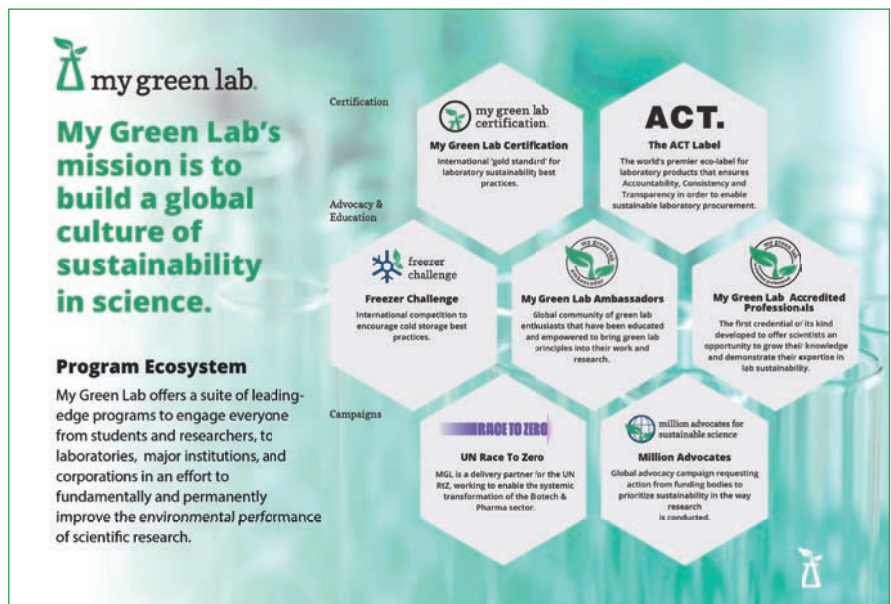


Green Solutions

Greening Laboratories: How My Green Lab Supports Net-Zero Goals

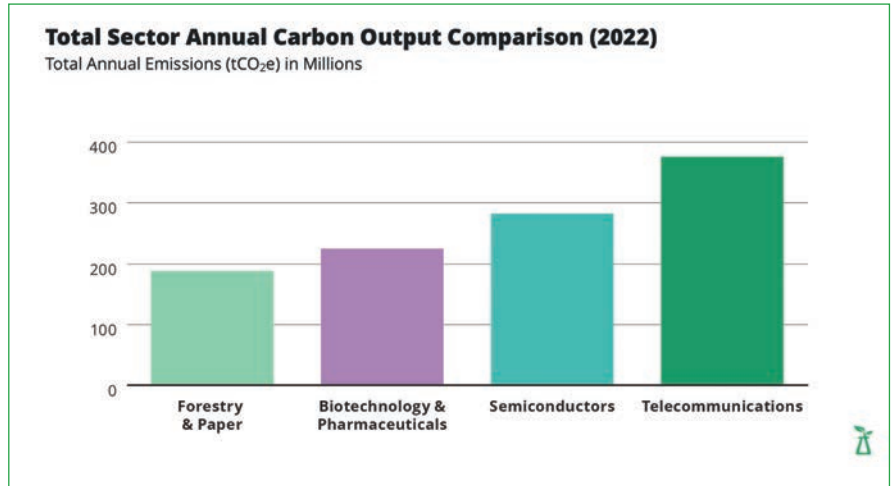
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Advancing Sustainability in the Scientific Industry: Embracing Net-Zero Goals with My Green Lab Certification

The scientific industry plays a pivotal role in the advancement of human knowledge. However, science also has a massive environmental impact, including outsized energy consumption, greenhouse gas emissions, water usage, and the generation of plastic and hazardous waste. The total carbon emitted annually by the scientific sector is more than the semiconductor and forestry & paper industries and is growing quickly [1].

Laboratories consume up to ten times more energy than a typical office space [2]. The high energy demand is primarily driven by the need for specialised equipment, such as fume hoods, freezers, as well as high-demand ventilation systems. The electricity used to power these systems largely comes from fossil fuel-based power plants, resulting in the release of greenhouse gases, such as carbon dioxide and methane, into the atmosphere. Laboratories also consume up to five times more water than regular office spaces [3]. The water-intensive nature of research activities, such as sample preparation, cooling, and cleaning processes, contributes to the depletion of local water resources. In regions facing water scarcity, this heightened demand poses additional environmental challenges.



