefferson City, Missouri 65102.

Q. Please describe your educational background and employment experience.

A. I am employed as a Economic Development Incentive Specialist II with the Missouri Department of Economic Development ("DED") – Division of Energy ("DE"). I serve as a Project Manager for the Energy Loan Program ("ELP"), Project Coordinator for the Building Operator Certification ("BOC"), and backup Energy Emergency Assurance Coordinator since 2015. I am a certified Building Operator Level I through the Northwest Energy Efficiency Council ("NEEC") and a certified Building Analyst through the Building Performance Institute.

Q. Have you previously filed testimony before the Missouri Public Service Commission?

A. No.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your Direct Revenue Requirement Testimony in this proceeding?

A. The purpose of my testimony is to discuss the BOC program and the value it provides to Missouri building owners, occupants, operations staff, and energy savings. I discuss general information about the program, the impact certified operators have on energy savings, and how the program assists in meeting the goals stated in Missouri's Comprehensive State Energy Plan ("CSEP"). Continued use of this program in Missouri will promote efficient use of energy resources, facilitate greater energy independence, and advance Missouri workers knowledge of operational efficiency. DED-DE recommends continued support for this program through the companies' energy efficiency programs.

Q. What did you review in preparing this testimony?

A. I reviewed several independent evaluations of BOC programs throughout the Midwest, as well as case studies from Spire, Laclede Division, covering organizations that have made improvements after having staff complete BOC training.

III. BUILDING OPERATOR CERTIFICATION PROGRAM

Q. What is the Building Operator Certification program?

A. The BOC program is a nationally recognized program providing professional development training for operations and maintenance staff working in public, commercial, and institutional buildings. The training teaches operators how to run their buildings in a manner that is energy efficient through practical no- and low-cost solutions. Facility systems are complex and interdependent; they require deeper insight into how the pieces work together in order to ensure the systems run efficiently and to prolong the life of the individual components.

The BOC offers two levels of training. The Level I series provide an overview of critical building systems focusing heavily on Heating Ventilation and Air Conditioning controls, opportunities for operational improvements, a building scoping for energy efficiency, as well as, electrical and lighting systems. The classes, exams, and assigned projects for Level I result in a total of 74 hours, or 7.4 continuing education units.

Level II focuses on preventative maintenance and more targeted training, which could include water efficiency and demand reduction. The classes, exams, and assigned projects for Level II result in a total of 61 hours, or 6.1 continuing education units.

Completing each level results in achieving a Training Certificate of Completion. In order to achieve the Certified Building Operator designation, the student must complete, at minimum, the Level I course and pass the comprehensive Certification Exam. BOC is aligned with an international standard developed by the International Organization for Standardization (ISO). Alignment with ISO 17024 established best practices for defining job skills of the workforce and

gauging subject comprehension using psychometrically developed exams. ISO 17024 alignment provides assurance that the certification is an effective valuation of knowledge and skills in efficient building operation.

The Midwest Energy Efficiency Alliance ("MEEA") in cooperation with the Missouri Division of Energy administers the program in Missouri. MEEA also administers BOC training in Illinois, Iowa, Kansas, Michigan, Nebraska, Ohio, and Wisconsin. MEEA operates under a license provided by the NEEC. The NEEC is accredited as an Authorized Provider by the International Association for Continuing Education and Training ("IACET").

Q. Have energy savings and demand reductions been achieved from the BOC program?

A. Yes. Independent studies evaluating the program have found that there are quantifiable savings resulting from BOC training. A summary of evaluation reports[1] nation-wide spanning from 2000-2015 found that average annual savings per credentialed operator was roughly 100,500 kWhs of electricity. In addition, credentialed operators save an average of 14.5 kW in electric demand and 1,400 therms annually.

An evaluation done in 2009 by Opinion Dynamics Corporation reviewed the Kansas City Power and Light BOC program[2]. It focused on four Level I trainings offered between July 2007 and March 2009. During this time, it was estimated that average net energy savings as a result of the trainings were 43,600 kWh per graduate, net demand savings were estimated at 10.7 kW per graduate; and total program savings since 2007 were estimated to be 9.2 million kWh, 2,300 kW, and 35,000 therms.

