



# How the AIM Report Works, and What You Can Do With It

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**I2SL Annual Conference - Session A1 - Oct 2025**



International Institute for  
Sustainable Laboratories

# Learning Objectives



- Describe the problems that the AIM Report was designed to solve.
- Explain how I2SL's community of experts supported the development of the AIM Report's assumptions, measures, cost estimates, and case studies.
- List some of the lab-specific energy efficiency measures contained in the AIM software tool.
- Provide a preview of the major upgrades coming to AIM in the near future.





- 8 Technical Advisory Councils
- 100 TAC members
- 3 development partners

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making  
Labs2Zero  
possible

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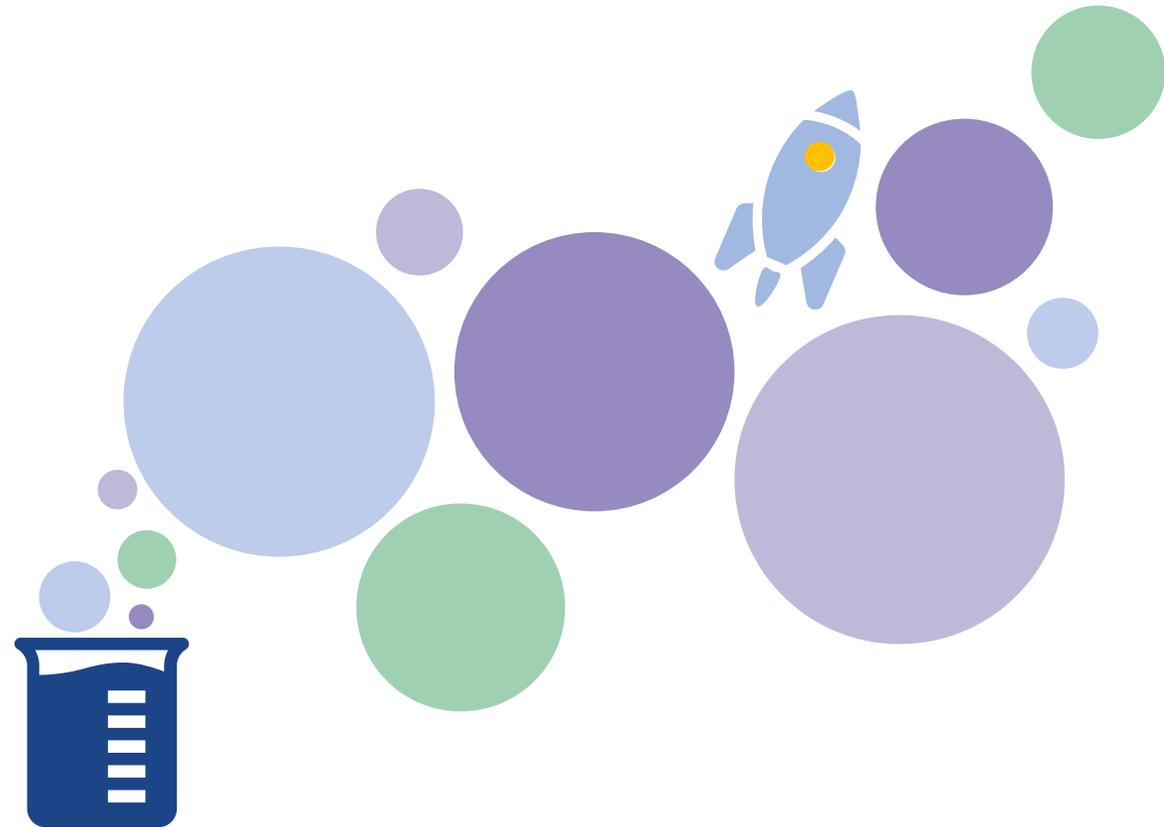
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## Silver Sponsors



- Today's **Labs2Zero Tools**
- A quick summary of the **AIM Report**
- **Getting started** with AIM
- **Upcoming** AIM releases



# Labs2Zero



# Labs2Zero: Our Biggest Program Yet

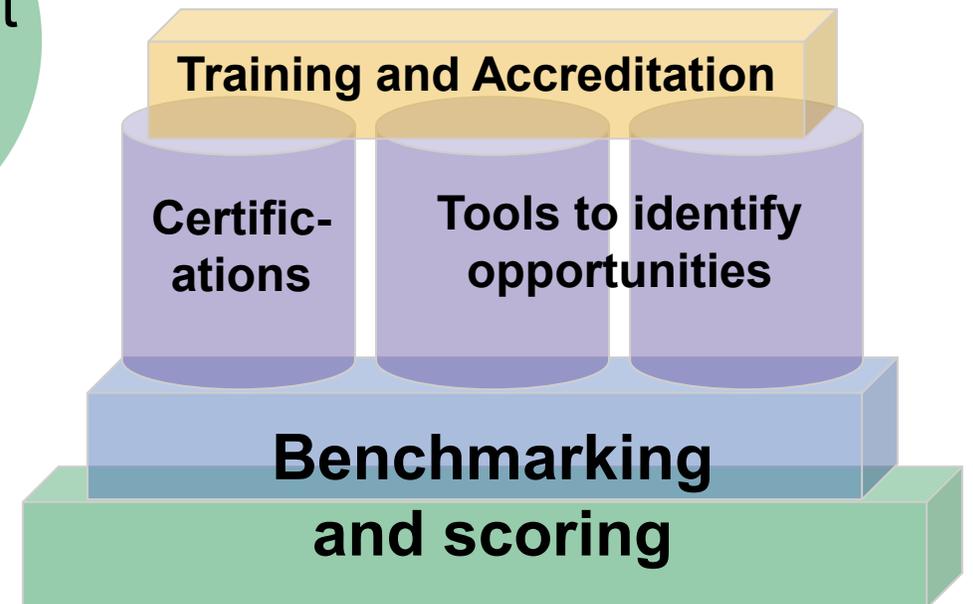


- Designed to **save energy** and reduce emissions in **lab buildings**
- Close some of the **gaps** in resources for labs
- Developed in **collaboration** with:

Volunteer  
experts

Industry  
sponsors

Development  
partners



# Today's Labs2Zero Tools



- Tools in the program **now**:
  - Lab Benchmarking Tool
  - Labs2Zero Scorecard, including Energy and Emissions Scores
  - The AIM Report – **NEW!**



**Laboratory Benchmarking Tool**

Energy and Operational Emissions Benchmarking

Scatter Plot

Select Quantities to Plot

Horizontal Axis	Vertical Axis	Units	%
Lab Area	Site EUI	kBtu/ft²	

Summary Statistics for Selected Peer Group Buildings

Lab Area: mean 43% | median 41%  
Site EUI: mean 221 kBtu/ft² | median 206 kBtu/ft²  
Number of Matching Buildings: 220/124

**Your Buildings**

Your LBT buildings are listed in the table below. Click on **Add Data Year** to add more data (design phase). To **edit** an existing data record, click on the blue button at the left of the table. For more summary info on the building and its Labs2Zero Scores, and to track its performance (Emissions Analysis, Embodied Carbon Analysis, and Operational Practices) pages to the Scorecard page for information about the Labs2Zero Scores and how you can help i2SL, click on the **AIM Report** button. To refresh on data entry, see the LBT Quick Start Guide and/or the LBT Embedded Carbon Guide.

**You have Demo AIM Access!**

Each eligible building has an orange AIM Report button. Click on any orange button to get started on that building's AIM Report.