Given the substantial environmental impact of scientific research, laboratories must be part of a net-zero future and increasingly adopt net-zero goals. Net zero refers to reducing energy consumption by as much as possible and then balancing the emissions produced with energy generated by renewable means. By committing to net-zero goals, scientific organisations foster a culture of sustainability and responsible research practices, including reducing energy and water consumption, promoting renewable energy use, and implementing efficient waste management and recycling programs, all of which are key components of net-zero commitment. Transitioning towards net-zero goals not only demonstrates leadership and dedication to global sustainability efforts but also fosters collaboration and encourages shared best practices.

With increasing awareness of the environmental impact of scientific research and the growing demand for expert guidance and structured approaches towards net-zero goals, laboratories are actively seeking tools, frameworks, and external verification. Organisations such as My Green Lab have emerged as valuable partners in addressing this need.

My Green Lab is the leading global non-profit organisation focused on sustainable science, which conducts education and awareness campaigns as well as develops sustainability standards for laboratories and laboratory products, creating a positive impact in the community responsible for life-changing medical and technical innovations. The organisation offers comprehensive tools, resources, and certifications to help the scientific community optimise its practices and work towards its net-zero goals.

The flagship My Green Lab Certification program provides scientists and the teams that support laboratories with a framework of actionable ways to make a meaningful change towards sustainability. By leveraging My Green Lab's expertise, laboratories can make measurable progress towards reducing their environmental footprint in support of their net zero goals.

Race to Zero: A Path to Net-Zero Emissions by 2050

The global biotechnology and pharmaceutical industry has been called upon by the United Nations Framework Convention on Climate Change (UNFCCC) to take decisive action to combat climate change.

The industry is urged to join the UN Race to Zero initiative and adopt the UNFCCC High-Level Climate Champions' 2030 Breakthroughs goals [4]. The Race to Zero initiative mobilises action towards a net-zero carbon economy by 2050 across more than 30 global sectors. Organisations participating in the Race to Zero program must commit to achieving net-zero emissions by 2050 or earlier, establish a clear plan with interim targets, and transparently report their progress annually.

The UNFCCC High-Level Climate Champions' 2030 Breakthroughs Outcomes [4] defines a set of sector-specific goals or targets that need to be achieved to accelerate the transition to a zero-carbon economy. Recognising My Green Lab Certification as a critical leverage point [5] and a key indicator of progress for the science industry, the 2030 Breakthroughs set a goal that 95% of labs across major pharmaceutical and medtech companies are My Green Lab certified [4] at the highest level by 2030. By achieving the certification, labs demonstrate their commitment to sustainable practices and contribute to the overall goal of reducing emissions and achieving a net-zero carbon future.

A 2022 study by My Green Lab in partnership with ICE, a financial exchange and climate risk analyst, highlights the progress of pharmaceutical and biotech companies towards the Race to Zero initiative [1]. The study reveals that 46% of the biotech and pharma sector by revenue has committed to the UN Race to Zero as of 2022, a significant increase from the previous year's 31%. Moreover, over 53% of labs committed to the campaign have started a My Green Lab Certification, and 23% achieved the certification globally, indicating swift adoption and convergence around the sector's 2030 Breakthrough Outcome.

Reducing Emissions Through Sustainable Procurement Practices

As the scientific industry seeks ways to align with global sustainability efforts in the face of the escalating climate crisis, sustainable procurement practices have emerged as a critical avenue for reducing emissions and achieving net-zero targets. Sustainable purchasing involves the preferential selection and buying of products and services that have a reduced environmental impact. Notably, within the biotech and pharma sector, the carbon impact from the value chain is 4.3 times higher for public companies and 3.3 times higher for private companies than the carbon emitted from company-owned operations [1], highlighting the need for action to reduce carbon footprint throughout their entire value chain.

By selecting suppliers committed to eco-friendly practices and incorporating sustainability criteria into procurement decisions, organisations can lower emissions throughout their supply chain, adhere to environmental regulations, and achieve cost savings.

To ensure transparency in the sustainability impacts of lab products, My Green Lab offers the ACT Environmental Impact Factor (EIF) Label, addressing the need of both scientists and procurement specialists for clear, third-party verified information about the environmental impact of laboratory products. This initiative promotes Accountability, Consistency, and Transparency (ACT) in reporting a product's sustainable impacts, its operations, and its end-of-life.

My Green Lab maintains a database of suppliers and lab products that have undergone the ACT label process, detailing their EIF scores across manufacturing, energy and water use, packaging, and end-of-life. This resource facilitates informed purchasing decisions, making it easier for organisations to choose more sustainable products. As of August 2023, the program database holds approximately 3,000 labels across several categories including lab equipment, consumables, and chemicals.

