

## U.S. Department of Energy - Energy Efficiency and Renewable Energy Federal Energy Management Program

### Building Life-Cycle Cost (BLCC) Programs

The National Institute of Standards and Technology (NIST) developed the Building Life-Cycle Cost (BLCC) Program to provide computational support for the analysis of capital investments in buildings. BLCC features several components, including:

- [Building Life-Cycle Cost Program](#)
- [Energy Escalation Rate Calculator](#)
- [Handbook 135](#)
- [Annual Supplement to Handbook 135](#)

### Building Life-Cycle Cost Program

[Register and download](#). BLCC 5.3-11 (for Windows, Mac OS X or Linux).

BLCC is programmed in Java with an XML file format. The user's guide is part of the BLCC Help system. BLCC version 5.3-11 contains the following six modules:

1. **FEMP Analysis; Energy Project:** For energy and water conservation and renewable energy projects under the FEMP rules based on 10 CFR 436.
2. **Federal Analysis; Financed Project:** For Federal projects financed through energy savings performance contracts (ESPCs) or utility energy services contracts (UESCs).
3. **OMB Analysis:** Projects subject to the Office of Management and Budget (OMB) Circular A-94 for non-energy, Federal Government construction projects, but not water resource projects.
4. **MILCON Analysis; Energy Project:** For energy and water conservation and renewable energy projects in military construction.
5. **MILCON Analysis; ECIP Project:** For energy and water conservation projects under the Energy Conservation Investment Program (ECIP).
6. **MILCON Analysis; Non-Energy Project:** For military construction designs that are not primarily intended for energy or water conservation.

BLCC conducts economic analyses by evaluating the relative cost effectiveness of alternative buildings and building-related systems or components. Typically, BLCC is used to evaluate alternative designs that have higher initial costs but lower operating costs over the project life than the lowest-initial-cost design. It is especially useful for evaluating the costs and benefits of energy and water conservation and renewable energy projects. The life-cycle cost (LCC) of two or more alternative designs are computed and compared to determine which has the lowest LCC and is therefore more economical in the long run. BLCC also calculates comparative economic measures for alternative designs, including net savings, savings-to-investment ratio, adjusted internal rate of return, and years to payback.

The software can evaluate Federal, state, and local government projects for both new and existing buildings. While BLCC is oriented toward building-related decisions, it can be used to evaluate alternative designs for almost any project type in which higher capital investment costs lower future operating-related costs.

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### Energy Escalation Rate Calculator

[EERC 2.0-11](#) (for Windows, Mac OS X or Linux)

The Energy Escalation Rate Calculator computes an average annual escalation

rate for a specified time period, which can be used as an escalation rate for contract payments in Energy Savings Performance Contracts (ESPC) and Utility Energy Services Contracts (UESC). Escalation rates can be computed based on the Energy Information Administration (EIA) energy price projections used for calculating the FEMP discount factors and on EIA projections adjusted by NIST for potential carbon pricing.

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### **Handbook 135**

[Handbook 135](#), the Life-Cycle Costing Manual for FEMP, explains in detail the principles of life-cycle cost analysis and integrates them with FEMP criteria.

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### **Annual Supplement to Handbook 135**

Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis 2011, [Annual Supplement to Handbook 135](#), are embedded in the above software and also available as printed tables in this publication. The factors are calculated with the latest FEMP discount factors and energy price escalation rates for U.S. Census regions, rate types, and fuel types.

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