



November 24, 2014

The Commonwealth of Pennsylvania
Public Utility Commission
P.O. Box 3265, Harrisburg, PA 17105

Reference: Docket # M-2014-2424864 Act 129 Phase III

Dear Pennsylvania Public Utility Commission Members,

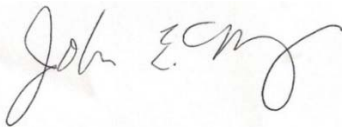
Please find attached to this letter several documents showing 3rd party verification of energy savings produced by commercial building operators receiving Building Operator Certification. BOC was proposed by PP&L for Phase II of Act 129 but was denied application as an Energy Conservation Measure by the PUC. We are hopeful that the PUC will reconsider as it investigates opportunities for conservation measures in Phase III.

Regionally, BOC training and certification has been approved by the Maryland PSC for inclusion in 3 of the 4 state utilities, as requested by them, and has been recommended as a part of "on ramping" training for all Maryland utilities. BOC is currently being sponsored in New York under the auspices of NYSERDA. In Pennsylvania, BOC has been conducted successfully for commercial operators under sponsorship by PA Department of Environmental Protection and also by U.S. Department of Energy.

BOC is one of only five GSA-approved certification and training programs for the federal government.

Benchmarking and building operator training is being adopted across the Mid-Atlantic. As such, we strongly encourage the PA PUC to allow the BOC trainings as part of utility portfolios of ECMs. Thank you for the opportunity to provide this input. If you have any questions, please do not hesitate to contact me.

Sincerely,



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NSSC at Penn College is a nationally-recognized U.S. DOE Legacy Training Center that provides technical expertise and instruction to home energy professionals, government officials, and industry partners in the building performance field. Since 1985, NSSC has taught more than 14,000 students in building science standards and energy efficient retrofit techniques.

With an established curriculum, NSSC offers a combination of classroom learning and hands-on application that can be taught in our world-class training lab facility or in-field. NSSC's training programs include nationally recognized certifications such as Building Operator Certification and Home Energy Professional.

Learn more about our training program and services at www.pct.edu/nssc.

Public Utility Commissions that Accept Savings for BOC

(as of April 2013)

A small, but growing number of state public utility commissions (PUC's) are allowing utilities to claim energy savings for BOC program activity. The ability to report energy savings for BOC participants allows utilities to use their sponsorship and engagement with the program to meet annual conservation targets. Below is a status report of the PUC's by state who allow energy savings attribution to BOC. Savings are typically reported on a "kWh per BOC-certified operator" basis as established by independent, third-party evaluation research conducted within the PUC's state.

State	PUC	Status
California	California Public Utilities Commission	Currently does not accept BOC savings. CPUC conducted a BOC impact evaluation in 2013. Final report (Feb 2014) attributed annual energy savings of 50,000 kWh/BOC-certified operator.
Connecticut	CT. Light and Power/ United Illuminating	Does not claim savings from BOC.
Idaho	Idaho Public Utilities Commission	Accepts BOC savings as documented by evaluation research conducted the Northwest Energy Efficiency Alliance at at 119,000 kWh per certified operator. Idaho Power sponsors BOC but does not claim BOC savings.
Iowa	Iowa Energy Center	Alliant Energy: Based on Sq Ft of facility 0.18 kWh and 0.71 therms per square foot, capped at 10 percent of annual usage by fuel.
Illinois	Illinois Commerce Commission	We believe the IL Department of Commerce and Economic Opportunity (who receives a portion of EEPS monies from IL utilities) is seeking to claim net savings per BOC graduate from Navigant Consulting's 2012 IL BOC evaluation at 181,000 kWh per certified operator. <i>We can provide an update after the next IL Stakeholder Advisory Group (SAG) meeting.</i>
Kansas	Kansas Corporation Commission	BOC is classified as an education program and not an energy savings program. There is no statewide mandate for EE targets in Kansas.
Maine	Maine Public Utilities Commission	Efficiency Maine has publicly filed NEEP-sponsored 2005 BOC impact evaluation report and claims savings for