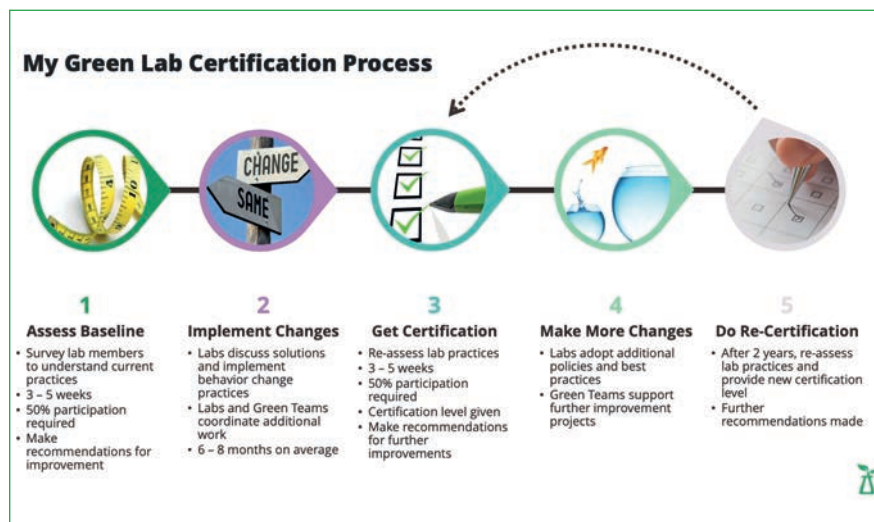
My Green Lab Certification: A Commitment to Sustainable Science

The My Green Lab Certification program is recognised globally as the 'gold standard' for green lab certification, helping the scientific community reach its net-zero goals. As of 2023, the program has empowered 22,000 scientists and over 1,750 laboratory teams with actionable strategies to drive meaningful change - minimising waste, conserving energy, and promoting responsible resource management.

The certification process offers a comprehensive and structured approach toward the adoption of sustainable practices across 14 key areas including energy, water, waste, and green chemistry. To obtain a My Green Lab Certification, at least 50% of laboratory users must complete an initial online 'Baseline' assessment survey covering 14 topics. My Green Lab provides specific recommendations for further improvements based on the results of this assessment. With support from their organisation's sustainability, safety, facilities, or EH&S teams, labs are encouraged to implement these suggested changes.

After making improvements, labs retake the assessment survey to receive an overall score and certification level, which remains valid for two years. To maintain their certified status, labs actively pursue re-certification within two years or sooner, fostering a culture of sustainability through a continuous improvement process within their workspace.

With five levels of achievement - bronze, silver, gold, platinum, and green - the certification represents a laboratory's progress and dedication to sustainability. Laboratories interested in obtaining My Green Lab Certification can reach out to My Green Lab to embark on their sustainability journey.



Conclusions

The scientific community must be part of a net zero future. Through proactive efforts to address emissions, collaborative engagement with stakeholders, and alignment with global climate agendas, laboratories can make significant contributions to the fight against climate change on a global scale. The My Green Lab Certification is a powerful tool for promoting laboratory sustainability, offering practical strategies and guidelines to reduce carbon footprints. Further, prioritising sustainable procurement through the ACT Environmental Impact Factor Label can help drive carbon and other environmental reduction across the laboratory supply chain. Science can and should lead the world in addressing climate change, starting with its own footprint.

References

1. Study Finds Rapid Progress in Biotech & Pharma Companies Committing to UN Race to Zero through My Green Lab Certification Program. <https://www.mygreenlab.org/blog-beaker/study-finds-rapid-progress-in-biotech-pharma-companies-committing-to-un-race-to-zero-through-my-green-lab-certification-program> (2022).
2. Laboratories for the 21st Century: An Introduction to Low-Energy Design (Revised). <https://www.osti.gov/biblio/907998> (2008).
3. Daniel Watch & Deepa Tolat. Sustainable Laboratory Design. <https://www.wbdg.org/resources/sustainable-laboratory-design> (2016).
4. Climate Champions release master plan to halve sector emissions by 2030. <https://climatechampions.unfccc.int/upgrading-our-systems-together> (2021).
5. Green Lab Certification Named Key Player in the UN Climate Change's Race to Zero. <https://www.mygreenlab.org/blog-beaker/my-green-lab-measures-carbon-impact-of-biotech-and-pharma> (2021).



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