



 my green lab. |  Impact laboratories.

# Innovations in the Freezer Challenge and My Green Lab Certification

Accelerating Lab Sustainability

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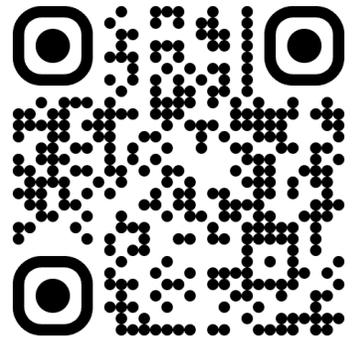
## *My Green Lab's Mission*

My Green Lab's mission is to **build a global culture of sustainability** in science to transform the research community into a global leader on environmental sustainability. Through education, community engagement and market leading certification tools, we are inspiring the scientific community to integrate sustainability into everything they do.

## *Impact Laboratories' Role*

Third-party verifier of the world's most trusted green lab **certification**. Third-party certification aligns with international best practice and ensures the integrity and rigor of our program as it scales globally.

*Learn more here:*



# Today's Learning Objectives

## Assess

energy, water, and waste savings from the Freezer Challenge and My Green Lab Certification.

## Examine

how verification and data systems support credible reporting

## Review

methods for estimating carbon and cost impacts in labs.

## Explore

how lab sustainability data informs institutional climate and ESG goals.

# Did You Know?

Laboratories are some of the most resource intensive buildings of any kind.

10x

More energy than  
office spaces

4x

More water than  
office spaces

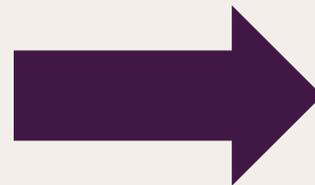
5.5mil

Metric tons of plastic  
waste each year

The Biotech and Pharma industry has a massive and growing carbon footprint.

