

LIFE SCIENCES

Insights

CLS Digital Magazine July 2023

Environmental Sustainability

An Emerging Imperative And Core Strategy For The Life Sciences

- ✓ TACKLING CLIMATE CHANGE
- ✓ REDUCING WASTE
- ✓ ENVIRONMENTAL JUSTICE
- ✓ SUPPLY CHAIN INNOVATIONS

INSIDE

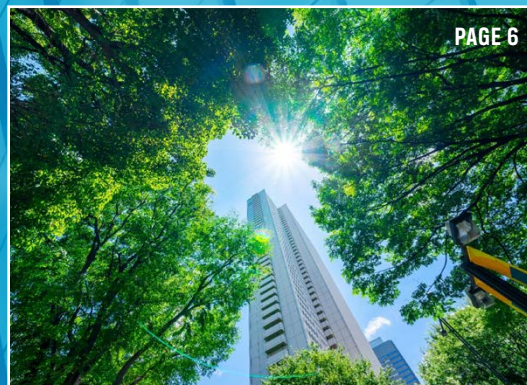


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Dear Reader,

I'm thrilled to welcome you to this edition of Life Sciences Insights, dedicated to the crucial topic of environmental sustainability.



Inside this issue, you'll find the immense potential our sector holds in combating the challenges posed by climate change and the creative ways CLS members are innovating to reduce their environmental footprints.

The world is grappling with the consequences of climate change, and the urgency to act now has never been greater. But like many of our greatest challenges, the life sciences sector stands poised to play a pivotal role in offering innovative solutions for a brighter, more sustainable future.

Advanced biofuels, for example, hold immense promise in cutting our carbon impact, particularly in hard-to-electrify sectors such as aviation. The application of biotechnology to agriculture can strengthen our agriculture system, making crops more resilient to drought, protecting pollinators, and restoring land quality. We're particularly excited about the recent Presidential Executive Order on the biomanufacturing economy as a catalyst for innovation and American job creation in the life sciences sector.

As you read the stories in this issue, you'll see the dedication of our members towards ambitious climate targets and their investments in environmental sustainability. We believe in our role as stewards of the environment and are committed to mitigating our impact on the planet. Above all, our mission is to empower our community to deliver innovative solutions for healthier lives.

Best,

Mike Guerra
President & CEO, California Life Sciences

Environmental Justice: A Conversation With The California Black Health Network

Submitted by California Black Health Network and California Life Sciences

■ Many environmental hazards, like pollution, disproportionately affect marginalized communities, resulting in health disparities. In this Q&A session, CLS sit down with Rhonda Smith, the executive director of the California Black Health Network (CBHN), to explore the connection between environmental justice, environmental sustainability, and the role of the life sciences industry and its unique responsibility to develop innovative solutions.

Q: What is environmental justice and how did it become a pillar of the CBHN mission?

A: Environmental justice means there is equity and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies that impact their lived environment. This results in the ability to live a quality, long, healthy life.

I started at CBHN during the summer of 2020—in the thick of the George Floyd murder, Black Lives Matter movement, and here in California there was an abundance of wildfires. There are many communities where people of color live that are already in distress because of the environmental conditions there. Even though the fires were

eventually contained and put out, there was still particulate matter in the air—things we can't see, taste, touch, or smell that can cause respiratory issues. The same thing happens when highways are built and run through communities of color.



At that time, there wasn't a lot of focus on the impact of the environment on Black communities and definitely not on climate change, especially from a long-term perspective. I thought, we can't do our work to advance health equity and not address this. That was the impetus for our health equity framework, which includes racial justice, social justice, and environmental justice.

Q: How is CBHN working to help achieve environmental justice?

A: One way is through the [Black Beauty Project](#). We're working to build awareness around toxic chemicals that are in hair and personal care products that are specifically marketed to Black women. There are parabens and endocrine disrupting chemicals in hair and other products that can lead to health conditions, including increased breast cancer risk, uterine fibroids, maternal health outcomes, obesity, and diabetes. It's something we take for granted—that because the products are on the shelf, we assume they're safe.

We know that hair and personal care is so much a part of every woman's life. We want to make sure



whether its makeup, lipstick, nail polish—whatever we're putting on our bodies is actually safe. Our role at CBHN is to disseminate information about the toxic chemicals and educate women about making safer choices.

Q: How does environmental justice intersect with environmental sustainability?

A: This question makes me think about the social determinants of health. We know that a person's zip code is also a predictor of life expectancy. That's because of the environmental conditions under which they live. And sometimes people have no choice—they have to live where they can afford to live. We must also think about government decisions and policies and the impact they've had on communities and the environment. We know that redlining preyed on marginalized communities. Not only did it limit opportunities to acquire real estate, but it also allowed companies and organizations to build manufacturing plants, warehouses, and highways through what were

once thriving Black communities. This was by design and intentional. We see it across the country and in LA with certain communities near the 105. There was a study that showed land surface temperatures are six degrees warmer in previously redlined communities because of emissions and particulate matter and other factors. That's part of the social determinants of health we don't often think about. And some communities don't have access to their most basic needs, like water.

Q: What can the life sciences sector do to support environmental justice as they develop sustainability initiatives?