Data Year (or Design Phase)	Labs2Zero Energy Score	Labs2Zero Operational Emissions Score	Site EUI (kBtu/ft²)	Embodied GHG (tCO2eq/m²)	AIM Report
2021	17	9	485	N/A	Go to AIM Report
2022	63	38	285	N/A	Go to AIM Report
2024	30	16	448	N/A	Go to AIM Report
2025	83	79	227	N/A	Go to AIM Report

**Super Test Facility**

2025 Improvements v1

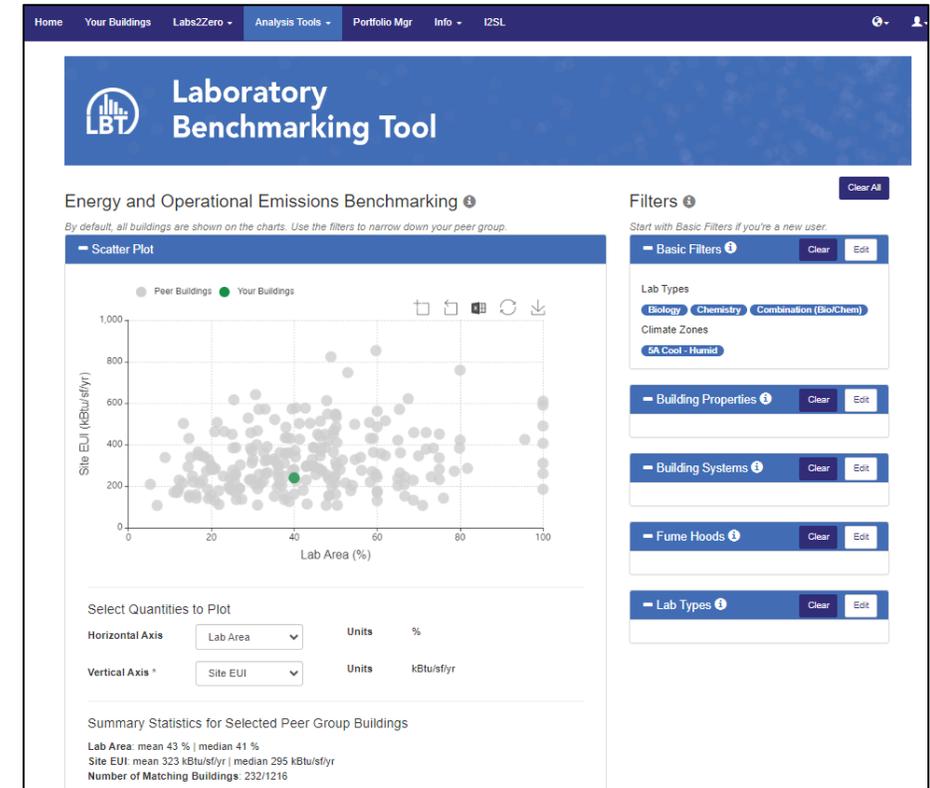
Measures Includes Package 1 (Measures Scientific)

1. **Setting Ultra Low Temperature Pressures to -70C**  
Annual Energy Savings: \$202,174 | Operational Cost: \$729,195 | Payback Period: 3.6 years | Energy Score: 68 | Site EUI: 188.3 kBtu/ft² | 2025 Target: 183.0 kBtu/ft²
2. **Unoccupied Room Airflow Setback**  
Annual Energy Savings: \$46,332 | Operational Cost: \$17,569 | Payback Period: 2.6 years | Energy Score: 67 | Site EUI: 188.3 kBtu/ft² | 2025 Target: 183.0 kBtu/ft²
3. **Optimize the Wash Program for Face Hoods**  
Annual Energy Savings: \$12,882 | Operational Cost: \$2,846 | Payback Period: 4.5 years | Energy Score: 66 | Site EUI: 188.3 kBtu/ft² | 2025 Target: 183.0 kBtu/ft²
4. **Install Air-Volume Controls for Face Hoods**  
Annual Energy Savings: \$14,314 | Operational Cost: \$8,030 | Payback Period: 1.8 years | Energy Score: 64 | Site EUI: 188.3 kBtu/ft² | 2025 Target: 183.0 kBtu/ft²

# Reminder: the LBT



- The **foundation** of Labs2Zero
- Analytics tool & **rich database** of lab building attributes and energy use
- Users enter building data and **benchmark** against others
- Now hosts **all scores and tools**



> 1,400 lab buildings

> 250 million sf

LBT is free to use

[lbt.i2sl.org](http://lbt.i2sl.org)



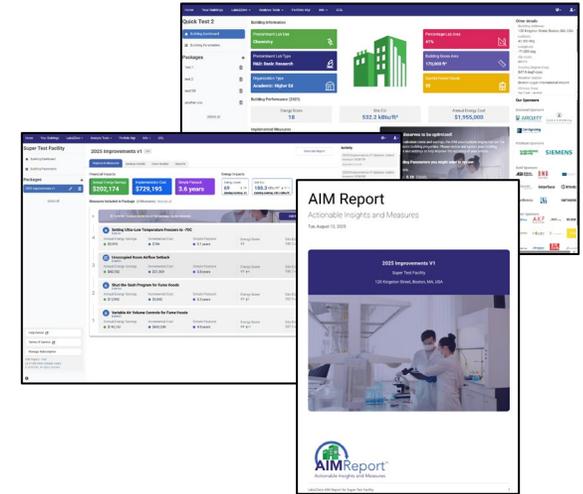
# Just Launched: The AIM Report



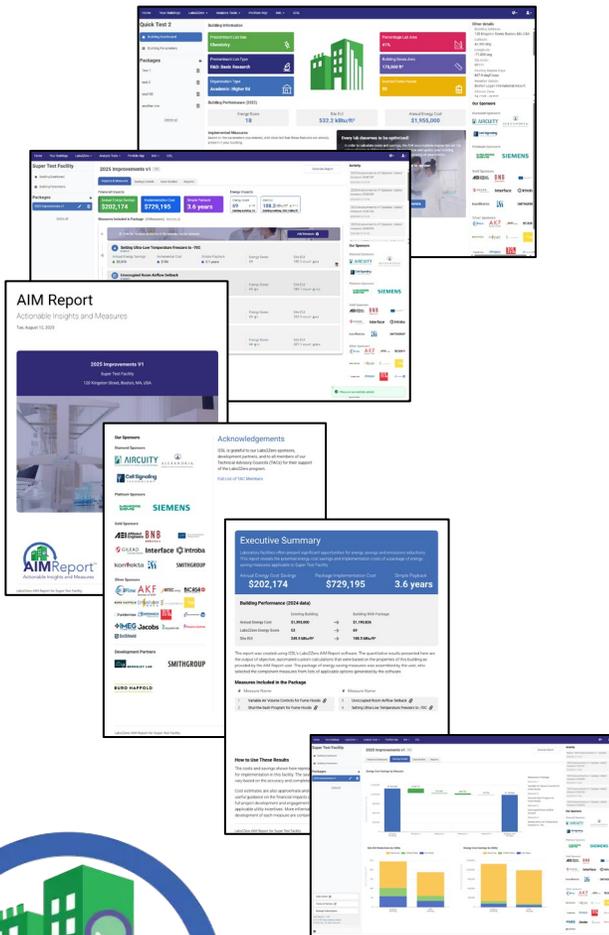
# Introducing the AIM Report



AIM is an **automated energy audit** tool for lab buildings



# Goals of the AIM Report



- Approx. ASHRAE Level 1
- Easy to Use
- Low Cost
- Quantitative
- Immediate
- Objective
- Lab-focused