[1]Northwest Energy Efficiency Council, 2017, "*Energy Savings for the Building Operator Certification (BOC) Program FAQ", http://www.theboc.info/wp-content/uploads/2017/02/BOC-Energy-Savings-FAQ-2.0-web.pdf, page 1.*

[2]Opinion Dynamics Corporation, 2009, "*Evaluation of Kansas City Power and Light's Building Operator Certification Program.*"

An evaluation of Minnesota's Building Operator Certification Program[3] released in 2011 established favorable estimations as well. Navigant Consulting was chosen to conduct the evaluation of the eleven Level I and two Level II courses that had successfully been completed by 2010. Two courses were also underway at this time. Navigant Consulting found the average net energy savings per graduate was roughly 43,000-130,800 kWh and 2,300-3,200 therms.

An assessment of the Illinois BOC training program[4] directed by ADS Associates looked at savings from June 2013 to May 2014. The contractor calculated the average savings of the 82 graduates from this time and then extrapolated the savings based on the distribution of utility service providers. From this, it was determined that electric utilities saw a realized net savings of 88,513 kWh and 25.57 kW. Natural gas providers saw 222.38 realized net therm savings. Per participant, 1,079 kWh, .31 kW, and 2.71 therms were saved.

The Cadmus Group assessed Wisconsin's BOC training programs[5] taking place between 2011 and 2014. They concluded that energy savings projects resulted in roughly 99,700,000 kWh and 45,000 therm total savings over their lifecycle. The 517 graduates averaged 82,911 kWh, 9 kW, and 36 therm savings per participant.

Q. Are there additional benefits of BOC training?

A. Yes. Much of the BOC course work emphasizes energy savings and load reduction, but there is more to be gained from the training. BOC teaches operators a number of energy saving strategies such as how to create a preventive maintenance program which helps prolong the life of existing equipment and further contributes toward cost reductions.

Building operators are also taught communication skills to better connect with occupants. This helps operators enhance comfort while improve efficiency. Thorough understanding of building

[3] Navigant Consulting. 2011, "*Evaluation of MN BOC Training.*"
[4] ADS Associates, Inc. 2015, "*Evaluation of Illinois Energy Now Building Operator Certification Program.*"
[5] TheCadmus Group, Inc. 2015, "*Focus on Energy MEEA Training Program Evaluation.*"

components allows them to make improvements that create a healthier indoor environment. Overall, this can result in happier, healthier building occupants.

This investment in higher education for building operators makes them more valuable to their employer and more competitive in their industry. It shows that the operator has been trained on techniques for saving money, energy, and can be expected to provide informed, quality work. Additionally, BOC is accredited by many organizations for continuing education including the Green Building Certification Institute, American Hotel and Lodging Educational Institute, National Association of Power Engineers, National School Plant Management Association, and others.

Q. How successful has the program been in producing graduates in Missouri?

A. The program has seen consistent interest and success since beginning in 2006. A total of 50 trainings have been held with an average class size of 19.4 individuals. Approximately 91% of students taking the Level I course and 96% of Level II students were certified. Nine hundred seventy students have taken the course and 894 of those students were certified – a 92% success rate.

Q. How are Building Operator Certification courses financed?

A. BOC trainings are financed through student tuition and utility contributions. Currently student tuition is set at $1,150 per person. Utility contributions vary depending on the number of students that attend the training, but typically 15 students are budgeted for a series. Financial support from utilities is essential to offering the class. The Kansas City and St. Louis benchmarking ordinances could identify property managers and building operators seeking low cost solutions like the BOC program to increase their energy efficiency. While there are no trainings currently planned, DED-DE supports allowing Spire to continue contributing to the BOC program through utility funded energy efficiency programs.

Q. Does the Certification assist in meeting state energy goals?

A. Many aspects of the BOC program assist in meeting state energy goals. The CSEP outlines numerous goals that BOC furthers including using energy more efficiently. Additionally, supporting a more reliable grid by reducing energy loads of large facilities frees up resources for other uses. Becoming more energy independent leads to reduced energy demand. BOC training also encourages the use of new technology that is often more efficient and reliable. Reducing energy use, and therefore carbon emissions, supports responsible stewardship of the environment. All of these features are coordinated with the goal of moving "toward a sustainable and prosperous energy future."

IV. CONCLUSIONS

Q. Please summarize your conclusions and the position of DE.

A. DED-DE supports the ongoing use of the BOC program, as it is a valuable source of energy efficiency education. Evaluations of the program have repeatedly shown BOC graduates are able to deliver energy savings in the buildings they run. Continued sponsorship from Spire is necessary in order to provide these trainings within their service area in a manner that is financially feasible for all parties involved.

Q. Does this conclude your Direct Revenue Requirement Testimony in this Case?

A. Yes.