A: Whenever there is an opportunity or plan to build manufacturing plants, be cognizant of where they're being built. The life sciences have a lot of power. They can harness that power and advocate for change. Rally around advocacy that would help build and sustain healthier communities from an environmental standpoint. ■

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Sustaining Earth's Vital Systems: Life Science Companies' Role in Tackling Climate Change And Biodiversity Loss

Submitted by Lucy Godshall, Principal, Climate Change and Sustainability Services, EY

- **We're facing a double environmental crisis of mounting greenhouse gas emissions and biodiversity loss. While the impacts of climate change on the planet have been well-documented, science is only beginning to understand the impacts on human health. Actions to preserve nature and cut carbon may take decades to cool the climate, but the human health benefits can be experienced far sooner. Life sciences companies must take action to protect nature and the climate.**

A Shift In Health Due To Climate Change

A warmer climate hits human health in complex, interconnected ways. We're witnessing "an unabated rise in the health impacts of climate change," which, according to the *Lancet*, "is beginning to reverse years of progress in tackling the food and water insecurity that still affects the most underserved populations."

Scorching heat and catastrophic floods have destroyed communities and crop yields around the globe. At the beginning of this decade, record temperatures resulted in 295 billion potential work hours lost, mainly in agriculture. In the Americas, the International Labor Organization estimates that the productivity loss in

2030 due to heat stress based on current climate change projections will equal 389,000 full-time jobs. Floods, droughts, and storms are becoming more frequent and intense, affecting tens of millions of people each year. In 2022, Hurricane Ian made landfall in Florida as a Category 4 hurricane, causing historic flooding, record-breaking costs in damage, and 150 deaths.

Disease is spreading faster and further. The environmental suitability of non-cholera Vibrio bacteria has increased 56% in northern latitudes since the 1980s, while the transmission of Dengue, Chikungunya, and Zika viruses has increased up to 13% since the 1950s.

The High Cost Of Ecosystem Destruction

In 2021, the planet lost 11 million hectares of tropical tree cover. Deforestation accounts for nearly 15% of global CO₂ emissions—if it were a country, tropical deforestation would be the world's third-largest emitter.

Apart from driving up temperatures, the destruction of forests sweeps away benefits from ecosystem services essential for human health, like clean air, fresh water, food, medicine, pest and disease regulation, and disaster risk reduction—not to mention their spiritual and cultural value.

Healthy forests filter out pollutants from air, land, and water that contribute to about 9 million deaths annually. Apart from causing one in six deaths worldwide, pollution costs the global economy US\$4.6 trillion each year, according to The Lancet Commission.

Research by WWF shows that deforestation is connected to an increased prevalence of malaria, while nearly one in three outbreaks of new diseases



is linked to land-use change, including deforestation. [Deforestation is linked to an increase in risk](#) of wet bulb temperature events and risk to human health.

The Loss Of Potential Life-Saving Medicines

Forests are widely believed to be [home to about 80% of terrestrial biodiversity](#) and are particularly important for life sciences. Most commercial penicillins and [antibiotics are derived from micro-organisms](#), while 75% of antibacterial drugs approved by the U.S. Food and Drug Administration from 1981 to 2010 can be traced to natural product origins. [Plant-based antimicrobials](#) show immense potential.

Known species are going extinct 1,000 times faster than the discovery of new species, with some estimates suggesting [our planet is losing at least one important drug every two years](#).

How Can Life Sciences Companies Help?

Life sciences companies have a [key role to play in tackling climate change](#). Below are five actions they can take to accelerate human and planetary health while building business resilience:

1. Reduce emissions intensity

Global biotech and pharma have a [carbon footprint equal to nearly half the emissions of the UK](#). Develop a decarbonization strategy that reduces emissions intensity in alignment with the [Paris Agreement](#). Pharma's emissions intensity per unit of revenue is [55% greater than the automotive sector](#)—this needs to fall by 59% to comply with Paris Agreement targets.

2. Reverse destruction of forests and report progress

Climate change, nature loss, and human health are interconnected. Develop a biodiversity strategy that is integrated with your business strategy. Invest in high-quality biodiversity credits through initiatives, such as the [LEAF Coalition](#) and [Green Gigaton Challenge](#). Disclose progress through the framework being developed by the [Taskforce on Nature-related Financial Disclosures](#) (TNFD).

3. Leverage supply chains to shrink Scope 3

Scope 3 emissions are tough to measure but vital to manage. Start by quantifying your upstream and downstream footprint. Then leverage your purchasing power to motivate suppliers and customers to reduce their impacts on nature and the climate. For example, [116 US organizations signed the White House Health Sector Climate Pledge](#) to inventory their Scope 3 emissions by the end of 2024.

4. Become a "climate and health champion"

[Championing climate and health can have a ripple effect](#). Sign up for the [Global Climate & Health Alliance](#) and join organizations representing over 46 million health workers that have endorsed an urgent call for climate action: [#HealthyClimate Prescription](#).

Only 4% of the world's largest publicly traded biotech and pharma companies have climate commitments that align with a 1.5°C pathway.