397 mil

Metric Tons CO<sub>2</sub>e  
Annually

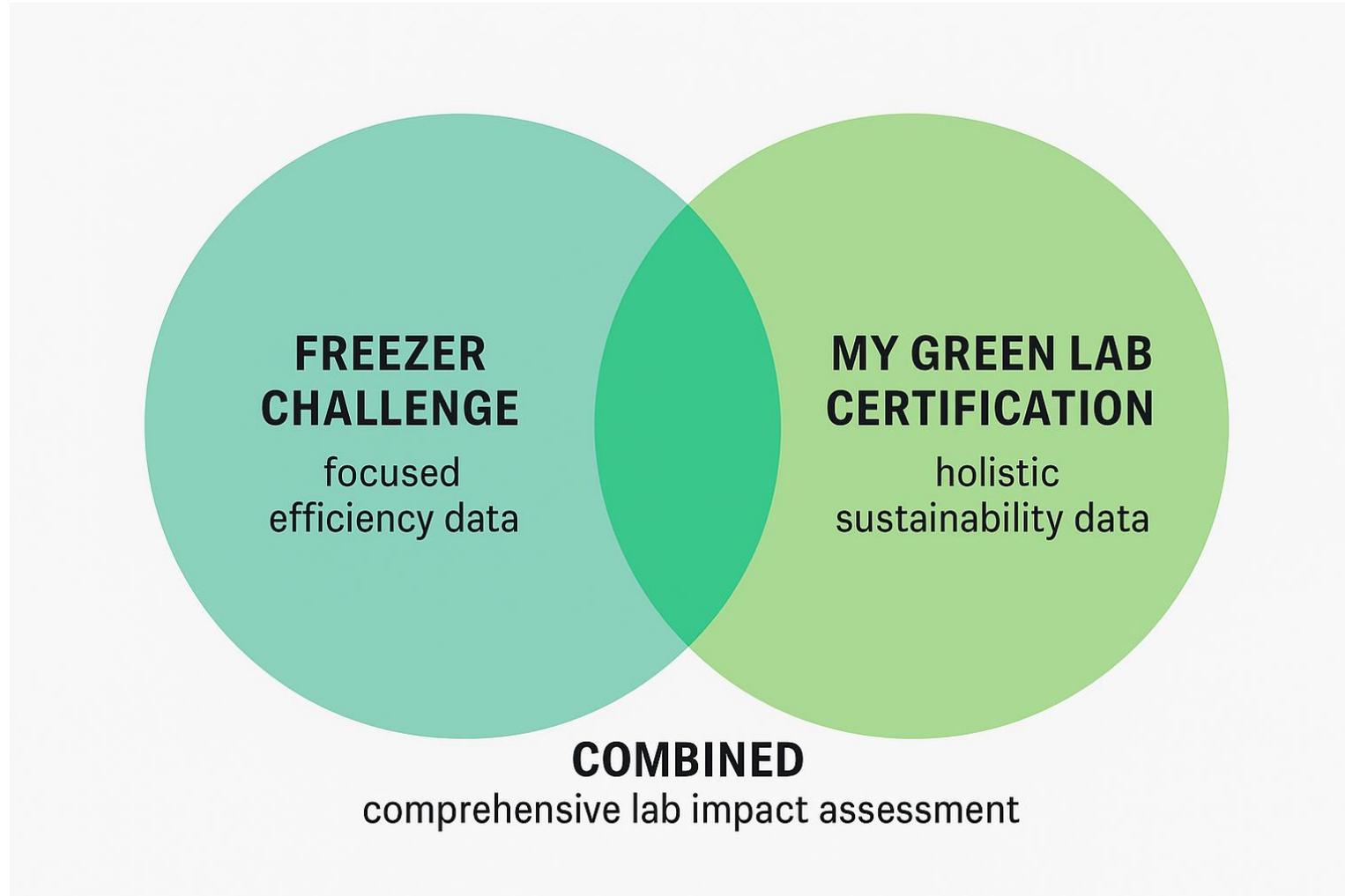


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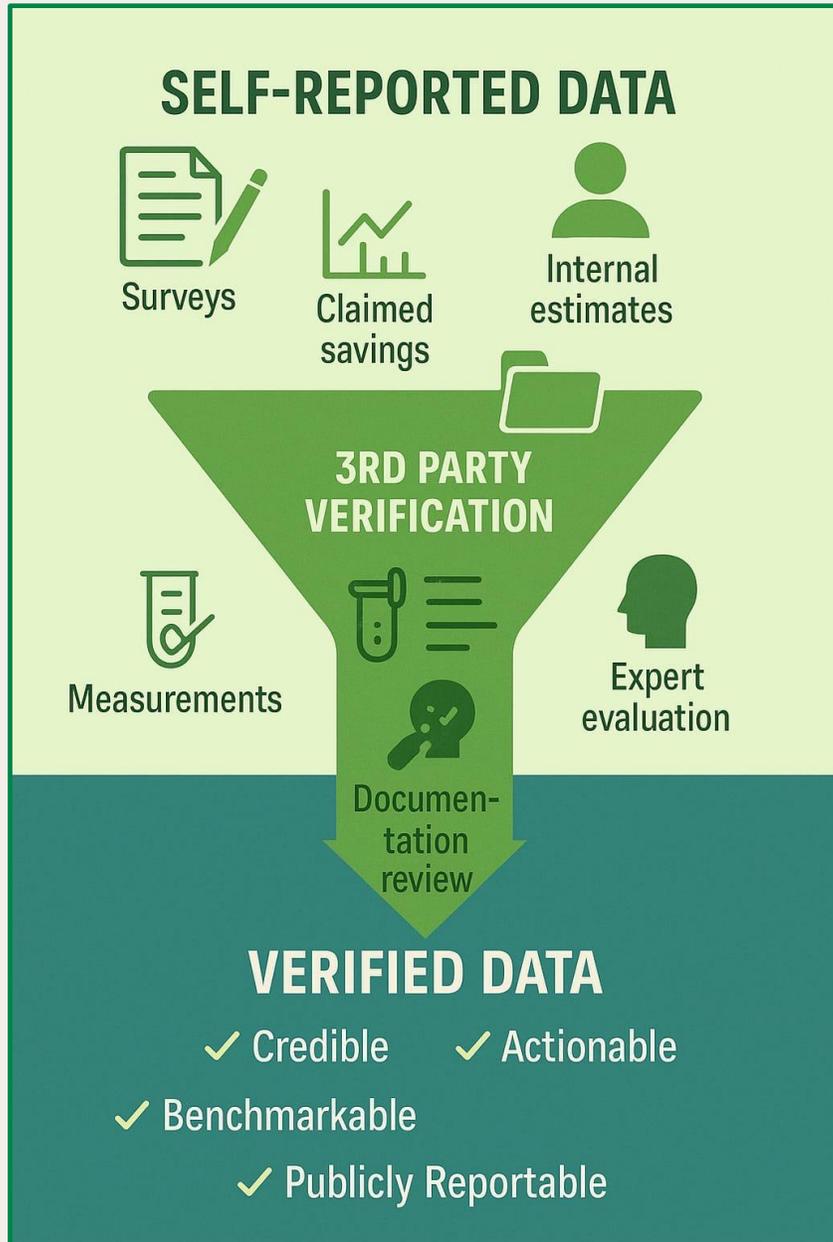
1,059

Natural Gas-Fired  
Power Plants

# Cross-Program Synergy



# The Role of Verification



The Freezer Challenge

My Green Lab Certification

# The International Laboratory Freezer Challenge



## About The Challenge

Every Year: January 1 – July 1



An annual competition organized by My Green Lab and the International Institute for Sustainable Laboratories (I2SL) that aims to promote best practices in cold storage management within laboratories across the globe.