# What Does the AIM Report Do?



AIM imports user's LBT building data

Building Information

- Predominant Lab Use: Combination (Bio/Chem)
- Predominant Lab Type: R&D: Basic Research
- Organization Type: Academic: Higher Ed

Building Performance (2024)

- Energy Score: 53
- Site EUI: 245.5 kWh/ft<sup>2</sup>
- Annual Energy Cost: \$1,393,000

Percentage Lab Area: 40%

Building Gross Area: 120,000 ft<sup>2</sup>

Ducted Fume Hoods: 75

Relevant case studies

**The University of Chicago's Smart Labs Program Reduces Energy Use and Improves Building Performance at the Ellen and Melvin Gordon Center for Integrative Science**

**Simon Fraser University: SIMON SCIENCE CHEMISTRY BUILDING - 7 Position to NEW FUME HOOD UPGRADE PROJECT**

**Business Case & Lifecycle Analysis for Retrofitting 50 Fume Hoods**

**Retrocommissioning at University of California San Francisco**

User builds a package of measures that is customized to their facility

2025 Improvements v1

Financial Impacts

- Annual Energy Savings: \$202,174
- Implementation Cost: \$729,195
- Simple Payback: 3.6 years

Energy Impacts

- Energy Score: 69
- Site EUI: 188.3 kWh/ft<sup>2</sup>

Measures Included in Package (4 Measures)

- Setting Ultra-Low Temperature Freezers to -70C
- Unoccupied Room Airflow Setback
- Shut-the-Sash Program for Fume Hoods
- Variable Air Volume Controls

AIM calculates savings and costs

Interactive effects, incremental savings and costs, next steps, stakeholders to involve

PDF AIM Report to share

**Executive Summary**

**Acknowledgements**

**AIM Report**

# Who Should Use AIM?



Anyone who needs to build the business case for energy projects:

## Energy Managers

Prioritize attention between opportunities

## Equipment Vendors

Highlight opportunities for customers

## Utility Companies

Identify potential projects to incentivize

## Energy Auditors and Consultants

Part of consulting offerings

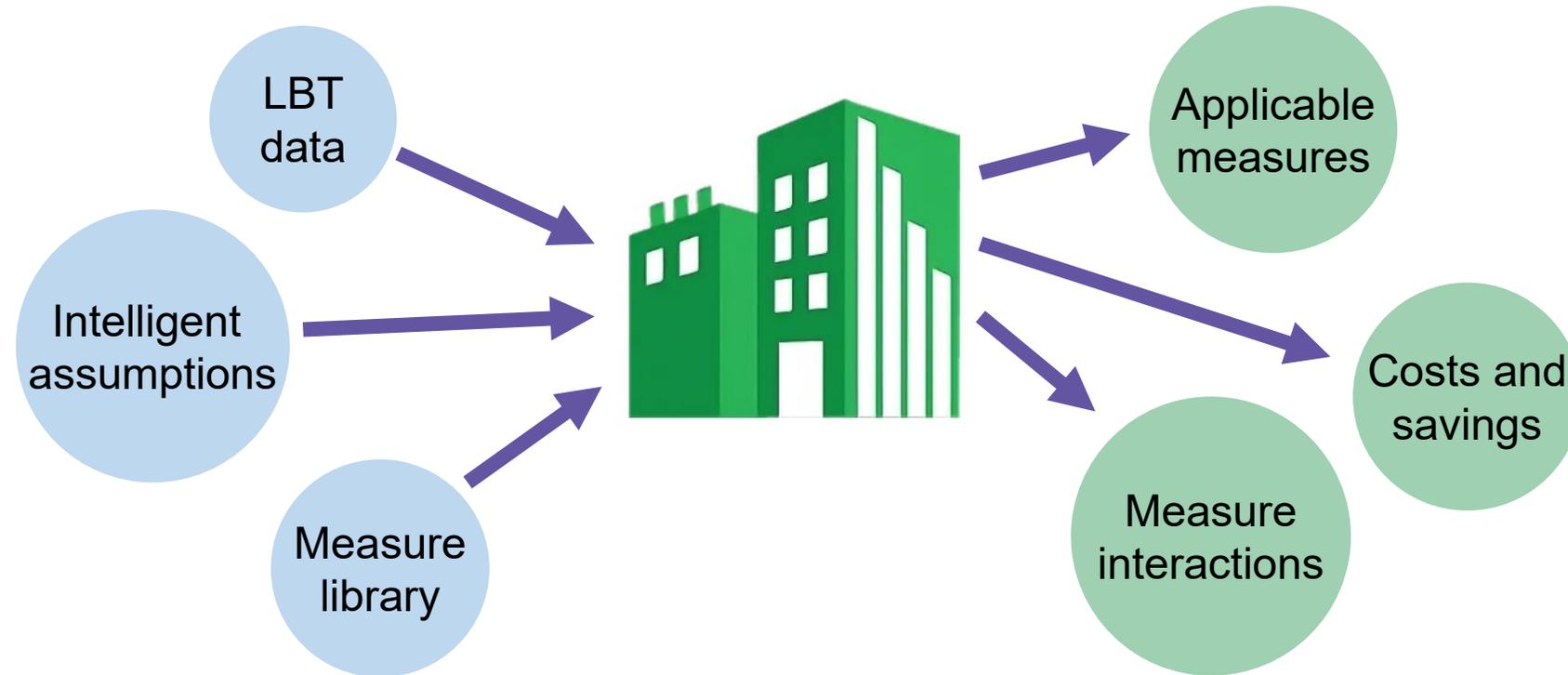
## Campus Planners

Long-range forecasts of energy or emissions

Always followed by in-depth project development

# How Does AIM Work?

- AIM builds an energy model of each building



- User builds an efficiency project by choosing measures

# What Measures Does AIM Contain?



- Many of the biggest lab measures
- Even more measures in development

## HVAC Systems

- Variable Air Volume Controls for HVAC Systems
- Exhaust Air Energy Recovery: Enthalpy Wheels
- Exhaust Air Energy Recovery: Sensible Heat Systems
- Low Pressure-Drop Filters for Air Handlers
- Frequent Filter Replacement for Air Handlers

## Building Controls

- Enhanced Exhaust Fan System Controls
- Staged Control for Constant Volume Exhaust Fans
- Supply Duct Static Pressure Setpoint Reset
- Exhaust Duct Static Pressure Setpoint Reset
- AHU Discharge Air Temperature Reset

## Occupant Engagement

- Shut-the-Sash Program for Fume Hoods
- High-Efficiency Ultra-Low Temperature Freezers
- Setting Ultra-Low Temperature Freezers to -70C
- Participating in the Freezer Challenge
- Obtaining a My Green Lab Certification

## Room Controls

- Unoccupied Room Airflow Setback
- Unoccupied Room Temperature Setback
- Demand Based Control of Ventilation Using IEQ Sensors
- Risk-Based Airflow Optimization

## Fume Hood Controls and Upgrades

- Variable Air Volume Controls for Fume Hoods
- Fume Hood Automatic Sash Closers
- Fume Hood Unattended Face Velocity Reduction
- Hibernation or Decommissioning of Unused Hoods
- Upgraded Fume Hood Performance
- Reduced Fume Hood Face Velocity
- Reduced Fume Hood Minimum Airflow

# Anatomy of a Measure Description



## Variable Air Volume Controls for Fume Hoods

ECM095

[Add Measure to Package](#)

Already in Building

### Financial information

Annual Energy Savings ● <b>\$143,161</b>	Package \$143,161	Incremental Cost ● <b>\$693,000</b>	Package \$693,000
Simple Payback ● <b>4.8 years</b>	Package 4.8 years		

### Energy Impacts

Energy Score <b>64</b> ↑ 11 Current Package: 53	Site EUI <b>207.1</b> kWh/ft <sup>2</sup> ↓ 38.4 Current Package: 245.5 kWh/ft <sup>2</sup>
-------------------------------------------------------	---------------------------------------------------------------------------------------------------

### Description

This measure involves converting fume hoods that are currently operating at constant air volume (CAV) to operate with variable air volume (VAV) control, potentially resulting in energy savings through airflow reductions.