5. Commit openly to a 1.5°C pathway

Only 4% of the world's largest publicly traded biotech and pharma companies have climate commitments that [align with a 1.5°C pathway](#). The next 10 years are a critical period for the industry to apply its lifesaving innovations to the threats facing the health of our shared planet. Join leading companies by publicly committing to align business operations with 1.5°C of warming. ■

The views reflected in this article are the views of the author(s) and do not necessarily reflect the views of Ernst & Young LLP or other members of the global EY organization.

Life Sciences Real Estate: A Tool For Sustainable Development

Submitted by Graham Cutts, Hogan Lovells



■ **The life sciences industry's aim is to develop and bring to market life-improving, often life-saving, products and technologies. However, the processes required in pursuit of this aim often involve considerable power consumption and equivalent waste. With that, life sciences investors and operators face challenges in delivering against the sector's aim in a sustainable way. A thoughtful, adaptable, and robust real estate strategy can be an effective tool in allowing development, operation and growth in a way that minimizes impact and maximizes long-term potential.**

Repurposing An Existing Building

An investor can reduce its environmental impact straight away by adapting an existing asset that has fallen into obsolescence, rather than creating a new ground-up facility. Urban retail, office and light industrial buildings are ripe for conversion into work spaces enabling life sciences use—whether labs or lab-enabled offices. There are, however, specific considerations to be mindful of for life sciences use. Wet labs—primarily used for testing and handling live and often contaminative materials—must meet regulatory design and safety standards, such as appropriate exhaust and ventilation systems, the safe disposal of materials, and compliance with local emissions standards. Dry labs—primarily used for computer engineering or data harvesting—are often power hungry and will require not only a robust existing network to feed from, but also backup power supplies and sophisticated cyber protections to prevent the integrity of the operator's data being compromised. The engagement of specialist design and project management teams at an early stage will help guide an investor through the regulatory and safety landscape, allow them to offset



the waste risk onto specialist disposal operators, and ultimately deliver a sustainable operational strategy. In terms of power consumption, repurposing stock into a zero-impact facility for life sciences use is going to be challenging. However, advancements in design and materials now mean there is greater variety of product to facilitate as low-impact a facility as possible and to maximize the opportunity for re-use at the end of an operator's lease. Energy-smart power supplies, such as on-site data centers, can take proportionately less energy from the public network and the materials now available to deliver turnkey-specified labs or lab-enabled offices provide a base with which a larger proportion of life sciences operators can work, thereby reducing the need for further future adaptation.

...successful life sciences campuses are those that are, effectively, ecosystems in themselves allowing pollination of ideas, design, and research efficiencies between operators and with enough variety of amenity space to keep workers engaged and fulfilled.

waste management, alteration methods, risk management strategies for pollutants, and a commitment not to run the operation in a way that affects the investor's environmental ratings. Many jurisdictions now require minimum environmental standards for letting

commercial space, so investors have become more serious about inclusion and possible enforcement of these clauses (with which many operators cannot object given their own sustainability commitments and ethos).

Investors looking to speculatively repurpose, develop, or let space should be clear on what types of life sciences occupiers they wish to attract. Sustainability and environmental considerations are no longer "nice to haves;" they are integral to any real estate strategy.

From startups to global pharma, Hogan Lovells works with investors and operators across the life sciences industry to help strategize and achieve sustainable results. ■

Creating Flexible And Adaptable Campuses

Moving onto the design of a bigger dedicated campus to accommodate life sciences use: with minimal remote working, the life sciences industry is heavily reliant on the physical working and amenity environment being fit for purpose (one, ultimately, fostering collaboration and growth). The success of a well-designed campus is dependent on several factors but principally its ability to allow cross-disciplinary uses to collaborate and thrive over the long-term. In that sense, sustainability is tied directly to an investor's ability to collaborate with key stakeholders—primarily its anchor tenants—and actively listen to their requirements. Life sciences remain a contact sport, and the best examples of successful life sciences campuses are those that are, effectively, ecosystems in themselves allowing pollination of ideas, design, and research efficiencies between operators and with enough variety of amenity space to keep workers engaged and fulfilled.

"Greener" Lease Obligations

Historically, leases were more likely to include non-binding statements of sustainability intent or cooperation. Now, leases invariably include binding "green" obligations relating to energy usage, monitoring and performance,

