

Financial Performance of CEM Training Program Graduates

CEM Course Graduates have an 90% Probability of Generating Projects with at least a 24.4% Return on Investment per year with an average ROI of 92%.

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Abstract

This paper describes the predictable financial performance of energy efficiency project ideas developed by energy professionals¹. Via a November 2025 survey, Certified Energy Managers (CEMs) reported the financial performance of energy management projects they implemented as a result of ideas covered during the 5-Day CEM Training.

CEM Course graduates have a 90% probability of generating projects that have at least a 24.4% Return on Investment (ROI) per year, across a variety of project sizes. However, because many projects had higher performance than 100% ROI, it is worthwhile to note that the average ROI was 92%.

Methods

A random population of CEM graduates based in the United States were invited to participate in a survey to report the financial performance of projects they had implemented from ideas covered within the CEM 5-Day Training program.

The survey question was stated as follows:

“As a result of your CEM Training / ideas covered during class, can you estimate the installation cost(s) as well as the approximate annual savings of the cumulative project(s) you have implemented (at your site or at clients’ sites)?”

Complete data (installation cost and recurring annual savings) from 55 projects was collected from 50 independent respondents (some respondents provided data from multiple projects). The survey was blind and each individual’s personal data was kept anonymous from data analysts.

Using respondent data sets, the Return on Investment was derived using this equation:

$$\text{Average Annual Return on Investment (ROI\% per Year)} = \frac{\text{Annual Savings}}{\text{Total Installation Cost}}$$

¹ Specifically: graduates from the Certified Energy Manager (CEM®) 5-Day Training program, (which has been offered by the Association of Energy Engineers since 1981), provided a qualified population for this research. The training topics focus on cost-effective energy management projects, primarily within non-residential buildings. The scope of training topics can be found online at AeeCenter.org.

The primary goal was to estimate the typical financial outcomes, with a level of confidence. *Note: only tangible energy and maintenance dollar savings were counted in this study, therefore additional benefits such as sustainability, societal or health improvements, etc., (if assessed) could further improve the financial performance.*

- The 90% confidence level was selected to reflect the exploratory and program-evaluation nature of the study and to balance statistical rigor with practical decision-making relevance. *To be more conservative, we used the 90% Confidence Interval (percentile) of data sets, which revealed the lower ROI of 24.4% as opposed to just using the average ROI of 92%.*
- To improve interpretability and reduce distortion from extreme leverage effects, responses associated with exceptionally large projects (installation costs exceeding \$50 million) and/or unusually high ROI values (over 500% per year) were excluded from the analysis. This screening was applied consistently across all data sets to remove a small number of outlier data points.
- Results are interpreted at the portfolio level, representing expected outcomes across the surveyed population of CEM graduates.

Results

CEM Course graduates have a 90% probability of generating projects that have at least a 24.4% ROI per year, across a variety of project sizes. However, because many projects yielded greater than 100% ROI per year, it is worthwhile to note that the average ROI was 92% per year. The median annual savings was \$310,000.