Fume hoods that operate at CAV exhaust the same amount of air regardless of sash position. The hood exhaust airflow is typically set to achieve the face velocity setpoint at the design sash height (often 18 inches). For hoods that operate with VAV control, the exhaust airflow is reduced when the sash is lowered or closed. This reduction in exhaust airflow will result in energy savings if it leads to a reduction of overall exhaust and makeup airflows in the space, which typically occurs where hood densities are high.

Converting a CAV hood to VAV involves adding a method of tracking the sash position or the face velocity. For the first method, a sash position sensor is attached to the sash or to the sash cable. Knowing the height of the sash allows the control system to calculate the current area of the sash opening and then adjust the exhaust airflow (by sending a signal to the associated terminal unit/exhaust fan) to maintain the face velocity at setpoint. The second method involves installing a sensor through the wall of the hood to measure the speed of air flowing through the cabinet as a proxy for face velocity. The controls then adjust the exhaust airflow to maintain this measured velocity at setpoint.

The air terminal unit serving the hood may need to be retrofitted to include a fast-acting actuator to allow the system to respond to rapid sash movements. The fume hood cabinet itself will likely require modifications, because CAV hoods have bypass openings (above the sash opening) that are larger than required for VAV use. The method of bypass and the modifications required vary between hood manufacturers. In newer fume hoods, this conversion can often be easily achieved in the field.

The measure cost and savings calculations assume that the lab room airflow controls (supply and general exhaust) and the building's air handling and exhaust systems are already operating as VAV systems, including dynamic tracking of supply and exhaust airflow within each lab space. The achievable energy savings depend on both how often the hoods operate at a reduced sash position and how often the fume hoods "drive" the airflow in their parent lab spaces. Laboratory spaces with high hood density will see the greatest energy savings potential. Laboratories where the airflow is driven by cooling load or minimum ventilation requirements may not see savings from fume hood exhaust airflow reductions.

When hood sashes are lowered and the hood exhaust flow is reduced, the lab occupants may experience a reduction in noise from the HVAC system. Reduced airflow rates may also allow the building air handling and exhaust systems to operate more efficiently.

Stakeholders to engage when considering converting fume hoods to VAV control include facilities engineering teams and EH&S. Not all hoods are appropriate for VAV conversion, and the decision should be based on a risk assessment involving the relevant stakeholders. This assessment should consider the operations being performed within the hood (this typically involves engaging the researchers) and should determine the appropriate face velocity and minimum airflow setpoints for each hood. Following implementation, the researchers should be informed and trained on the new hood controls.

The savings calculations for this measure are based on reducing the effective average sash positions of the fume hoods from 100% at all times to 68% during occupied hours and 33% at other times. The default fume hood minimum and maximum airflow rates are set to 200 cfm and 900 cfm respectively. Note that the values of all of these parameters are affected by other fume hood-related measures and AIM parameter settings. The AIM parameters whose values most significantly affect the savings estimates for this measure are the Occupied and Unoccupied Lab Minimum Ventilation Rates and the total number of ducted fume hoods. The Fume Hood Density parameters, which represent the extent to which the hoods are grouped together within the building, also affect the savings of all fume hood-related measures.

The measure cost estimate includes the cost of adding a fast-acting fume hood exhaust terminal device as well as the corresponding fume hood controls and hood monitor. It also includes fume hood testing, TAB work, BAS integration as needed, commissioning, and project management. It does not include the cost of any VAV room controls, as those are assumed to be in place along with VAV building-level airflow control on the supply and exhaust systems. The number of ducted fume hoods in the building was used to scale the estimate. The costs for a particular building can easily differ from the displayed value by 40% or more. The cost of removing and installing new fume hood exhaust air terminal units can vary considerably based on the local site conditions. The VAV fume hood controls may not integrate simply with the existing lab room VAV controls and may require extra integration effort and programming, adding to the installation cost. Physical changes required of the fume hood to adapt it to VAV operation (such as changes to the bypass) are not covered in this cost estimate.



Savings and costs summary



Impact on energy score and EUI



Measure summary and origin of savings



Implementation methods and options



Factors affecting savings



Non-energy benefits



Stakeholders to engage and next steps



Savings calculation details and important parameters



Cost estimate details and factors affecting costs

# What Does a Case Study Look Like?



Case study summary describing the highlights



List of measures appearing in the case study



Up to 10 case studies per package of measures



2025 Improvements v1 Generate Report

Impacts & Measures Savings Details **Case Studies** Reports

### University of Chicago Retro-Commissioning Reduces EUI Through a Variety of Measures

Match Score **71.8**

In 2018-19, the Searle Chemistry Laboratory at the University of Chicago was retro-commissioned by Grumman Butkus Associates (GBA) as part of a campus-wide energy efficiency initiative. Built in 1968 and extensively renovated in 2009 to earn LEED Gold, the 86,500 SF facility includes chemistry labs, offices, a data center, and mechanical spaces across five floors. The baseline annual energy usage was 43,138,313 kWh, yielding a baseline EUI of 499.2 kWh/SF. This project aimed to identify and implement measures to reduce energy consumption and improve operational efficiency.

GBA developed two sets of recommendations: eight facility improvement measures to address system issues, and 16 energy conservation measures (ECMs) focused on energy efficiency. Implemented ECMs included reducing fume hood face velocity from 100 feet per minute (fpm) to 80 fpm, lowering minimum fume hood airflow per ANSI Z9.5 standards, and implementing a sash management initiative with user training and automatic closer reactivation. Other measures involved removing redundant AHU pre-filters; resetting AHU supply air temperature and nighttime space temperature; re-implementing static pressure reset; adjusting cleanroom and lobby terminal unit controls; revising mechanical room fan coil unit controls; adjusting humidifier control for AHU-3; and replacing incandescent lobby lamps.

The implemented measures resulted in a verified total of 202,500 kWh in electricity savings, 2,750 kbs in steam savings, and 73,800 ton-hours of chilled water savings. The total implemented measures resulted in 3,090 MMBtu electrical savings, 1,070 MMBtu chilled water savings, and 3,550 MMBtu steam savings. With regards to specific savings, fume hood face velocity reduction saved 44,000 kWh/year, 14,000 ton-hours of chilled water, and 400 kbs of steam, with a 2.4-year simple payback. Fume hood minimum airflow reduction saved 110,000 kWh/year, 39,000 ton-hours of chilled water, and 1,200 kbs of steam, with a 1.0-year simple payback. The total implemented energy savings compared to prior annual consumption was 11.3%, and the facility EUI was reduced to 394.7 kWh/SF. The overall simple payback for all implemented measures was 1.4 years, including potential incentives.

Detailed data analysis and trend reporting in the building automation system help monitor fume hood performance and disseminate information to occupants. Addressing specific issues such as damper/ductwork problems was crucial for the successful re-implementation of static pressure reset. Identifying and rectifying instances of simultaneous heating and cooling in various spaces also contributed to significant energy savings. Some more capital-intensive measures, such as replacing fume hood exhaust actuators, modulating fume hood exhaust fan speed, and installing fume hood zone presence sensors, were held for future consideration due to longer payback periods. The project was recognized with an Excellence in Engineering Award by the Illinois Chapter of ASHRAE and a First Place Technology Award by ASHRAE Region VI.