		BOC at 215,000 kWh/certified operator.
Maryland	EmPOWER Maryland	PEPCO claims savings for BOC towards their conservation targets.
Massachusetts	Massachusetts Department of Telecommunications & Energy	Utilities must notify PUC in advance of intent to claim BOC savings; National Grid and Cape Light Compact claims BOC savings (they serve NStar customers) at 215,000 kWh/certified operator.
Michigan	Michigan Public Service Commission	2013 Deemed Savings for BOC are: 23,534.5 kWh/yr/participant, 2.69 kW/participant and 1,564 therms/yr/participant. The typical participant operates 194,000 sq. ft. This is based on a Consumers Energy Business Solutions workpaper combining Midwest and West Coast BOC third party evaluations.
Minnesota	Minnesota Department of Commerce, Division of Energy Resources (DER)	An electric utility claims savings from BOC toward its Conservation Improvement Plan for 2011-2013 (and plans to file in the 2014-16 Plan), using the program savings as determined by Navigant Consulting's 2011 Evaluation of MN BOC Training. They use the net savings figure of 0.237 kWh/sq ft if the customer has participated in other CIP programs, and the gross savings figure of 0.721 kWh/sq. ft. if they haven't. They also survey BOC grads each year to ensure continued energy savings.
Missouri	Missouri Public Service Commission	MEEA believes the PSC accepts BOC savings as documented by Kansas City P&L study completed on BOC impacts. However, KCP&L reported that they do not claim energy savings from BOC. <i>MEEA will investigate further and provide an update.</i>
Montana	Montana Public Service Commission	Accepts BOC savings as documented by evaluation research conducted the Northwest Energy Efficiency Alliance at at 119,000 kWh per certified operator. Northwestern Energy claims BOC savings in their filings with the PSC.
Nebraska	Nebraska's electric utilities (all public	NE does not have a statewide mandate for energy efficiency savings; however,

	power districts or cooperatives) are not regulated by the state commission; they do report to the Nebraska Power Review Board for planning purposes.	Nebraska Code Section 66-1060 directs public utilities to practice Integrated Resource Planning. The Nebraska Public Power District uses BOC to drive participation in its EnergyWise™ programs which are part of its Integrated Resource plan.
New Hampshire	New Hampshire Public Utilities Commission	Utilities are not claiming BOC savings.
New Jersey	Board of Public Utilities	In transition to BPU administration of energy efficiency programs. BPU supported NEEP-sponsored impact evaluation of BOC program.
New York	New York Public Service Commission	Long Island Power Authority claims BOC savings using the NEEP-sponsored 2005 BOC impact evaluation report rate of 215,000 kWh/certified operator.
Ohio	Public Utilities Commission of Ohio	MEEA's utility partner AEP Ohio does not plan to claim savings from BOC, but believes that BOC graduates will be better prepared to identify energy saving opportunities in AEP Ohio's installed measures-based programs and retro-commissioning programs.
Oregon	Oregon Public Utility Commission	Accepts BOC savings as documented by evaluation research conducted the Northwest Energy Efficiency Alliance at at 119,000 kWh per certified operator. The Energy Trust of Oregon claims BOC savings.
Rhode Island	RI Public Utilities Commission	Utilities are not claiming BOC savings.
Vermont	Efficiency Vermont	Does not claim savings from BOC.
Washington	Washington Utilities and Transportation Commission	Accepts BOC savings as documented by evaluation research conducted the Northwest Energy Efficiency Alliance at at 119,000 kWh per certified operator.
Wisconsin	Wisconsin Focus on Energy	Utilities are not claiming BOC savings. We are looking at how to incorporate training efforts into our overall energy savings goals for Focus on Energy.

Building Operator Certification (BOC) Energy Savings by Study

Study Title	State	Date	sf/student	Electricity Savings Kwh/sf	Fossil Fuel Savings MMBtu/sf	Water Savings Gallons/sf
Research Into Action, Market Progress Evaluation Report, Building Operator Certification #7, Northwest Energy Efficiency Alliance, 2001	ID, MT, OR, WA	2001	355,000	0.5	NA	NA
RLW Analytics, Impact and Process Evaluation, Building Operator Training and Certification Program, Northeast Energy Efficiency Partnerships, 2005	CT, MA, ME, NH, RI, VT	2005	616,000	0.35	0.4	0.14
PA Consulting Group, Focus on Energy Evaluation, IMPACT EVALUATION OF THE EDUCATION & TRAINING PROGRAM, State of Wisconsin Public Service Commission, November 2008	Wisconsin	2008		3,357 kwh/student/yr	NA	NA
ODC, Evaluation of AmerenEU's Building Operator Certification Program, AmerenEU, June 2007	Missouri	2009	500,000	0.063	0.000263	NA
ODC, Evaluation of Kansas City Power & Light's Building Operator Certification Program, KCP&L, September 2009	Kansas	2010	786,000	0.02	0.00052	NA
Navigant Consulting, Evaluation of MN BOC Training, Midwest Energy Efficiency Alliance & MN Office of Energy Security, 2010	Minnesota	2010	194,500	0.524	0.0155	NA
Navigant Consulting, Long Term Monitoring and Tracking Report on 2009 Activities, FINAL Report, NEEA, 2010		2010	286,000	0.42	NA	NA
Energy Market Innovations, Summary of Building Operator Certification Program Evaluations, 2011	Michigan	2011	194,500	0.058	0.518 Mbtu/sf	NA
Navigant Consulting, Program Year 3 DCEO Building Operator Certification (BOC) Program Evaluation, 2012	Illinois	2012	508,100	0.374	0.001 therms/sf	0.075 kW/sf
Navigant Consulting, Long Term Monitoring and Tracking Report on 2011 Activities, FINAL Report, NEEA, 2012		2012	286,000	0.42	NA	NA
			Average	0.29	0.10	
				141,000 kWh/student/yr	68,642 MMBtu/student/yr	
			Conservative Estimate	93,000 kWh/student/yr	30,000 MMBtu/student/yr	
			300,000			