Register your lab online



Implement cold storage best practices



Submit scoresheet by July 1



Receive estimated energy savings



Top labs receive recognition





# Freezer Challenge

**Implement sustainable and energy-efficient best practices regarding:**

Preventative  
Maintenance



Materials  
Management



Temperature  
Tuning



Retirements &  
Upgrades



Cutting-Edge  
Actions



**Labs work at their own pace and choose which actions they want to do..**

# The New Cloud-Based Data Platform

### Scoresheet

Download Certificate

OVERALL PROGRESS

Challenge Score <b>21.13</b>	Energy Savings (est) <b>62.65 kWh/day</b>	Completion <b>100%</b>
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- Lab Information Completion: 100%
- Preventative Maintenance Score: 8 | Completion: 100%
- Materials Management Score: 11 | Completion: 100%
- Temperature Tuning Score: 0 | Completion: 100%
- Retirements & Upgrades Score: 0 | Completion: 100%
- Cutting-Edge Practices Score: 2 | Completion: 100%
- Finalize Scoresheet Score: 0 | Completion: 100%

- Centralized reporting + real-time metrics
- Longitudinal tracking of energy performance
- Anonymous peer benchmarking
- Improved quantification of avoided energy use
- Institution-level summaries
- Benchmarking across disciplines

### Lab Scoresheet Leaderboard

### Organization Leaderboard

Competing Organizations <b>287</b>	Participating Countries <b>29</b>	Competing Labs <b>3,822</b>	Total Energy Savings (est) <b>86,200.35 kWh/day</b>
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If your Organization is categorized under an industry heading that doesn't make sense to you, please let My Green Lab know ASAP. The Organization Leaderboard reflects the Industry/Sector your whole Organization is competing in for the Freezer Challenge. We have done our best to categorize your Organization into a single Industry/Sector for the Organization-Level competition and awards. If you need your Industry/Sector updated, write freezerchallenge@mygreenlab.org ASAP and explain what Industry your Organization should be moved to.

#### Industry Leaders

Academic	96 Total Organizations	HIGHEST CHALLENGE SCORE Across all industries and lab sizes <b>1,138</b>
Biotech/Pharma	78 Total Organizations	MOST ENERGY SAVED Across all industries and lab sizes <b>18,138 kWh/day saved</b>
Government	21 Total Organizations	
Hospital/Clinical/Other	44 Total Organizations	

#### Organization Challenge Scores by Industry

Organization Challenge Scores by Industry

Industry	Your Organization Score	Other Organizations Range
Academic	~750	~100 - 500
Biotech/Pharma	~1,100	~100 - 1,000
Government	~150	~50 - 200
Hospital/Clinical/Other	~700	~100 - 200

# Center for Energy Efficient Laboratories (CEEL)

TABLE 9: ULT FREEZER ENERGY CONSUMPTION AT DIFFERENT TEMPERATURE SET POINTS

ULT FREEZER	ENERGY CONSUMPTION AT -80°C SET POINT (kWh/Day)	ENERGY CONSUMPTION AT -70°C SET POINT (kWh/Day)	% DIFFERENCE
A	12.64	8.68	46%
B	14.89	11.78	26%
C	22.52	15.11	49%
D	20.46	14.04	46%
E	26.71	19.85	35%
F	9.68	7.89	23%
G	12.12	8.05	50%
H	10.44	7.06	48%
I	8.72	6.96	25%
J	19.96	13.76	45%
K	14.66	11.06	33%
L	18.89	14.44	31%
M	14.84	11.72	27%
N	20.43	14.99	36%
O	17.72	12.64	40%
		<b>Average</b>	<b>37%</b>

## ULT FREEZER SIZE AND TOTAL ENERGY CONSUMPTION

ULT freezers tested ranged between 16 and 29 cubic feet in internal volume. Energy usage was found to be proportional to size only within the same model series. Larger freezers within the same model series used less energy per unit volume than smaller units; however, some larger energy-efficient freezers used less total energy than smaller less-efficient freezers.

# How do we calculate energy savings?

- CEEL measured real-world energy use of ULT freezers across temperature setpoints
- Provides baseline: **energy (kWh/day) vs. temperature (-80°C, -70°C, -60°C)**
- Freezer Challenge applies CEEL data to quantify savings from:
  - Raising setpoints
  - Decommissioning units
  - Improving maintenance and inventory practices
- Enables standardized, evidence-based energy estimates for all participants

# Freezer Challenge Impact - 2025

2025 was yet another record-breaking year of impact for the International Laboratory Freezer Challenge



Countries Engaged

36

(up from 35 for 2024 ILFC)



Organizations Involved

286

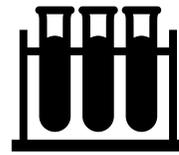
(up from 239 for 2024 ILFC)



Site Coordinators

314

(up from 167 for 2024 ILFC)



Labs Involved

3,724

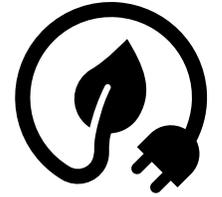
(up from 99 for 2023 ILFC)



Cold Storage Units Tracked

\*37,000+

(up from 35k+ for 2023 ILFC)



Estimated kWh Saved

32M

(even from 32M for 2024 ILFC)

With 32M kWh of electricity avoided, we estimate that the 2025 International Laboratory Freezer Challenge avoided over 21,000 metric tons of carbon dioxide equivalent, or roughly 5,000 gasoline-powered vehicles driven for one year.