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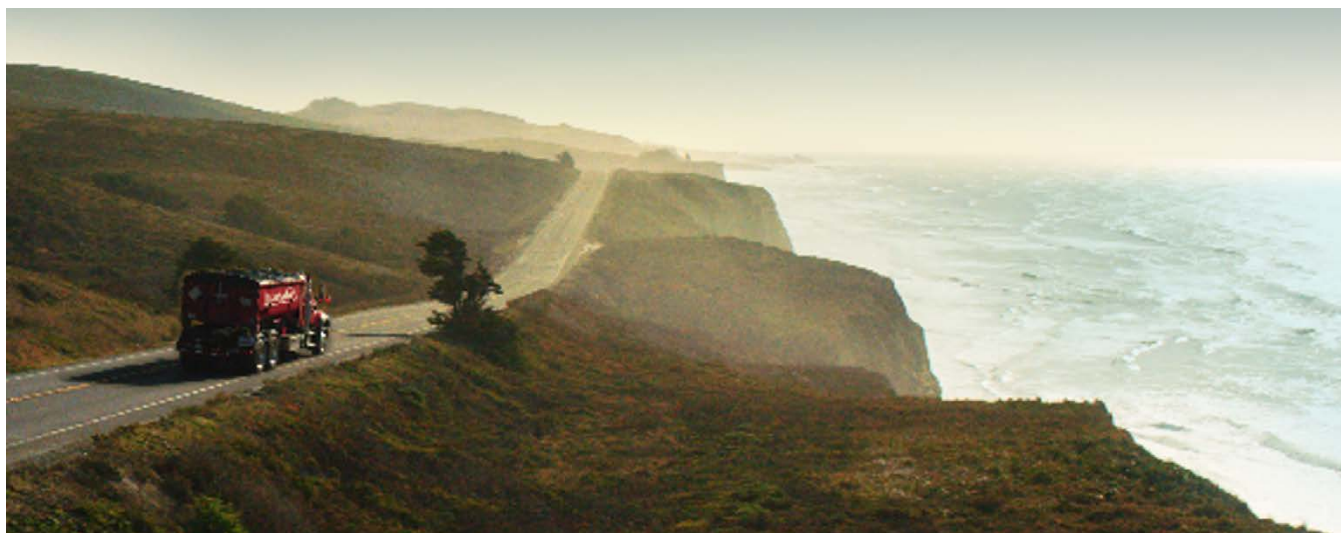
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Think Big And Act Small About Sustainability

Submitted by Daniel Liwicki, Corporate Sustainability Manager, Clean Harbors



- **There seems to be an expectation today for lab and facilities managers, healthcare professionals, chemists, analysts, to have an overnight and fundamental understanding of sustainability as well as an actionable plan for success. Not only a developed scheme, but appropriately adjusted through the lenses of environmental, social, and governance and to exceed the expectations of the C-suite, customers, investors, and stakeholders; quite the heavy-lift.**

It is an understandable and predictable presumption given the state our earth today. We need responsible resource management and circular thinking, social compassion, environmental stewardship, and ethical corporate governance more than ever before. However, for as global as these concepts may be, the practice

of incremental improvement in efficiencies and integration on the small-scale are realistically what yield measurable change. Much more concisely, we must think big and act small in our pursuit of sustainability.

Sustainability is best observed in doing the small things first and well. Start simplistically, perhaps with the environmental pillars of waste, energy, and water utility. Do you know where your lab and facility waste goes and why? Are there alternatives to recycle solvents? How can you reduce or reuse single-use plastics? Are there alternative disposal technologies for regulated medical waste? Work with a waste service provider like Clean Harbors to understand your baseline waste generation, disposal, and seek sustainable management solutions that meet your budget. The same can of course apply to water and energy utilities. How many kilowatt hours does your laboratory consume each day, week, year? Have you asked your energy provider from what sources your power is derived? What the percentage of that energy supply is from renewable sources? What renewable energy alternatives are available and at what costs? How much water does your facility consume? Controls for improved efficiency can be as simple as a water-efficient fixture at a lab station or as advanced as an on-site wastewater treatment system.



The intention is that sustainability starts with understanding your existing baseline relationship to the environment, your people, and your community. Knowing your facility's footprint is the first step in developing a sustainability program with realistic and achievable targets. Re-imagine and find sustainability in the basic functions of your job. We all are tasked with reducing costs, improving efficiency and production. Sustainable thinking is found right there in that same shared space, but perhaps instead of cost, the goal is to promote a particular environmental or social benefit.

Always remember that no one is a sustainability expert overnight. Rely instead on your facilities management experience, your technical, financial, or scientific background, and make a sustainable contribution within the space you know and control. When you need a hand, companies like

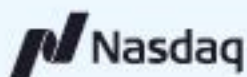
Clean Harbors are here to help you envision and achieve your unique goals around sustainability. With 43 years of experience in providing industrial and environmental solutions, Clean Harbors knows we must do the hard work to reduce our collective impact everywhere

industry meets the environment. Last year as a company, Clean Harbors avoided for our customers through sustainable solutions twice (2x) the greenhouse gas emissions we generated through operations.

Sustainability can involve many aspects of your business and function. Start small, fully understand the basics of your lab, research, or healthcare facility's impact, and take simple but measurable steps

to mitigate that impact. Working together, thinking big, acting small, and in partnership, we can and will realize a better future for our facilities, our communities, and our shared environment. ■

Controls for improved efficiency can be as simple as a water-efficient fixture at a lab station or as advanced as an on-site wastewater treatment system.



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Laboratory Decarbonization: Start At GHG (Green House Gas) Accounting

Submitted by Mazzetti

■ According to the World Health Organization (WHO), climate change is the single biggest health threat facing humanity. The built environment accounts for around 40% of annual global greenhouse gas emissions. Translation, as facility owners, we have both a responsibility and opportunity to both mitigate the impact of existing buildings and ensure new construction is carbon neutral. We can also acknowledge that laboratory buildings are particularly challenging to decarbonize, given specific ventilation and exhaust, heating and cooling requirements, water usage, and more. So, how do we begin?