Figure 1. Return on Investment per year Histogram

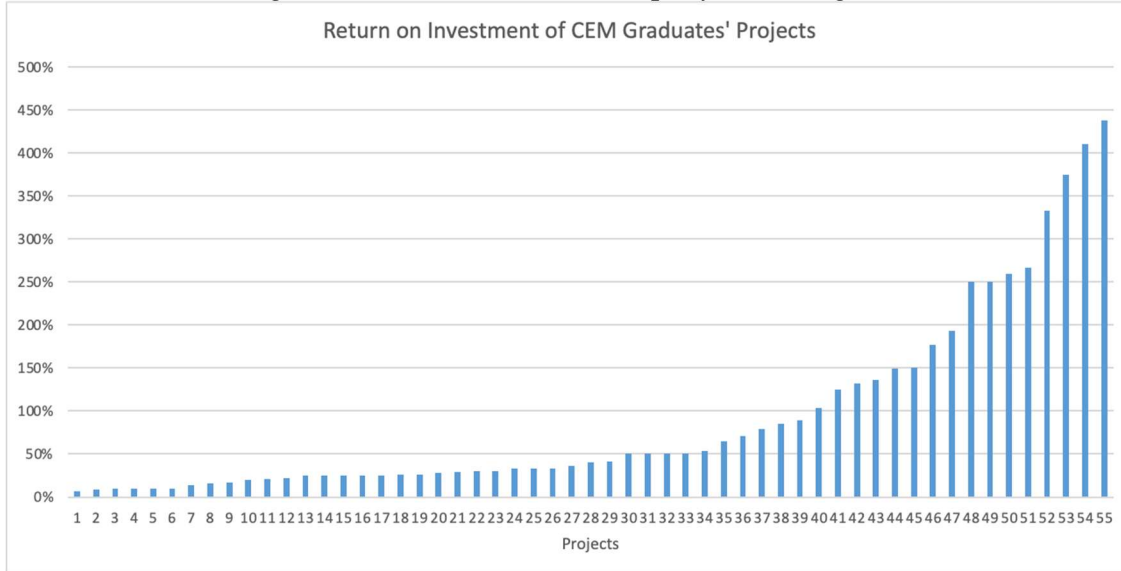


Figure 2. Financial Performance by Project

| Annual Savings (Thousands of \$) | Install Cost Thousands of \$) | Return on Investment |
|----------------------------------|-------------------------------|----------------------|
| 300.00 | 4,500.00 | 7% |
| 1,000.00 | 12,000.00 | 8% |
| 750.00 | 8,000.00 | 9% |
| 110.00 | 1,100.00 | 10% |
| 30.00 | 300.00 | 10% |
| 2,000.00 | 20,000.00 | 10% |
| 1,000.00 | 7,000.00 | 14% |
| 830.00 | 5,360.00 | 15% |
| 50.00 | 300.00 | 17% |
| 300.00 | 1,500.00 | 20% |
| 2,500.00 | 12,000.00 | 21% |
| 327.00 | 1,500.00 | 22% |
| 5,400.00 | 22,000.00 | 25% |
| 62.00 | 252.00 | 25% |
| 10,000.00 | 40,000.00 | 25% |
| 400.00 | 1,600.00 | 25% |
| 20.00 | 80.00 | 25% |
| 3,100.00 | 12,000.00 | 26% |
| 6,050.00 | 23,300.00 | 26% |
| 80.00 | 280.00 | 29% |
| 80.00 | 275.00 | 29% |
| 3,000.00 | 10,000.00 | 30% |
| 15.00 | 50.00 | 30% |
| 100.00 | 300.00 | 33% |
| 500.00 | 1,500.00 | 33% |
| 84.00 | 250.00 | 34% |
| 20.00 | 55.00 | 36% |
| 923.00 | 2,307.00 | 40% |
| 25.00 | 60.00 | 42% |
| 1,000.00 | 2,000.00 | 50% |
| 2,000.00 | 4,000.00 | 50% |
| 200.00 | 400.00 | 50% |
| 3,000.00 | 6,000.00 | 50% |
| 35.00 | 65.00 | 54% |
| 1,800.00 | 2,800.00 | 64% |
| 550.00 | 773.00 | 71% |
| 21.59 | 27.30 | 79% |
| 85.00 | 100.00 | 85% |
| 178.00 | 200.00 | 89% |
| 260.00 | 250.00 | 104% |
| 250.00 | 200.00 | 125% |
| 25.00 | 19.00 | 132% |
| 408.00 | 300.00 | 136% |
| 374.00 | 250.00 | 150% |
| 1,500.00 | 1,000.00 | 150% |
| 1,200.00 | 680.00 | 176% |
| 310.00 | 160.00 | 194% |
| 10,000.00 | 4,000.00 | 250% |
| 200.00 | 80.00 | 250% |
| 325.00 | 125.00 | 260% |
| 80.00 | 30.00 | 267% |
| 20.00 | 6.00 | 333% |
| 30.00 | 8.00 | 375% |
| 390.00 | 95.00 | 411% |
| 35.00 | 8.00 | 438% |
| Average ROI % | | 92% |

Conclusion

Based on the results of this survey, professionals who complete the 5-Day CEM training (and pass the exam) can reasonably expect to generate tangible energy projects with strong multi-year economic performance, across a wide range of organizational contexts and/or project sizes. In addition, the authors hope that these findings encourage energy consumers to initiate more energy savings projects, because of the high ROIs that are common, and relatively low risk.

About the Authors

Eric A. Woodroof, Ph.D. has received Department of Energy Awards and is also the youngest member ever inducted into 2 separate Hall of Fames in the energy industry. He has served as President of the Association of Energy Engineers, which has members in over 100 countries. He currently serves on several certification/advisory boards, and is the Chairman of the Energy Management Professional Council. He can be reached at: [eric{at}ericwoodroof.com](mailto:eric@ericwoodroof.com)

Steven Morgeson earned a double major in Statistics and Mathematics from Eastern Kentucky University, along with a Master's Degree in Computer Science focused on Artificial Intelligence and Data Science. He has a background in quantitative and data-driven analysis and has authored publications in the financial advisory data field, bringing experience communicating complex analytical concepts to a broad audience.