## SIZING UP IMPACT

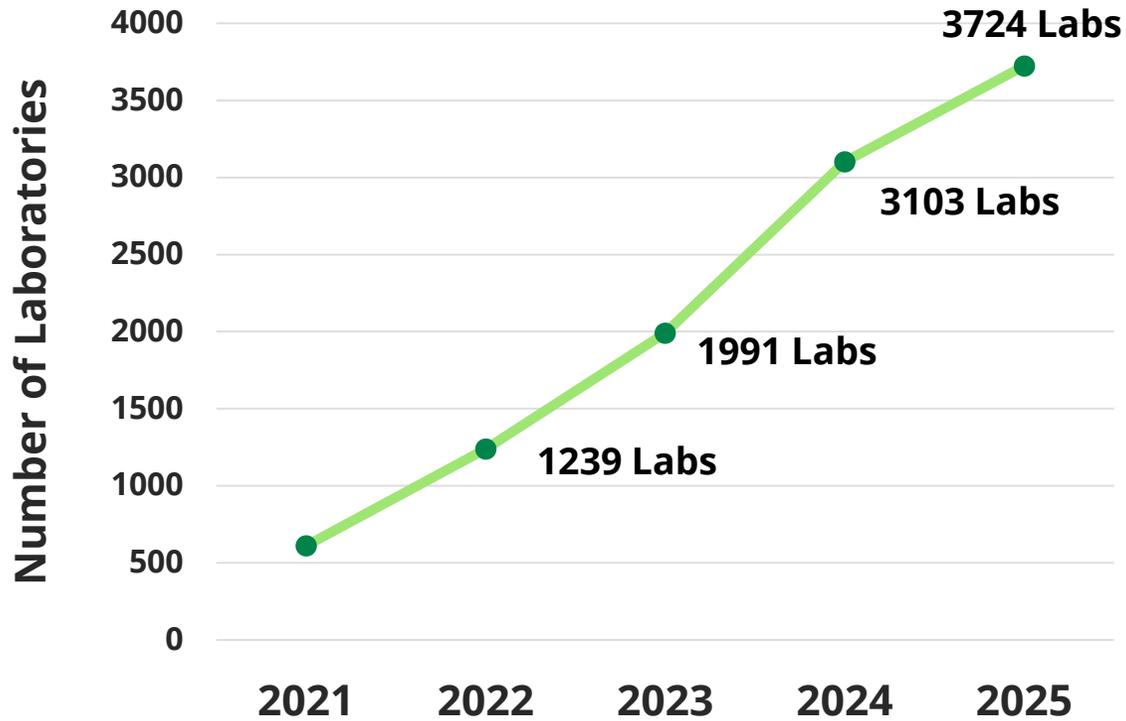
By our estimation, there are around 800,000 cold storage units in the United States, alone. The global count is surely much larger.

# Freezer Challenge Growth

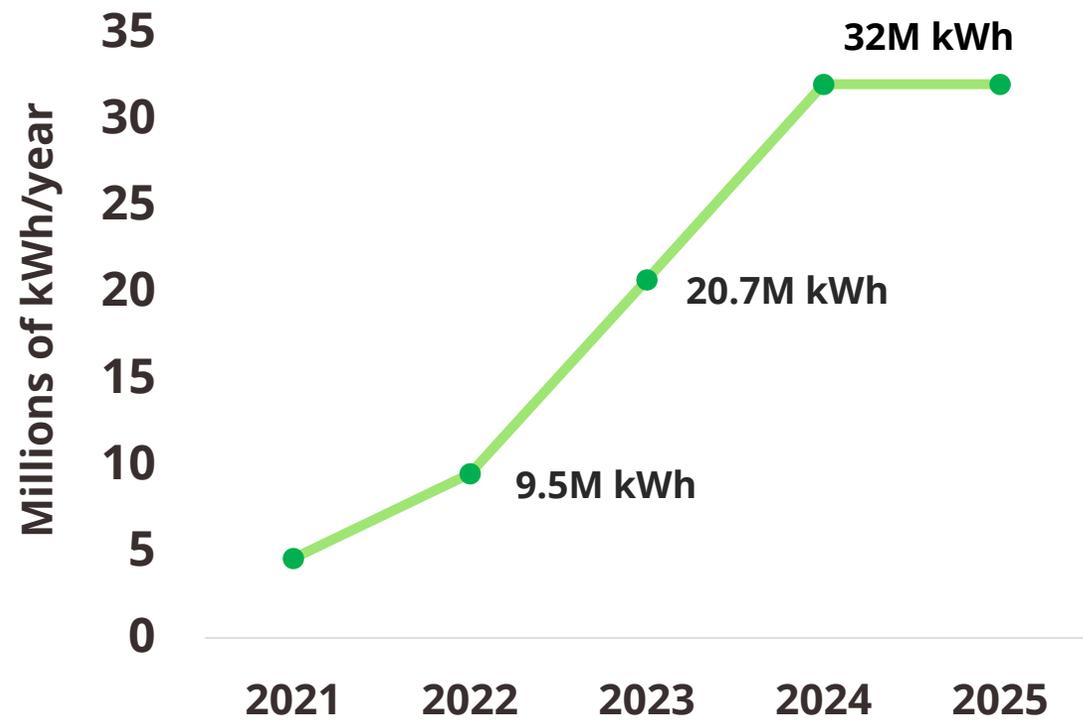
The International Laboratory Freezer Challenge has seen significant year over year growth in participating labs and in energy savings. And we are still barely scratching the surface of the program's potential and anticipated impact.