List of Measures Used in this Case Study:

- AHU Discharge Air Temperature Reset (ECM071)
- Unoccupied Room Temperature Setback (ECM201)
- Shut-the-Sash Program for Fume Hoods (ECM184)
- Reduced Fume Hood Minimum Airflow (ECM104)
- Reduced Fume Hood Face Velocity (ECM097)

See Less

#### The University of Chicago Searle Chemistry Laboratory Retro-Commissioning

Searle Chemistry Laboratory is an 86,500-square-foot science facility, built in 1968 and extensively renovated in 2009 to earn LEED Gold. The facility includes a large open laboratory space, a laboratory and a central mechanical room, plus a second mechanical room with the building's steam and CHW pumps, offices and program spaces on floors 1 and 2. A gas control system, fume hood, and exhaust fan and heat recovery on the roof AHU serves an 80,000 sq ft area.

Baseline annual energy usage before existing building commissioning was 43,138,313 kWh, yielding a baseline EUI of 499.2 kWh/SF.

Grumman Butkus performed existing building commissioning (EBC) on this complex facility in 2018-19 as part of a large-scale campus initiative, ensuring the campus buildings that were the highest consumers of energy. GBA identified two sets of measures: eight facility improvement measures (FIMs) to address issues with building systems, and 16 energy conservation measures (ECMs) intended to address the university's focus on energy conservation, cost management, and environmental sustainability. A few other measures were also considered but not formally recommended as ECMs.

Category	Baseline EUI (kWh/SF)	Baseline Energy (kWh)	Baseline Cost (\$)
Electricity	499.2	43,138,313	1,070,000
Chilled Water	14.0	14,000	1,400,000
Steam	4.0	400	400,000
Total	517.2	43,538,313	1,870,000

Match Score **63**

Match Score **62**

Match Score **58.3**

Match Score **57**

Match Score **56.3**

Match score (quality and similarity)



Full PDF case study



# What's in the PDF report?



Sponsor and TAC acknowledgements

Case study summaries

Lists of parameters used

Background on how AIM works and how to use the results

Individual measure summaries

Package summary

Charts

Executive summary

The collage displays several key sections from the AIM Report PDF:

- Sponsor and TAC Acknowledgements:** Lists Diamond Sponsors (AIRCITY, ALLIANCE), Platinum Sponsors (Cell Signaling, SIEMENS), Gold Sponsors (GILEAD, Interface, Introlta), Silver Sponsors (AKF, AMEC, BCS&O), and Development Partners (SMITHGROUP, HANLEY LAB, BURO HAPPOLD).
- Case Study Summary:** "Fume Hood Retrofits at Stanford University" with a Match Score of 63. It details the project's goal to improve energy efficiency and reduce emissions through digital control systems.
- Charts:** A bar chart titled "Energy Cost Savings by Measure" showing savings for various measures like "Variable Air Volume Controls for Fume Hoods" and "Unoccupied Room Airflow Setback".
- Executive Summary:** Highlights potential energy cost savings of \$202,174 and implementation costs of \$729,195, resulting in a simple payback of 3.6 years.
- Package of Measures:** Lists 2025 Improvements V1, including enhanced exhaust fan system controls, fume hood cabinet airflow control, and unoccupied room airflow setback.
- Individual Measure Summary:** Detailed breakdown for "Variable Air Volume Controls for Fume Hoods", showing annual energy savings of \$143,161, an incremental cost of \$693,000, and a simple payback of 4.8 years.
- Building Parameters:** A table listing various parameters such as Cooling System Type, HVAC System Type, and Fan Efficiency, along with their values.

# Using the AIM Report



# Getting Started with AIM



- **Quick Start guides** available for LBT and AIM [here](#)
- **Comprehensive AIM Help Center** on the website [here](#)
  - Background articles, lists of measures, etc.
  - FAQs
  - Video walkthrough coming soon

**Checking Your Assumptions**  
Some of the data fields in the Building Parameters section (marked with blue stars) have a large impact on the AIM Report's energy savings calculations. You should quickly check the values of the following parameters and update them if you have more detailed data on your building:

- Utility rates
- Fume hood control type
- HVAC system type
- Occupied minimum air change rate
- Unoccupied minimum air change rate
- Exhaust fan control strategy
- Exhaust air energy recovery
- Percentage of fume hoods in high hood density zones
- Percentage of labs with high fume hood density
- Number of ULT freezers

**Building a Package of Measures**  
Next, you should build a package of measures by clicking the "Create Package" button on the left of the dashboard, give the package a name, and then click "Add Measure" to see the list of available energy conservation measures for your building. Click on a measure tile to view its description and detailed savings and cost estimates. To add a measure to your package, click on the "Add Measure to Package" button in the upper right of this view. Click the "Add Measure" button again to keep building your package.

The AIM Report software lets you see how various combinations of measures affect potential costs and savings. Use the tabs at the top of the package view to toggle between the selected measures, savings charts, and case studies relating to the measures. To save the details of a package in a PDF report, click "Generate Report" and then "Export PDF". You will be prompted to print; select "Print to PDF" in the Destination dropdown menu. Reports are also saved within AIM for your future reference.

**Getting the Most out of Your AIM Report Subscription**  
The AIM Report software is designed to be iterative: you can return to the Building Parameters view to refine the building data, create many different packages for the same building, and try a wide variety of measure combinations to explore options for improving the performance of your building. You can generate a report for each different package of measures you create.

**Questions or Feedback?**  
For questions about the AIM Report software, access the [Help Center](#) via the link at the bottom left of any AIM page. For questions about entering data in the LBT, see the [Frequently Asked Questions \(FAQs\)](#) under "Info" in the top menu bar. For any other feedback or questions on the LBT or the AIM Report, email [Labs2Zero@i2sl.com](mailto:Labs2Zero@i2sl.com).

## AIM Reference Information

This section contains background information on AIM and the overall Labs2Zero program, including details on the measures, calculations, use cases, and future plans for AIM.

- Technical Information on the AIM Calculations**  
This article provides some background information and details on the calculations underlying the AIM Report.
- The AIM Report**  
A list of all measures included in the current version of the AIM Report.
- AIM Report Development**  
A short description of how the AIM Report was developed.
- Future AIM Plans**  
A short list of future plans for the AIM Report.

## Frequently Asked Questions about the AIM Report

Updated 2 days ago by Labs2Zero

These FAQs cover AIM-related topics. For additional information on LBT data entry and/or benchmarking, please refer to the [LBT FAQs](#). For questions on AIM subscriptions and billing, please refer to the [AIM Subscription FAQs](#).

We are happy to help you optimize your use of the AIM Report. Please first review these FAQs before contacting us with your remaining questions.