National Building O&M Certification Programs at a Glance Talking Points for BOC

The table below compares national **certification** programs that provide a participant with an understanding of energy efficient operations and maintenance practices for commercial buildings. *Effective March 2012.*

Organization	American Society of Heating, Refrigeration and Air-Conditioning (ASHRAE)	Association of Energy Engineers (AEE)	BOMI International	Northwest Energy Efficiency Council (NEEC)	US Green Building Council (USGBC)	International Facilities Management Association (IFMA)
Program Name	Operations and Performance Management Professional (OPMP)	Building Energy & Sustainability Technician (BEST)	Buildings System Technician (SMT)*	Building Operator Certification (BOC)*	LEED Existing Buildings O&M Accredited Professional (AP)	Certified Facility Manager (CFM)
Offered Since	2009	2011	1970	1996	2007	1992
Prerequisite	Work Experience and/or Related Degree	Work Experience and/or Related Degree	None	Work Experience and/or Related Degree	Work Experience on LEED project	Work Experience and/or Related Degree
Focus Area	HVAC, Refrigeration Systems	Multi-disciplinary	Multi-disciplinary	Multi-disciplinary	Multi-disciplinary	Multi-disciplinary
Course Delivery	Exam only	Classroom training	- Classroom - Online -Self Study	Classroom training and Hands-on projects at the facility	Classroom training	Exam only
Hands-on Project Assignments	No	No	No	Yes	No	No
Training Hours	Self Guided	28 hours	120 hours*	135 hours* (Level I & II)	8 hours	14-hours exam prep course

*BOC and BOMI have a partnership agreement which awards building engineers and maintenance technicians competency credit between NEEC's Building Operator Certification (BOC[®]) and BOMI International's Systems Maintenance Technician (SMT[®]) designation.

Talking Points for BOC

These talking points can be used to explain the value of BOC to new prospects who may be evaluating the program in relation to other training and certification opportunities in the market. The points do not discuss the merits of one program over another, but instead emphasize the unique qualities that differentiate BOC in the market.

- BOC is the longest running certification program offering training in *energy efficient* operation and maintenance of commercial and institutional buildings. BOC has been active for 16 years.
- BOC is the only training program in market with validated energy savings based on third-party evaluation research. BOC-certified operators implement practices that are estimated to reduce electricity and fossil fuel costs by \$.06/sf/year.
- A national skill standard in energy efficient building operation serves as the basis for the knowledge, skills and abilities taught in the BOC curriculum. The BOC operator skill standard was reviewed by a broad spectrum of industry experts and validated by over 200 practitioners.
- Building operators are hands-on learners. BOC is the only program requiring the completion of hands-on projects for certification. Participants document HVAC system components and layout, complete an HVAC controls system review, conduct a survey of the lighting system, and benchmark the energy performance of their building.
- BOC holds recognition with national leaders in education, certification and energy efficiency including the following:
 - ANSI/IACET 1-2007 Standard. BOC is an Authorized Provider of training under this standard which is widely recognized as a standard of good practice in education.
 - BOMI. A strategic partnership with BOMI awards building operators competency credit between BOC and BOMI's SMT designation.
 - U.S. Green Buildings Council. BOC classes provide continuing education towards renewal of the LEED-AP and LEED-GA credentials.
 - "Exemplary Program" Award by the American Council for an Energy Efficient Economy.
 - Recipient of U.S. Department of Energy, Building Technologies Program training grant.
 - Recipient U.S. EPA ENERGY STAR Excellence Award – 2012.

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