Since 2017, the total amount of energy saved is **108.1 million kWh**

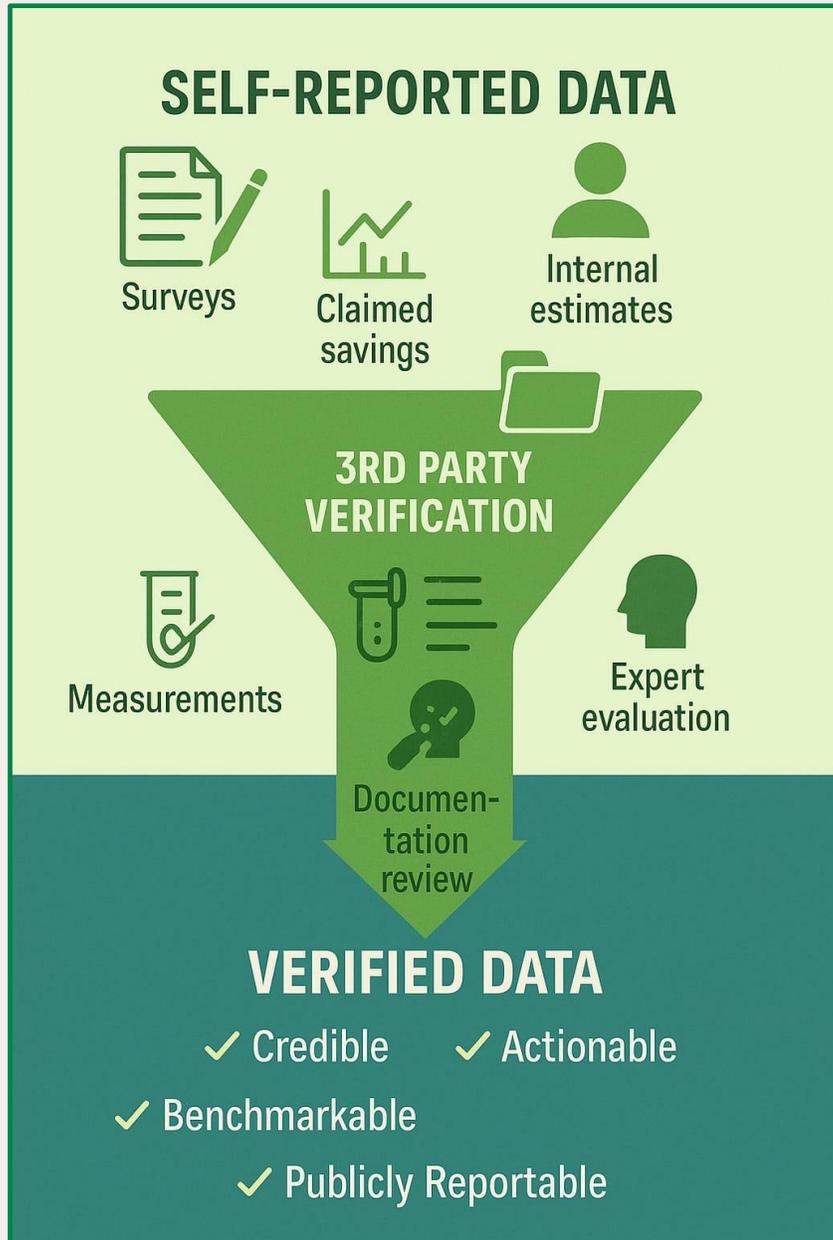
### Laboratories Engaged by Year



### Energy Savings by Year



# The Role of Verification



Third-party audits  
build credibility

Ensures accuracy,  
repeatability, and  
trust

Reduces  
reputational risk

# Recognition & Credibility

Rapidly becoming the global gold standard for lab operations



Recognized by the UN Backed Race to Zero as key indicator of progress on the path to Net Zero for healthcare.



Recommended by the US EPA Environmentally Approved Purchasing Program for alignment with international best practice for high quality certifications.



Required by the Wellcome Trust and Cancer Research UK for all grantees.



# Navigating Global Regulations on Green Claims

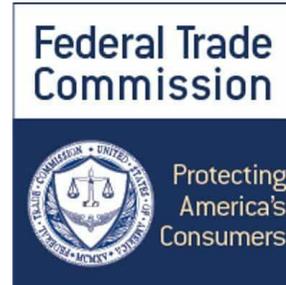
Third-party certification standards reduce risk while ensuring credible customer communication



**European Union:** Provide scientific verification for environmental claims per the Empowering Consumers Directive.

Starting in 2026, only approved third-party certifications allowed; all other banned

Fines up to 4% of revenue & 12-month ban from public procurement



**United States:** Ensure claims comply with the FTC Green Guides, which require clear evidence for environmental benefits and prohibit misleading terms.