### Getting Started

▼ What should I do first when I go to AIM?  
The first thing we recommend doing is reviewing the [Building Parameters](#). Some of the

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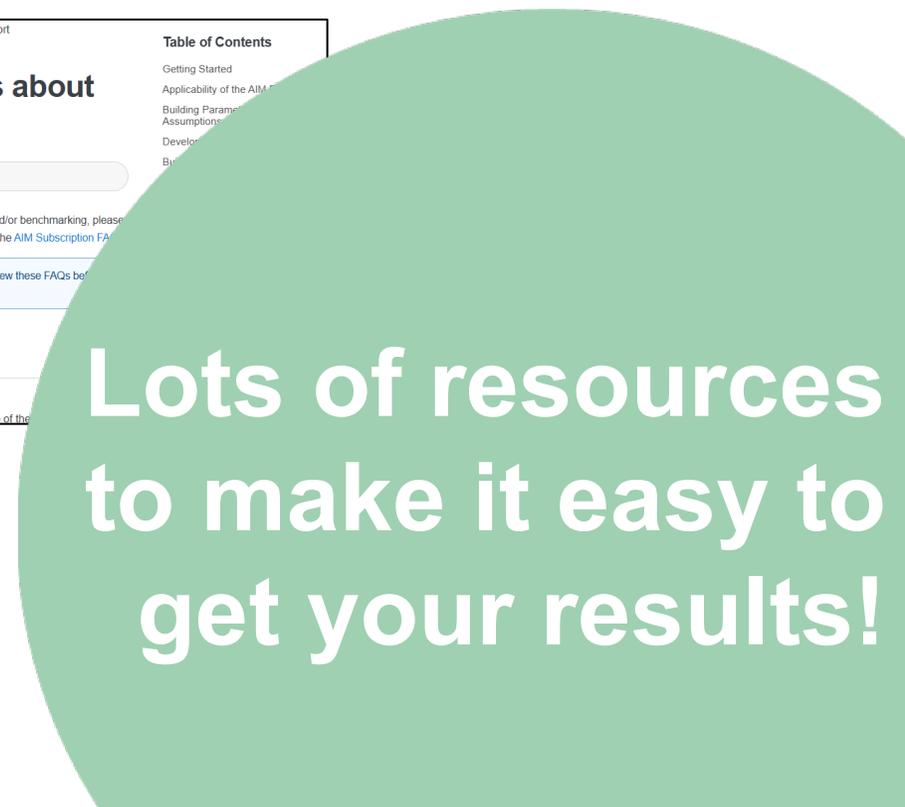
## Technical Information on the AIM Calculations

Updated 1 month ago by Labs2Zero

This article contains some basic technical reference information on the calculations performed by the AIM Report software. Some additional information is included in the [AIM Report FAQs](#).

### The Savings Calculator

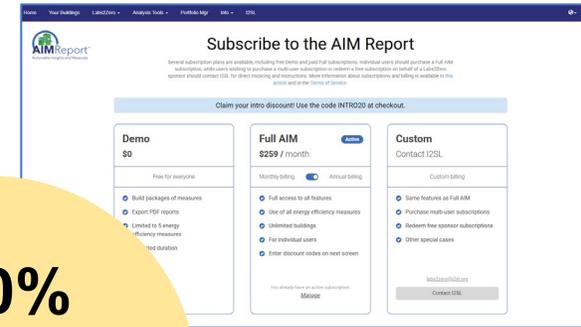
To perform its energy savings calculations, the AIM Report uses its own web-based calculator that was designed specifically to be used for lab buildings. The tool focuses on the factors driving airflow rates in a building's lab spaces, including ventilation requirements, fume hoods, and equipment loads, and performs whole-building energy use calculations for a wide range of building design and operational parameters. The calculator is equipped with an extensive library of typical weather data for



# How to Access the AIM Report



- AIM is hosted by **LBT**
  - Go to [lbt.i2sl.org/aim-report](http://lbt.i2sl.org/aim-report)
- **Subscription plans:**
  - **Free demo** version with limited measures
  - Paid monthly and annual plans
- All plans can provide **AIM Reports** for all of a user's buildings
  - **Lower cost** than a single on-site audit



**+20%  
intro  
discount**  
Until Nov 30

	Cost per month
Monthly plan	\$775
Annual plan	\$259

Prices per month for 1 user, before discounts

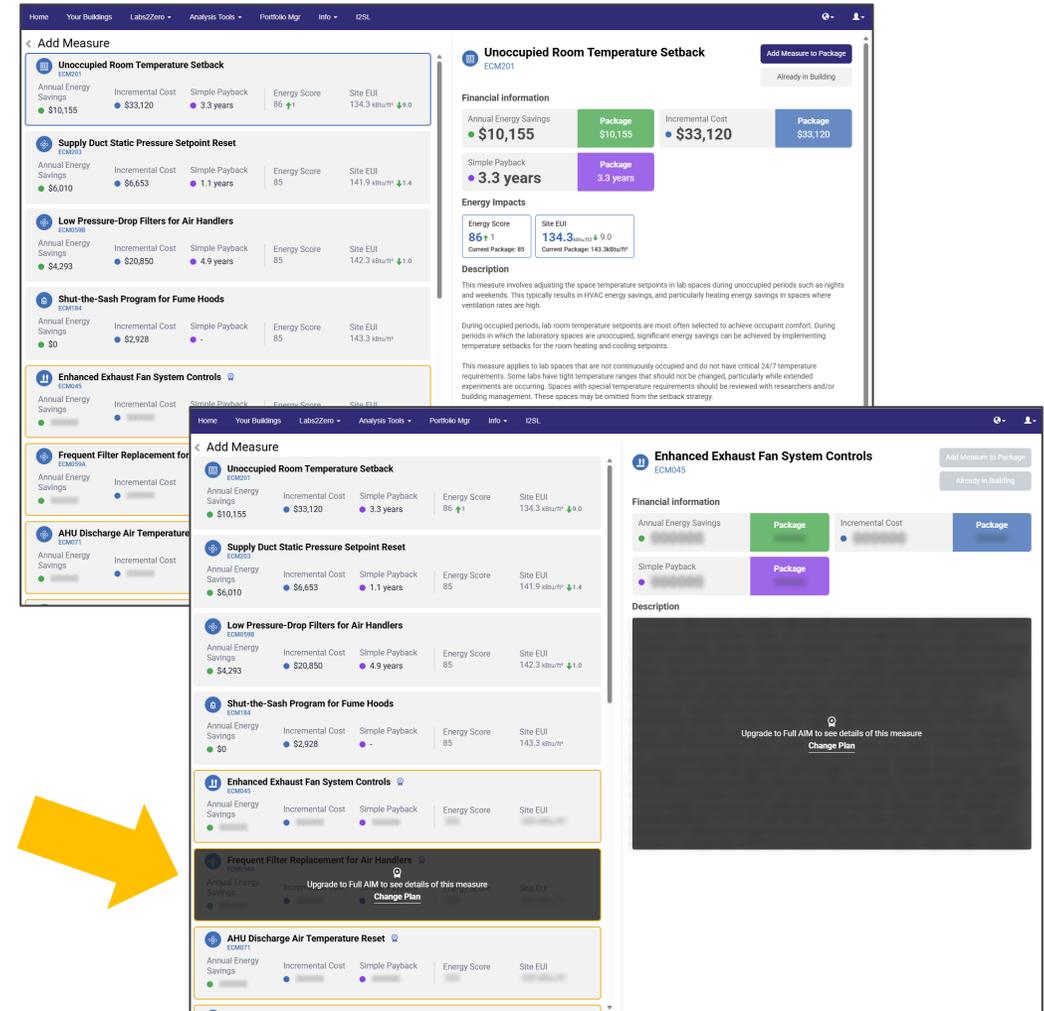
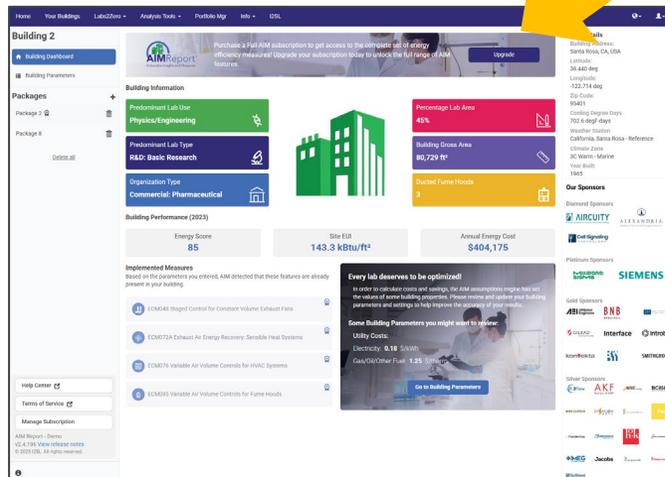
Discounts for members, sponsors, and multi-user plans

