BETTER
BUILDING EFFICIENCY TARGETING TOOL FOR ENERGY RETROFITS
U.S. DEPARTMENT OF ENERGY

2020 R&D 100 WINNER

BETTER: A Tool to Identify Cost-Saving Energy and Emissions Reductions in Buildings and Portfolios

The Building Efficiency Targeting Tool for Energy Retrofits (BETTER) delivers actionable insights to improve energy, emissions, and financial performance in buildings and portfolios without requiring site visits and complex modeling. The tool identifies immediate, cost-saving operational measures and technology upgrades to reduce energy and emissions while prioritizing facilities for more in-depth audits and analysis.

How it Works

BETTER utilizes an open-source, data-driven analytical engine and user-friendly web interface to automatically analyze a building's monthly energy usage in response to weather conditions. With minimal data inputs, the tool benchmarks a building's electric and fossil energy usage against peers; quantifies energy, cost and greenhouse gas (GHG) reduction potentials at the building and portfolio levels; and recommends energy efficiency measures to decarbonize and electrify buildings and portfolios.

Who is Using BETTER?

BETTER is used by federal, state, and municipal government agencies, including the National Aeronautics and Space Administration (NASA) – Goddard Space Flight Center and the Department of Energy and Environment in the District of Columbia; school districts; energy service companies, including Johnson Controls; multinational corporations; investors and lenders, like Citi; and non-profit organizations, such as World Resources Institute (WRI).

Visit: better.lbl.gov

Vist the open-source analytical engine:
github.com/LBNL-ETA/BETTER_analytical_engine

"The ability of the tool to go beyond benchmarking by offering energy efficiency measure recommendations is extremely valuable, particularly at times when on-site assessments are either impractical or not feasible."

Eric Noller, Principal

Energy Resources Integration LLC
San Francisco, CA

How to Use BETTER

BETTER Inputs

Data inputs are minimal:

- Building ID or name
- Location
- Gross floor area (excluding parking)
- Primary building space type (i.e., ≥ 50% of the gross floor area)
- 12 consecutive months of energy use and costs for all fuels used in the building

BETTER Output Reports

Single Building:

- Annual energy, cost, and emissions reduction potential
- Energy efficiency recommendations and implementation guidance
- Annual utility cost and savings breakdowns by load type
- Monthly electric and fossil energy use trends
- Electricity and fossil fuel change-point models and benchmarks

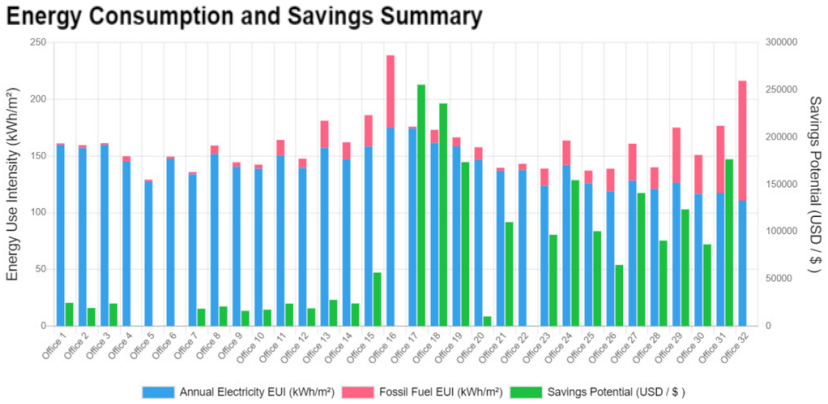
Portfolio:

- Annual energy, cost, and emissions reduction potential
- Top 5 energy efficiency recommendations
- Electricity and fossil energy use intensity (EUI) and cost savings comparisons by building
- Ability to sort, rank, and prioritize buildings for upgrades

What Do These Reports Look Like?

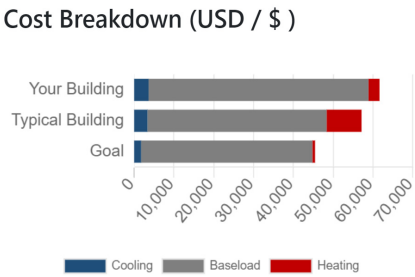
Portfolio Analysis

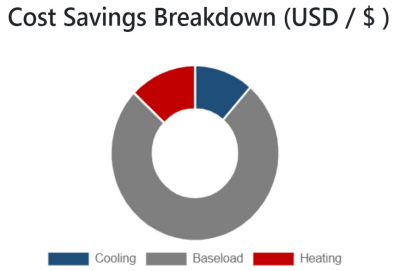
- Compare and rank buildings across a portfolio according to annual electricity and fossil EUI and annual cost savings potential.
- Buildings with high cost savings potential are good candidates for audits and further analysis.
- Buildings with high fossil EUI represent opportunities for electrification and decarbonization.



Utility Cost & Savings Breakdowns

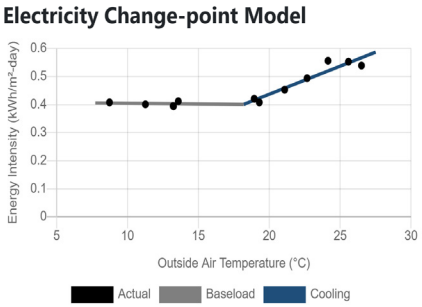
- Assess the breakdown of annual utility costs and potential savings by load type (e.g., cooling, baseload, and heating).
- Prioritize the highest cost-saving energy efficiency improvements in a building.

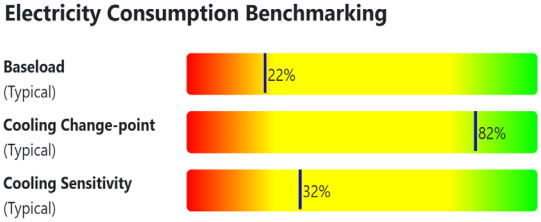




Change-Point Models & Benchmarking

- Investigate electricity and fossil fuel change-point models.
- See how model coefficients benchmark against peers to further evaluate energy savings.





Note: % indicate the percentage of buildings your building is superior to.

BETTER Complements Other Tools

BETTER can be used in combination with the U.S. Environmental Protection Agency ENERGY STAR® PortfolioManager® and the U.S. Department of Energy (DOE) Building Energy Asset Score to conduct multilayered analysis on buildings to deliver **both** superior structural performance and operational energy performance. Currently, BETTER can input data from ENERGY STAR® PortfolioManager®, and a BuildingSync® file read/write capability is being added to facilitate data and analytics transfer between BETTER and Asset Score, Audit Template, and the Standard Energy Efficiency Data (SEED) Platform™.

ENERGY STAR® PortfolioManager®

HIGH-LEVEL ANALYSIS

Rate actual operational energy performance against peers

Earn the ENERGY STAR® plaque for superior operational energy performance

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U.S. DEPARTMENT OF ENERGY

MID-LEVEL ANALYSIS

Quantify actual operational energy, cost, and emissions reduction potential

Identify efficiency measures to improve operational energy performance

Target buildings for detailed analysis of potential structural improvements using Asset Score

BUILDING ENERGY ASSET SCORE
U.S. DEPARTMENT OF ENERGY

DEEP-LEVEL ANALYSIS

Assess physical and structural energy performance using whole-building simulation

Select cost-effective physical and structural improvements for implementation

To get started, visit better.lbl.gov or contact:

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