My Green Lab Certification and ACT Ecolabel are recommended by the US EPA Environmental Preferred Purchasing program



**Canada:** Claims must be truthful and substantiated under the Competition Act.

**Australia:** Avoid misleading claims under the Australian Consumer Law (ACL).

# Market Demand for Green Lab Solutions

100

Qualitative Phone Interviews  
with Lab Decision Makers

500

Survey Results from Lab  
Managers across the Globe



**Agilent Technologies**



my green lab.

F R O S T  
S U L L I V A N

82% of labs surveyed have already  
adopted sustainability measures

85% of those surveyed expect their  
vendors to support them in reaching  
their sustainability goals, now and in  
the future

91% of respondents value an  
independent certification of  
sustainable products

<https://www.agilent.com/about/newsroom/presrel/2023/08jun-ca23027.html>

**Global sustainability framework for research labs**

# My Green Lab Certification 2.0



## Why Certify Your Labs?

- Powerful project management and impact estimator tool
- Reduce environmental impact of scientific operations
- Receive a 5x return on investment
- Improve safety by reducing hazardous chemical usage
- Increase employee engagement



A screenshot of the My Green Lab Certification Hub dashboard for Scott Grant, Trial Lab. The dashboard is titled "My Green Lab Certification Hub" and "Scott Grant, Trial Lab". It features a "Process Overview" section with a flowchart showing four stages: 1. Baseline, 2. Implementation, 3. Certification, and 4. Certification Review. The "Implementation" stage is currently active, indicated by a green checkmark. Below the flowchart, there are two columns of tasks: "Baseline" tasks (Baseline Engagement Survey, Fill Out Assessment Tool, Review Impact Estimator, Submit for Baseline Review) and "Implementation" tasks (Continue Assessment Tool, Continue Impact Estimator). The "Certification" stage is available on 04/14/2025 and includes tasks like Retake Engagement Survey, Complete Assessment Tool, and Complete Impact Estimator. The "Certification Review" stage includes Documentation Resolution. At the bottom, there is a "Dashboard" section showing five certification levels: Bronze (40% or more of Green Lab assessment actions implemented), Silver (50% or more of Green Lab assessment actions implemented), Gold (60% or more of Green Lab assessment actions implemented), Platinum (70% or more of Green Lab assessment actions implemented), and Green (80% or more of Green Lab assessment actions implemented). Each level is represented by a green plant icon in a circle. The dashboard also includes a sidebar with navigation options like Overview, Assessment, Survey, Impact Estimator, Resources, Settings, Notifications, and Log Out. The top right corner shows the "Impact laboratories" logo.

# Impact Estimator Tool

Accessed through our online portal and completed by the Lab Lead, our Impact Estimator Tool allows teams to track their impact and financial savings.

## Powerful Insights

- Estimate environmental impact and financial savings
- Location-specific results based on energy prices and carbon impact of the grid
- Customizable to unique impact actions

The screenshot displays the 'Impact Estimator' tool interface. At the top, a summary box highlights 'Projected Total Savings' with two values: '\$22,761 /year' and '16.757 tCO<sub>2</sub>e/year'. Below this, a table lists five categories: Electricity, Water, Regulated Medical Waste, Other Hazardous Waste, and Nonhazardous Waste. Each category shows 'Cost (USD)' and 'Carbon Impact' with units and numerical values. A note states that default values are based on best estimates for the lab's location. At the bottom, there are 'Revert' and 'Save' buttons, and a list of categories with status indicators: Energy (IN PROGRESS), Water (NOT STARTED), Waste (NOT STARTED), and Chemicals (NOT STARTED).

Electricity	Water	Regulated Medical Waste	Other Hazardous Waste	Nonhazardous Waste
Cost (USD) per kWh: 0.5	Cost (USD) per L: 0.04	Cost (USD) per kg: 0.31	Cost (USD) per kg: 0	Cost (USD) per kg: 0.047
Carbon Impact tCO <sub>2</sub> e/kWh: 0.000368101	Carbon Impact tCO <sub>2</sub> e/L: 1.311e-7	Carbon Impact tCO <sub>2</sub> e/kg: 0.001074	Carbon Impact tCO <sub>2</sub> e/kg: 0	Carbon Impact tCO <sub>2</sub> e/kg: 0.0007

The default values in this Impact Estimator are based upon best estimates for your lab's location. If you have more precise data available, for example from your energy or water bills, please input that data into this tool for best results.

Buttons: Revert, Save

Category Status:

- Energy: IN PROGRESS
- Water: NOT STARTED
- Waste: NOT STARTED
- Chemicals: NOT STARTED

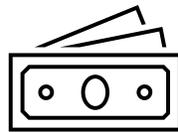


# My Green Lab Case Study Penn State University

- Actions taken by labs participating in Penn State's Sustainable Labs Program estimated to result in over 155,000 USD in savings and reduce about 490 tons of carbon dioxide emissions annually.
- First example of program incorporation into a biology teaching lab with an annual enrollment of about 5,000 students.
- Actions included switching out hazardous chemicals for greener substitutes, installing aerators on faucets to eliminate single-pass cooling, and closing fume hood sashes when inactive.



