



Case Study Series

**Building Operator Certification (BOC)** provides training in the energy and resource efficient operation of building systems to qualify facility operations and maintenance staff for certification.

## Pease International Airport / Pease Development

Pease International Tradeport Airport in Portsmouth, N.H. serves Portsmouth and Rockingham County and is owned by Pease Development Authority. A world-class business and aviation industrial park, the Pease International Tradeport Airport encompasses 3,000 acres, including an 11,318-foot runway.

Facility Square Footage:	58,000
Attendee Name and Title:	Joe McPherson, Maintenance Manager
BOC Graduate:	Series 1
BOC Sponsor:	Public Service of New Hampshire
Years in Position:	10
Number of Staff:	16 full-time, 14 part-time
Resources Affected:	Electricity, natural gas, water, diesel and gasoline for vehicles

**In addition to the indoor facility space of over 58,000 square feet, the PDA Maintenance Staff maintains more than 5 million square feet of grounds including aprons, runways, and roadways. Their main objective is to keep the airport open and safe in all weather conditions. "The BOC course really provided a lot of food for thought and reemphasized the idea of planned maintenance rather than reactionary maintenance," notes Joe McPherson.**

### Operational Challenges

**Extensive Lighting Maintenance:** The Pease Development Authority's more than 5 million square feet of grounds include more than 500 exterior lights, of which more than 400 are runway lights. Labor costs associated with the maintenance of such extensive lighting were very high, as were the energy costs of PDA's transformers and emergency generators.

**Ventilation efficiency, air quality:** An ongoing challenge is monitoring the cleanliness of the air filters serving the facilities ventilation fans. A dirty air filter allows minimal air flow through the ventilation fan. Not only does this impact the facilities air quality, but the fan motor uses significantly more energy. The challenge for the PDA was how to effectively monitor the many ventilation fans without purchasing additional equipment.

## Results of BOC Training

**Planned Maintenance:** The BOC helped Joe McPherson plan for the maintenance of such an extensive facility instead of having to react to problems. For example, it helped him in the task of maintaining such an extensive number of runway lights by scheduling planned replacements. This not only reduced maintenance labor costs, but also improved the safety of the runways. More over, the concept of scheduled lighting replacements is now also implemented in the PDA facilities. This allows Joe to more effectively employ his additional winter staff by assigning scheduled replacements and fixture cleaning during mild winter days when the seasonal staff is not involved in snow removal operations. Since implementing this planned replacement schedule, Joe notes that calls related to burned-out lamps have significantly decreases.

**Comprehensive Inspections:** Joe also attributes to the BOC course a more comprehensive inspection schedule of the PDA's transformers and emergency generators, which total 1.1 megawatts.

**Ventilation Improvements:** The BOC course provided Joe with a breakdown of the facility into small components to better understand how the facility functions. One example that Joe noted was the relationship between a dirty air filter and the power consumption of the ventilation fan motor, the examination of which allowed the facility staff to determine the quality of the air filter by monitoring the amperage draw on the fan motor. This process proved significantly less complicated than measuring airflow to determine the status of the air filters. Joe notes that this gave him and his staff an increased level of sophistication in monitoring facility system's without purchasing additional equipment and, more importantly, without having to train personnel on how to appropriately use the new equipment.

*“The BOC course was the best training that I have attended in my career... I benefited not just from the facilities aspect but in all areas of maintenance work we perform. ... I have been able to take some thoughts and ideas from BOC and put them to use in other areas such as pavements, runway lighting and other structures. It gave me a renewed interest in the work that I'm doing, and I've tried to pass this on to my crew. It's at the forefront of the individuals' minds when they come back from the course, encouraging them to dig further into the specifics of their facilities. You develop a new relationship with your facilities.”*

BOC graduates work in all fields of industry, ranging from municipalities to Fortune 500 companies.

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Northeast Energy Efficiency Partnerships, Inc.



**A 2002 evaluation found the BOC program saves the average building on an annual basis:**

- ✓ 0.5 kilowatt hour per square foot
- ✓ 1.95 million BTU of fossil fuels per 1000 square feet
- ✓ 0.162 gallons of water per square foot