Free subscriptions for sponsors

# The Free Demo



- Features same as Full AIM
  - Parameters, packages, case studies, reports
- Restricted set of measures
  - 5 available for packages



## The Workshop

- 3-hour hands-on training on LBT and AIM
- Attendees receive extra discount on AIM
- Virtual or in-person available
- Upcoming workshops:
  - Dallas (Oct 19), Denver (Nov 5), Quebec City (Nov 17)

**Contact us to schedule a workshop or presentation**

### Labs2Zero Workshop: How to Use the I2SL Laboratory Benchmarking Tool and AIM Report

Gain hands-on experience using the two key tools from I2SL's Labs2Zero program, the Laboratory Benchmarking Tool (LBT) and the new Actionable Insights and Measures (AIM) Report, which helps LBT users identify measures to reduce their buildings' energy use and improve their Labs2Zero Energy Score.

The AIM Report software identifies and calculates projected savings for applicable measures to reduce a lab facility's energy use, based on proven energy efficiency technologies and practices.



The workshop will include insights into the calculations embedded in the tools, how to use them effectively, and how to apply their results. Attendees work through live examples and will leave with confidence in using the LBT to benchmark lab buildings and the AIM Report to identify potential projects to improve the buildings' energy performance. **Participation is eligible for a 30% discount on the AIM Report subscription.**

**Date:**  
**Time:**  
**Location:**  
**Register:**

All participants create an account (see <https://bit.ly/2sl-aim>)



#### Why Use the AIM Report?

- **Accessibility to anyone**—users don't have to have extensive building expertise, and the data needed is not complicated.
- **Quick results**—no need to build energy models or conduct walk-throughs; the software identifies proven lab energy-saving measures.
- **Unbiased analysis**—the software makes assumptions based on experts' knowledge and allows users to refine inputs for more accurate results.
- **A low-cost approach**—subscribers can evaluate a whole portfolio of buildings for a fraction of the cost of just one audit energy assessment.



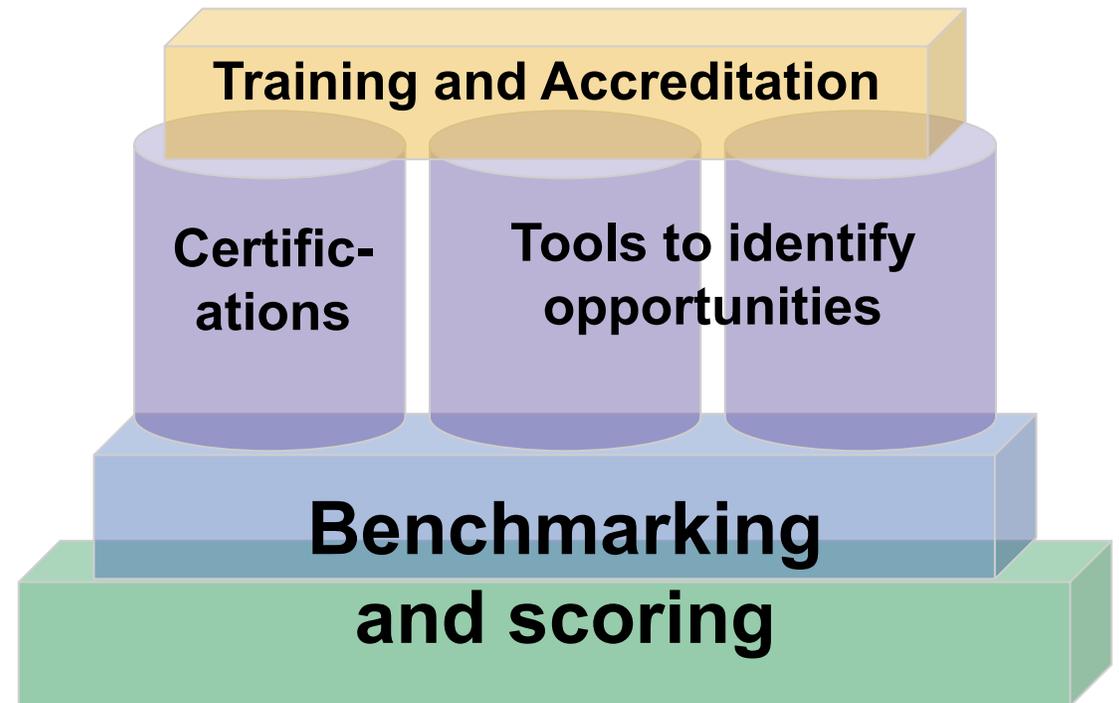
# What's Next?



# What's Next for Labs2Zero?



- Updated Energy and Emissions **Scores**
- **Development** of other scores
- **Certification** and **training**
- **AIM upgrades**
- Tie-in with **Fume Hood Challenge**



# Upcoming AIM Releases



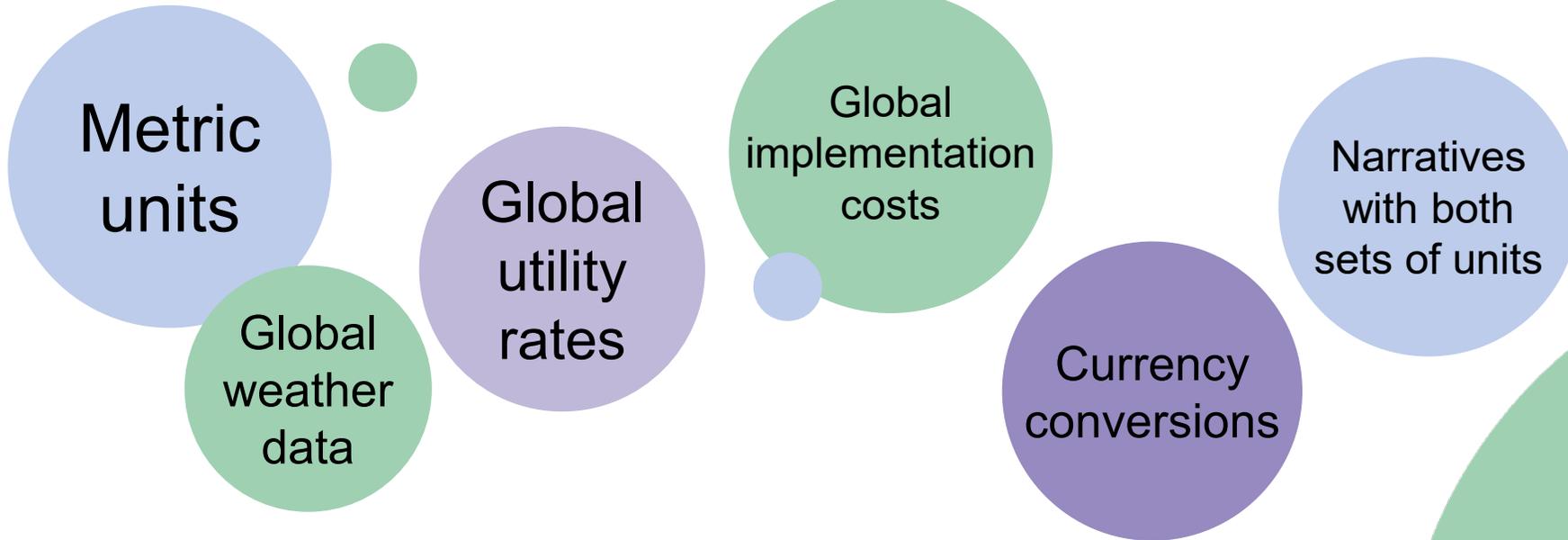
- **New features** are coming soon!
  - Internationalization
  - New calculation features
  - Additional measures