**PennState**



**Sustainable Labs  
Program saved \$155,000  
in energy costs**



**Sustainable Labs Program  
reduced CO<sub>2</sub> emissions by  
490 tons/year**



**Alignment with  
organizational goal to be  
100% carbon neutral by 2035**

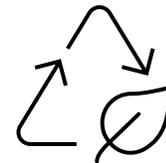


# My Green Lab Case Study University of Alabama – Birmingham

- UAB has the largest campus-wide My Green Lab program in the world, with 78 labs certified since 2017, and 79 certifications currently in progress in 2023.
- Through regular freezer maintenance encouraged by My Green Lab, UAB saves enough energy to power 75 US homes annually.
- UAB has found that EACH participating lab saves over 35,000 kWh annually\*, leading to an estimated \$4,382\*\* annual energy savings per campus lab.



Reduced energy use by  
35,000 kWh/year/lab



Recycled 20,000lbs of  
Pipette Tip Packaging



Reduced waste by  
75,000lbs (total)

**UAB** THE UNIVERSITY OF  
ALABAMA AT BIRMINGHAM

\*As reported by University of Alabama

\*\*Cost savings estimated using EIA 2023 U.S Commercial Electricity Rate

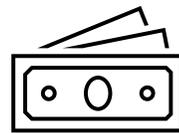
# My Green Lab Case Study Technical University Berlin



- The Department of Applied Biochemistry focused on equipment energy reduction best practices for a single lab located in Berlin, Germany.
- The lab's sustainability report found energy savings of 26,000 kWh/year, over 35% of the lab's original energy usage.
- **The Technical University Berlin achieved an estimated 30 X ROI on energy savings using My Green Lab Certification.\***



TECHNISCHE  
UNIVERSITÄT  
BERLIN



Saved €14,480 in  
annual energy costs



Reduced energy use  
by 26,000 kWh/year



Implemented  
equipment inventory  
program

# CU Anschutz Med School Lab Cleanup and Space Evaluation Project

Lab space needed for incoming faculty

Charge came from Dean of Medical School to look at existing lab space use

550,000 sq ft walked and assessed by two teams:

- Senior scientists
- EHS leadership & Facilities personnel
- Dean's Office Leadership & Research Affairs



School of Medicine

UNIVERSITY OF COLORADO  
ANSCHUTZ MEDICAL CAMPUS



*John J. Reilly, Jr.,  
MD*

VC for Health Affairs and Dean  
CU School of Medicine

# Identifying laboratory space being used as storage spaces



# Result: >43,055 sq ft of underutilized lab space reclaimed

Disposed 1360 kg of chemicals

226 metric tons of waste (~20% recycled)

4000 items collected for reuse

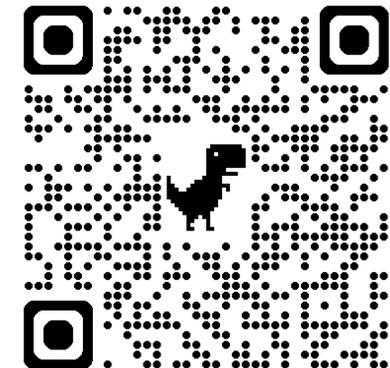
Research space guidelines revised & new process in place to review lab space use annually

**\$ 108,510**  
Cleanup Cost

vs.