The ABCs Of GHG

The first step is knowing where your organization stands—a greenhouse gas (GHG) inventory is a tool that will help you take the first steps to understanding your organizational carbon consumption. A good inventory illustrates the information an organization needs to

The first step is knowing where your organization stands—a greenhouse gas (GHG) inventory is a tool that will help you take the first steps to understanding your organizational carbon consumption.

understand its impact, make an educated commitment, set achievable goals, and prioritize reduction efforts for greatest impact. There are many different guides for how to perform a GHG inventory, but laboratory GHG inventories are unique in the same way that labs are differentiated from other commercial buildings.

Informed by the globally accepted GHG Protocol as a foundation, this article will address an overview of a lab-specific process, identifying the data to collect, how to collect it most accurately and efficiently (both the first time and annually thereafter), and best practices for reporting for both compliance and cultural purposes.

We will start with the differences between scope 1, 2, and 3 emissions, uncover what challenges and nuances to expect when performing a GHG inventory, and share ways to kick off the conversation within your own

organizations. Your goal, as lab building owners and those that design these facilities, is to lay out the steps of the GHG inventory to understand what level of effort it will take to baseline your organization's GHG emissions.

Scopes 1-3 Emissions: Let's Break It Down

Scope 1 emissions are defined as direct emissions from an organization's operations. This includes things like an organization's facilities operations and their vehicle fleet emissions. **Scope 2** broadens the lens and is defined as emissions from the generation of purchased utilities, such as electricity or district steam, heating, or cooling consumed by the company. These emissions occur at the facility where electricity or other utility is generated, not at the company's own facilities directly. **Scope 3** emissions expand the lens further and is defined



as all other indirect emissions (not a part of Scopes 1 or 2) that occur in the value chain of the company. An example would be a pipette manufacturer which would include upstream emissions generated from the production of the glass and other components it purchases and the transportation of these materials from its suppliers (and between its suppliers and their suppliers) in its Scope 3 inventory. Another example of Scope 3 emissions would include a lab facility's commuter emissions, waste product emissions, and purchased goods.

Challenges

Labs are resource-intensive operations. Labs that want to get a start on measuring their GHG emissions will need to collect data about their facility or facilities' energy (all types), fleet, refrigerant use, waste, water, and more. This can be especially challenging if the lab is

Labs that want to get a start on measuring their GHG emissions will need to collect data about their facility or facilities' energy (all types), fleet, refrigerant use, waste, water, and more.

in leased space where landlords may not be familiar with these types of requests or have the information readily available. A careful review of any gases that may be in use in the laboratory setting should be

performed, as some gases such as NO2 and CO2, some gaseous flame retardants, and most refrigerants have global warming factors and should be included in your Scope 1 inventory.

Start The Conversation

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to lead in the world of climate adaptation and mitigation. Let us help you take your project from ambition to reality and bend the climate curve together. ■



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4 Reasons ESG Priorities Are Becoming More Important In The Life Sciences Industry

Submitted by James Man, Managing Director, Syneos Health Consulting



■ **Environmental, social, and governance (ESG) imperatives impact every aspect of the work of clinical trial operations. ESG is a collective term that measures a business' impact on the environment and society at large, and how robust and transparent its governance is in terms of company leadership, executive pay, audits, internal controls, and shareholder rights. All companies are deeply intertwined with ESG concerns.**

"Every company uses energy and resources," said James Man, a managing director for consulting at Syneos Health. "Every company affects, and is affected by, the environment. Every company operates within a broader, diverse society. Every company requires governance to function, operate, and exist."

There are four factors that have converged, making ESG concerns a priority for life sciences companies today:

- **A greener world.** The world is moving towards a "green" economy—meaning investors, financial institutions, and the general public all want to see evidence of ESG activities associated with the money they make available to organizations. Effectively, no ESG will mean no investment.



- **Reputation matters.** A business' reputation is increasingly defined not just by how effective its products and customer service are, but by how invested it is around ESG. This has secondary effects, such as being a deciding factor for potential customers and talent.
- **ESG efforts are now a decision-making factor for companies, aligning with their ESG priorities.** Companies with strong ESG credentials and ambitions must work with other companies on a similar path if they are to achieve their targets. Further, while currently voluntary, ESG will likely become a regulatory requirement in the future. That means a business' license to continue operating is tied up with ESG. Therefore, investing in ESG activities now is crucial in preparing for the future and reducing your exposure to risk.
- **It makes good business sense—reducing waste can lower costs and reduce the bottom line.** "When companies are looking to be more efficient and more cost effective, ignoring the long-term savings of actions such as reducing your carbon footprint would be irresponsible," Man said.

ESG will have a profound impact on how clinical operations work is performed. It will add complexity and make it more challenging to deliver the clinical study program successfully. Clinical operations leaders have an opportunity to take an industry-leading position if they address these issues proactively.

Syneos Health experts have attempted to do just that by working together to create an eight-point plan. They suggest that companies:

- Understand your organization's position on ESG, its imperatives and specific overall program and goals—knowledge is always power.

"Every company affects, and is affected by, the environment. Every company operates within a broader, diverse society. Every company requires governance to function, operate, and exist."