# The Internationalization Project



## Features in the upcoming release (late 2025):



## Features for possible later releases:

- Localized databases
- Translations
- Local resellers

Bringing AIM to  
lab buildings  
across the globe

# New Measures and Calculations



Widened Lab Space Temperature Deadbands

Local Zone Cooling for High-Load Spaces

Ventilated Cages for Vivarium Holding Rooms

Adding Air Bypass to Exhaust Energy Recovery System

High-Performance Run-Around Exhaust Air Energy Recovery System

CAV to VAV HVAC System Conversion, Including Manifolding Fume Hood Exhaust

Premium Efficiency Motors for AHU and Exhaust Fans

Zone-Level Controls Upgrade

Monitoring-Based Commissioning System

Recommissioning of HVAC Controls

Recommissioning of Fume Hoods

Optimization of Exhaust Air Energy Recovery System Controls

- **New features:**
  - More types of lab space
  - Envelope effects
  - More settings for AHU properties
- **12 new measures:**
  - More zone controls
  - More HVAC system upgrades
  - Recommissioning

**In  
development  
now**

# Collecting Case Studies



- Continuing to build out the **case study library**

- Existing measures, new measures, global examples
- **We need:** project and building summary info, measures included, key outcomes

- **Contact us** if you have case studies you'd like the AIM Report to highlight!

More info receives higher rating

**2025 Improvements v1** Generate Report

Impacts & Measures Savings Details **Case Studies** Reports

**University of Chicago Retro-Commissioning Reduces EUI Through a Variety of Measures** Match Score

**71.8**

On 10/18/19, the Searle Chemistry Laboratory at the University of Chicago was retro-commissioned by Grumman Butkus Associates (GBA) as part of the University's comprehensive energy efficiency initiative. Built in 1968 and extensively renovated in 2009 to earn LEED Gold, the 86,500 SF facility includes offices, a data center, and mechanical spaces across five floors. The baseline annual energy usage was 43,138,313 kWh, yielding a baseline EUI of 49.2 kWh/SF. This project aimed to identify and implement measures to reduce energy consumption and improve operational performance. Recommendations included: eight facility improvement measures to address system issues, and 16 energy conservation measures to improve energy efficiency. Implemented ECMs included reducing fume hood face velocity from 100 feet per minute (fpm) to 80 fpm, reducing fume hood minimum airflow per ANSI Z9.5 standards, and implementing a sash management initiative with user training and signage. Other measures involved removing redundant AHU pre-filters; resetting AHU supply air temperature and nighttime economizing static pressure reset; adjusting cleanroom and lobby terminal unit controls; revising mechanical room fan coil controls; and replacing incandescent lobby lamps.

These measures resulted in a verified total of 202,500 kWh in electricity savings, 2,750 kbs in steam savings, and 73,800 ton-hours of chilled water savings. Total implemented measures resulted in 3,090 MMBtu electrical savings, 1,070 MMBtu chilled water savings, and 3,550 MMBtu gas savings. With regards to specific savings, fume hood face velocity reduction saved 44,000 kWh/year, 14,000 ton-hours of chilled water, and 2,400 kbs of steam, with a 2.4-year simple payback. Fume hood minimum airflow reduction saved 110,000 kWh/year, 39,000 ton-hours of chilled water, and 2,400 kbs of steam, with a 1.0-year simple payback. The total implemented energy savings compared to prior annual consumption resulted in a 14% reduction in facility EUI to 39.47 kWh/SF. The overall simple payback for all implemented measures was 1.4 years, including the cost of the retro-commissioning project.

Advanced data analysis and trend reporting in the building automation system help monitor fume hood performance and disseminate information to occupants. Addressing specific issues such as damper/ductwork problems was crucial for the successful re-implementation of static pressure reset. Identifying and rectifying instances of simultaneous heating and cooling in various spaces also contributed to significant energy savings. Some more capital-intensive measures, such as replacing fume hood exhaust actuators, modulating fume hood exhaust fan speed, and installing fume hood zone presence sensors, were held for future consideration due to longer payback periods. The project was recognized with an Excellence Award from ASHRAE and a First Place Technology Award by ASHRAE Region VI.

**Case Study Submission Information**

AIM Report case studies will describe a particular technology, series of upgrades, or full project that was designed to reduce energy and emissions (both operational and embodied) in a laboratory building. Each case study should include the following if possible (the more information provided the higher the rating score):

- The lab owner (prefer name but can be anonymized/genericized)
- Building name (and project specific name as relevant)
- Primary lab building type (Chemistry, Physics/Engineering, Biology, BioChem, Vivarium, Etc.)
- Project location
- Gross square footage of the building (or estimate of the project scale)
- A few sentences or more describing the lab building project and any interesting features or characteristics
- A brief description of each of the energy efficiency measures that were implemented that is one of the original 25 measures or one of the new 12 additional measures (at least one or more sentences on each included measure)
- Outcomes including quantitative savings results (note whether savings are actual results, estimated, modeled, etc.)
- Any information on installed costs for a measure or a basket of measures or the ROI associated with one or a basket of measures

Case studies can also include the following items, that add value and more points to the rating score:

- Any unique characteristics of the lab that might affect results
- Any lessons learned from the project
- Project, technology, product, or measure benefits if they are not overly promotional.

A summary narrative is also needed, but if a pdf is provided i2SL can generate this ourselves or we can generate it from the information provided above if that information is fairly complete. If you can generate the narrative yourself, this is the information and format for what should be a 200 to 500 word narrative summary of the case study in about 3 or 4 paragraphs as noted & structured below:

- The information to include in the first paragraph, if it is available is the following:
  - Lab Owner Name & Lab Building Name
  - Any mentioned Architect, Engineer, consultant, contractor, or manufacturer
  - Primary lab building types such as Chemistry, Biology, Physics, Engineering, Life Sciences, Vivarium, or other types of sciences
  - Project location & approximate year building was built
  - Gross building area & Net Laboratory area
  - Number of fume hoods
- Also include in the first paragraph a one or two sentence overview of the case study
- A second paragraph can provide a brief project description and listing of the energy efficiency and emissions reduction measures that were described as implemented in the case study article
- A third paragraph can provide any cost and/or energy savings or EUI (Energy Use Intensity) improvements as well as any cost information provided on the implementation costs for the energy efficiency or emissions reductions measures. Also include any payback or Return on Investment (ROI) information.
- A fourth optional paragraph can provide any information included in the case study article about any lessons learned about the energy efficiency and emissions reductions measures or challenges or issues encountered in implementing the energy efficiency and emissions reductions measures. This might include any unique characteristics of the lab that might have affected the results.



# Questions?

[lbt.i2sl.org/aim-report](http://lbt.i2sl.org/aim-report)