**>\$ 47,987,172**

New Construction





# Looking Ahead



Expanding  
environmental  
domains



Enhanced  
digital  
automation

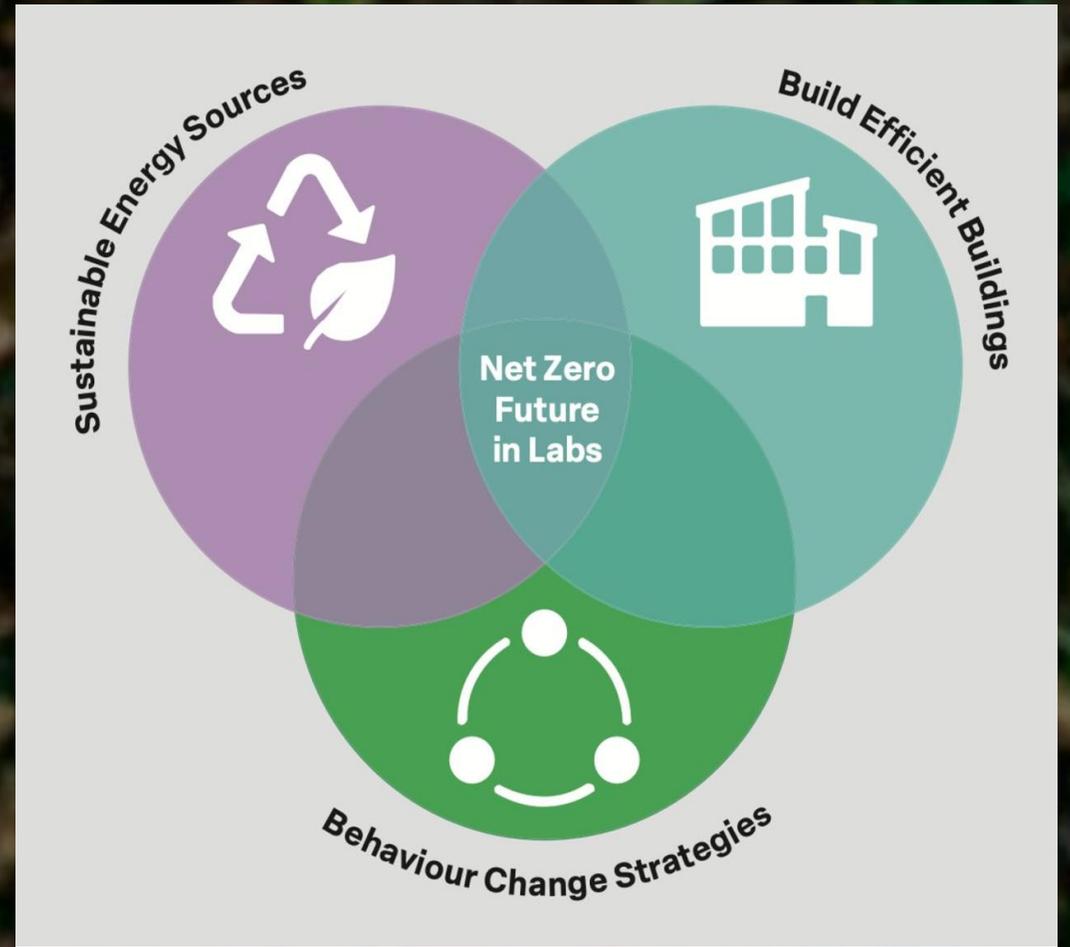


Partnerships  
for global  
reporting  
integration



Lab-level data  
→ institutional  
sustainability  
reports

# Everything is connected



**“You cannot get through a single day without having an impact on the world around you. What you do makes a difference, and you have to decide what kind of difference you want to make.”**

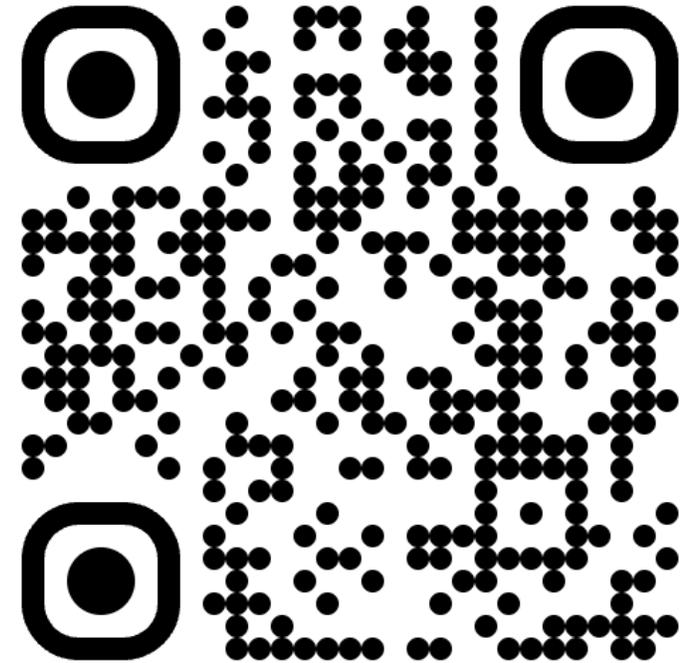
**Dr. Jane Goodall  
1934-2025**



***Email me: [ila.summitt@mygreenlab.org](mailto:ila.summitt@mygreenlab.org)***

# Questions?

*Learn more here:*



*Email us: [info@mygreenlab.org](mailto:info@mygreenlab.org)*

*Email me: [ila.summitt@mygreenlab.org](mailto:ila.summitt@mygreenlab.org)*

Extra slides



**2030**  
BREAKTHROUGHS

**My Green Lab Certification selected as the  
2030 Breakthrough Outcome by the  
UN-backed Race to Zero**

**RACE TO ZERO**



my green lab.  
Certification

“95% of labs across major  
pharma and med-tech companies  
are My Green Lab certified at the  
green-level by 2030.”



# The Global Context of a Maturing Market

**US EPA**

Environmentally preferred purchasing program will require green cert to have a separate CAB



If approved: federal agencies to include in purchasing to 'maximum extent possible'

**Market Expectations**

Growth of MGL and more mature industry increasingly concerned w/ Greenwashing



MGL needs to implement credible 3<sup>rd</sup> party certification aligned with International Best Practice

**EU Green Claims**

Requires separate certification body and accreditation by 2026



If approved: strong regulatory push in the EU for adoption; unverified ecolabels & claims will be banned



# My Green Lab Title Goes Here

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# Title Goes Here Like This

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# My Green Lab Title Goes Here Like This

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