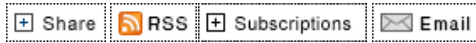


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Michael Ivanovich

New report quantifies costs & benefits of commissioning

July 23, 2009

[Evan Mills, PhD](#), staff scientist at Lawrence Berkeley National Laboratory (LBNL), has just released an important report quantifying the costs and benefits of commissioning: "Building Commissioning: A Golden Opportunity for Reducing Energy Costs and Greenhouse Gas Emissions." Based on data from 37 commissioning providers representing 643 buildings comprising 99 million sq ft of floor space from 26 states the median cost for new-construction Cx amounted to \$1.16 and would save 13% on whole-building energy consumption. For existing buildings, the median cost amounted to \$0.30 and median whole-building energy savings amounted to 16%. Payback times are 4.2 years for new construction, and 1.1 years for existing buildings.

Of course, the details are important, but they are in the report.

I'm pasting below Evan's press release in whole so nothing is lost in translation. If you want to skip right to the full report, [click here](#).

The first iteration of this body of work, [published in 2004](#) collaboratively with Cx pioneers such as Tudi Haasl (PECI) and David Claridge, PhD (Texas A&M), has been used in numerous publications, presentations, and project proposals. However, exhaustive as it was, it was based on a relatively small sample. The sample behind the new report has three times the number of buildings.

So - read and enjoy; use the data in your work. And send a thank-you note to Evan Mills for leading the charge once again on an important body of practical research.

Here is Evan Mills original press release in full:

July 22, 2009

Dear Colleague,

We are pleased to announce the release of "Building Commissioning: A Golden Opportunity for Reducing Energy Costs and Greenhouse Gas Emissions." This report provides the world's largest database of commissioning case studies for new and existing buildings. It represents a major update and expansion of a study initially published in 2004, with roughly three-times as many projects. We gathered and analyzed data on 643 buildings, representing 99 million square feet of floor space from 26 states. The database incorporates the work of 37 commissioning providers.

Commissioning maximizes the quality and persistence of energy, cost, and emissions reductions. The process ensures that building owners get what they pay for when constructing or retrofitting buildings, provides risk-management and "insurance" for policymakers and program managers enabling their initiatives to actually meet targets, and detects and corrects problems that would eventually surface as far more costly maintenance or safety issues.

This report responds to a widely held concern that end-users do not have confidence in the nature and level of energy savings that can be achieved through the commissioning process. It addresses this issue by assembling diverse case studies and previously unpublished data, and developing performance benchmarks using standardized assumptions. The results demonstrate that commissioning is arguably the single-most cost-effective strategy for reducing energy, costs, and greenhouse-gas emissions in buildings today.

Key findings:

- Median commissioning costs: \$0.30 and \$1.16 per square foot for existing buildings and new construction, respectively (and 0.4% of total construction costs for new buildings)
- Median whole-building energy savings: 16% and 13%
- Median payback times: 1.1 and 4.2 years
- Median benefit-cost ratios: 4.5 and 1.1
- Cash-on-cash returns: 91% and 23%
- Very considerable reductions in greenhouse-gas emissions were achieved, at a negative cost of -\$110 and -\$25/tonne CO₂-equivalent.
- High-tech buildings are particularly cost-effective, and saved large amounts of energy and emissions due to their energy-intensiveness.
- Projects employing a comprehensive approach to commissioning attained nearly twice the overall median level of savings, and five-times the savings of projects with a constrained approach.
- Non-energy benefits are extensive and often offset part or all of the commissioning cost. Limited multi-year post-commissioning data indicate that savings often persistent for a period of at least five years.
- Uniformly applying our median whole-building energy-savings value to the stock of U.S. non-residential buildings yields an energy-savings potential of \$30 billion by the year 2030, and annual greenhouse gas emissions reductions of about 340 megatons of CO₂ each year.
- An industry equipped to deliver these benefits would have a sales volume of \$4 billion per year and support approximately 24,000 jobs. "Commissioning America" in a decade is an ambitious goal, but achievable and consistent with this country's aspirations to simultaneously address energy and environmental issues while creating jobs and stimulating sustainable economic activity.

The report and summary presentation can be downloaded at:
<http://cx.lbl.gov/2009-assessment.html>

Best regards, and apologies for any cross-postings.

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Posted by [Michael Ivanovich](#) on July 23, 2009 | [Comments \(0\)](#)

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