- Under the environmental aspect of ESG, understand your organization's commitment around greenhouse gas (GHG)/carbon dioxide emissions.
- Think deeply about how your clinical program(s) could pilot activities/experiments to reduce your organization's GHG/carbon dioxide emissions.
 - Ask the right questions about carbon dioxide savings: can you quantify them?
 - Consider participating in industry-wide initiatives around calculating the carbon footprint of a clinical trial and setting future standards and benchmarks.
 - Under the societal aspect of ESG, consider if your clinical program is doing all it can from a patient diversity, equity, and inclusion (DEI) perspective.
 - Under the societal aspect, consider if your clinical program is doing everything possible from a supplier diversity perspective.
- And finally, apply your company's current governance approach to your clinical trial as much as possible.

To learn more about this plan, you can read our experts' white paper, [Clinical Trials and Environmental, Social and Governance: Plans for Operations Leaders](#). If you are looking to better understand the importance of ESG in the life sciences industry, you can read our experts' analysis in the [Syneos Health Sustainability Report](#). ■

BD Pilots Programs That Reduce Medical Waste

Submitted by BD (Becton, Dickinson and Company)



- **Around the globe, BD (Becton, Dickinson and Company) is partnering with customers, regulated waste management companies, recyclers and others to explore options that drive circular economy solutions for managing post-consumer healthcare plastic(s) and packaging. The goal is to build an optimal approach that takes into account all stakeholders, because success cannot be accomplished by any one stakeholder alone.**

Over the last decade, waste management company, Casella, and BD have partnered to recover, process, and recycle waste at BD sites in the U.S. This includes

injection systems product lines at sites supported by Casella, where they are effectively recycling 100% of non-saleable product generated from their manufacturing process.

In February 2023, BD announced a next-generation circularity pilot program to extend recovery efforts to BD syringes discarded by healthcare facilities. The pilot will assess feasibility of recycling these products back into the manufacturing process, creating additional local sourcing options and alleviating pressures on the critically challenged supply chain system. In this pilot, the teams focus on collection, treatment, and scaling of solutions, while also evaluating a variety of mechanical and advanced recycling capabilities for processing BD products after disposal in healthcare settings.

In May 2023, BD launched a partnership in Denmark to evaluate the feasibility of creating a better end of life disposition for used blood collection tubes. Used blood collection tubes are often considered a biohazardous and regulated medical waste, and in Denmark, they are currently disposed via incineration. This initiative will



investigate steps involved in recycling the plastic from these tubes, which are made of very high-quality raw materials. Ensuring safety and proper hygiene, followed by recycling and evaluating the quality of the plastic obtained are key focus areas of the pilot. The program is currently in an evaluation phase to establish basic technical feasibility and will move to the next phase later this year, with an ultimate goal of demonstrating the ability to recycle plastics from blood collection tubes.

BD has also partnered with two customers and two recycling companies in Australia and New Zealand to explore the recyclability of their infusion pumps. Following the rollout of a new fleet of infusion devices, customers were looking for an alternative disposal route for the devices that had reached the end of their useful life, that would also ensure the secure removal of clinical and network configuration software. Through this pilot program, over 1,300 pumps were recycled,

diverting three tonnes of electronic waste from incineration or landfill.

In 2022, BD Brazil launched pilot programs at two local hospitals to identify a solution to reduce the impact of products at end of life by collecting certain plastic products. Using reverse logistics, the waste materials are transferred to a processing site where the material is separated, treated, and processed into raw material that can be used in the manufacture of new products. Since the launch, over four metric tonnes of waste have been collected, with 99% of material collected being recycled.

Since the launch, over four metric tonnes of waste have been collected, with 99% of material collected being recycled.

BD continues to identify partners and opportunities that address environmental challenges around product packaging that is unable to be recycled using existing infrastructure today. As a founding member and executive committee member of the Healthcare Plastics Recycling Council, BD is proud to serve as a valued thought leader working to reduce medical waste in healthcare systems. ■



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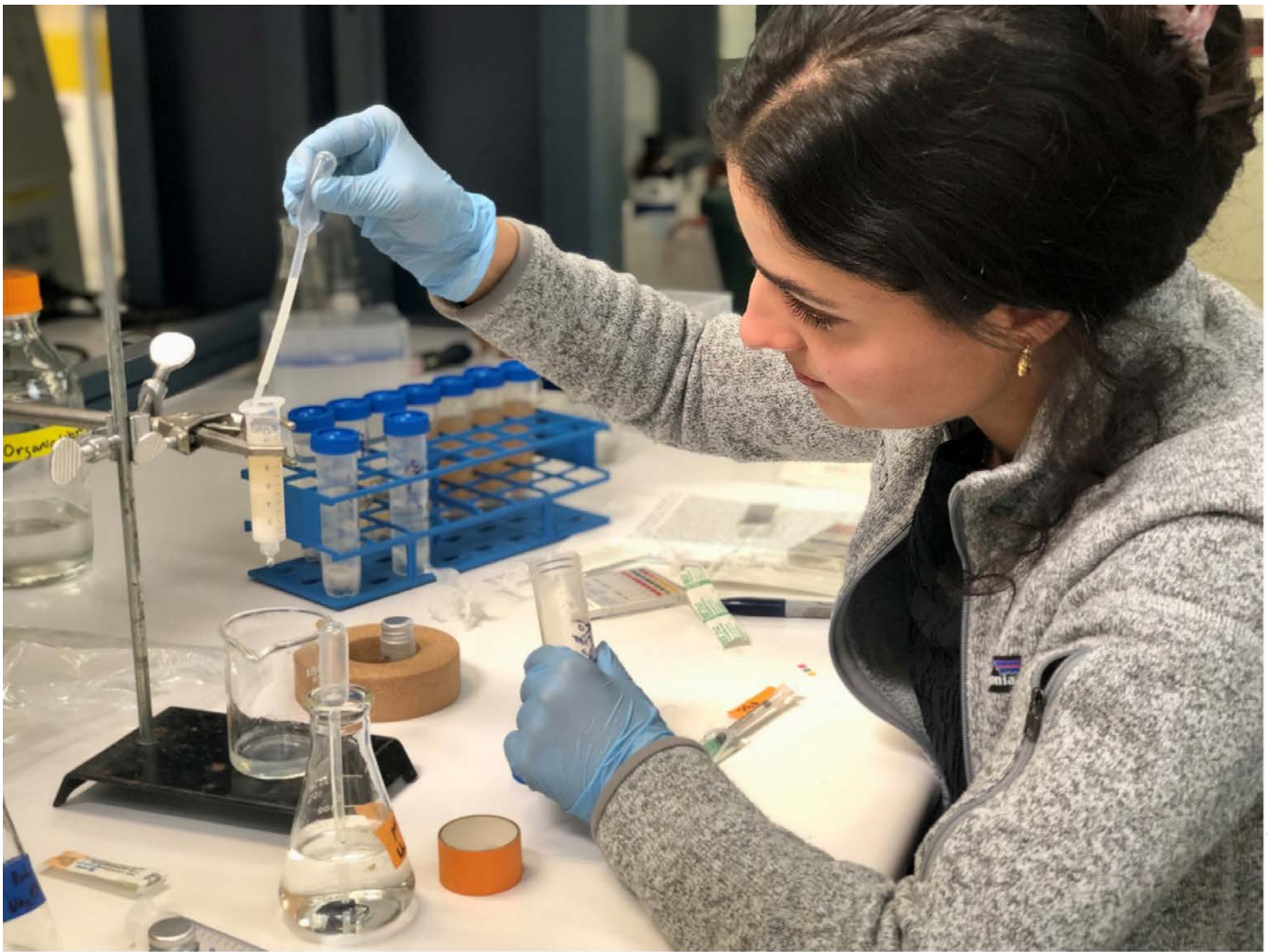
Submitted by Rubi Laboratories

- For most of human history, close-minded industries have tried to advance human prosperity by exploiting and degrading Earth. Today, the ignorance of this approach threatens our species and life as a whole. At Rubi, we believe reinventing manufacturing processes to be symbiotic with the planet is one of the most important things we can do to have a sizable impact on the climate problem. Our mission is to build the world's most sustainable supply chains for the important materials we rely on, including textiles, building materials, food, packaging, and more. With nature as Rubi's greatest inspiration, our technology enables for the first time production systems that exist in harmony with the planet—cleaning the air, preserving Earth's resources, and creating goods that improve people's lives then become food for the planet at end-of-life.



Rubi decarbonizes supply chains, starting with the fashion industry. Inspired by how trees breathe in CO₂, Rubi uses biochemical processes powered by enzymes at an industrial scale to "eat" carbon emissions and convert it to cellulose through our process which is net carbon-negative, water and land neutral, and fully traceable. No extraction is needed, and we let plants just be plants.

Our patent-pending technology is reinventing and replacing traditional manufacturing so that the process itself no longer emits carbon and 100% of CO₂ inputted to the end product is done with zero waste. The



traditional process of creating viscose, also known as rayon, typically involves taking wood pulp, dissolving it in hazardous chemicals, and spinning it into fibers that would be turned into threads. This process has a devastating impact on the global ecosystem, not to mention its health risk. Our Rubi-made cellulosic end product is a direct replacement for traditional viscose, lyocell, and rayon which can be used to make yarn or fibers for textiles. Though we're starting with textiles for the fashion industry, our technology can be applied to all areas of manufacturing including buildings, packaging, food, medicine, and other advanced materials.

Rubi uses biochemical processes powered by enzymes at an industrial scale to "eat" carbon emissions and convert it to cellulose through our process which is net carbon-negative, water and land neutral, and fully traceable.

To further validate our technology, we're exploring partnerships with both academic and industry groups with the goal of publishing a peer-reviewed LCA within the next year. Conducting a third-party analysis of the product lifecycle assessment will transparently report key impact metrics of Rubi's manufacturing process like CO2 removal, water use reduction, and land use reduction that will be crucial for product innovation. We also announced an additional [\\$8.7 million in Series Seed funding](#), with \$13.5 million in total funding, and [initial strategic pilot partnerships](#) with global industry leaders in March 2023. ■

Prioritizing Sustainability In Two Upcoming All-Electric Life Sciences Developments

Submitted by Longfellow Real Estate Partners



■ **Longfellow Real Estate Partners, the largest privately held investor and developer of life sciences buildings is proud of its standing commitment to sustainability and Environmental, Social, Governance (ESG) as a priority within its growth strategy.**

Building on existing policies and initiatives, Longfellow recently rolled out a formal ESG Policy across the organization, which serves as the baseline strategy. The policy will be updated annually and, in the future, will include a public-facing version. Longfellow also

formalized Sustainability and Resilience Design Guidelines for new development projects in 2022. The guidelines establish baseline project goals related to climate resilience, energy use, renewable energy, embodied carbon, greenhouse gas emissions reduction, waste, and water.

Two notable upcoming developments for Longfellow highlight the firm's commitment to sustainability: *Avia Labs at Millbrae Station* in the San Francisco Bay Area and *Bioterra* in San Diego.

Avia Labs at Millbrae Station, which broke ground in March 2023, is set to become the first all-electric life sciences campus in California. The new 315,000 square-foot Class A lab and office project will replace a former vacant storage facility and is just steps away from the



Millbrae Transit Center, one of the largest transit hubs on the west coast, and San Francisco International Airport, offering unparalleled access to public transit. Designed to meet LEED Gold and Fitwel Certifications, Avia Labs emphasizes not only energy efficiency but quality of life for tenants, who will benefit from natural light reaching all sides of the buildings, and access to a suite of campus amenities: including a fitness center, large conference spaces, bike storage, a terrace overlooking the city with beautiful mountain views and a publicly accessible café to welcome members of the Millbrae community.

In August of last year, the Longfellow team kicked off its first ground-up life sciences development in San Diego, Bioterra. The new project will consist of over 323,000 square feet in six stories, furthering the firm's commitment to building out the burgeoning biotech cluster in the Sorrento Mesa and Sorrento Valley submarkets. Consistent with Longfellow's commitment to be a leader in delivering environmentally sustainable and socially responsible projects, Bioterra will be the first all-electric

life science building in San Diego in addition to being designed to LEED Gold and Fitwel Standards.

"Building environmentally conscious and socially responsible projects is critical to meeting the challenges of climate change, and the needs of

innovative companies who are demanding resilient, 21st century infrastructure," said Lauren Ballou, Longfellow Real Estate Partners associate director of ESG. "We are proud to be among the first all-electric life sciences developments in California."

With new developments such as Avia Labs and Bioterra currently under construction, the push for sustainability in the commercial real estate and life science industries continues to be top of mind for Longfellow Real Estate Partners.

Longfellow also became a member of the Urban Land Institute's (ULI) Greenprint Community of Practice last year, joining the global alliance of more than 75 leading real estate owners, developers, and investors that are committed to improving the environmental performance of the global real estate industry. ■

"Building environmentally conscious and socially responsible projects is critical to meeting the challenges of climate change, and the needs of innovative companies who are demanding resilient, 21st century infrastructure."



Pursuing Environmental Stewardship Through Sustainable Science And Supply Chain Innovations

Submitted by Bristol Myers Squibb



■ **The challenges facing the planet are vast, and it's more critical than ever that there is meaningful action to address them. In California and across its global footprint, Bristol Myers Squibb (BMS) recognizes that sustainability touches everything they do and are continually looking for ways to minimize their impact by reducing their carbon footprint, conserving resources, and embedding sustainable practices across the business.**

Environmental stewardship is a shared responsibility, which is why BMS is looking for ways to collaborate across the pharmaceutical industry and the value chain through innovative partnerships, programs, and commitments to harness collective action toward minimizing their environmental impact.

Collective Pharma Memorandum On Emissions Reduction

In March 2023, the Global Heads of Manufacturing and Supply Chain Operations from 19 of the largest global pharmaceutical companies, including BMS, signed the Pharma Manufacturing Forum's Emissions Reduction Memorandum. This memorandum discloses the intent to scale collective action for positive change against critical environmental activities, including the setting and verification of Science Based Targets (SBTs) and the transition to renewable power.



Supporting The Supply Chain Through Innovative Programs

Harnessing collective efforts toward meaningful action is also what underpins two supply-chain programs that BMS is proud to be part of. These two innovative programs are designed to support the pharmaceutical supply chain, which represents approximately 80% of the industry's greenhouse gas emissions.

The Energize program is designed to increase access to renewable energy for pharmaceutical suppliers through resources and expertise, as well as the opportunity to participate in power purchase agreements (PPAs). The program is facilitated by Schneider Electric and sponsored by industry-leading pharmaceutical companies, including BMS, who have committed to engaging and supporting suppliers on the adoption of renewable energy. Since launch, the program has seen over 400 companies register to learn more about procuring renewable energy.

Activate, which was launched in May 2023 by Manufacture 2030 (M2030) and six of the world's leading pharmaceutical companies, including BMS, supports the decarbonization of a key segment of the pharmaceutical value chain. The program provides participating Active Pharmaceutical Ingredient (API) suppliers with access to expert advice, trainings, and green financing, support in the development of new green chemistry solutions, and assistance in the creation of SBTs and Product Carbon Footprints (PCFs).

Taken together, these supply chain programs are good examples of the power of collaboration to help propel emissions reduction and the transition to renewable energy.

Sustainability In Science

Innovation and collaboration are at the core of BMS' mission to create safe, economical, and sustainable processes to supply high-quality active ingredients for the medicines they deliver to patients. BMS partners with external companies and academic institutions to invent and develop new capabilities, which both accelerate the development of new solutions and improve their sustainability footprint. A notable example, BMS teamed up with the Scripps Research Institute, inventing a series of powerful and versatile chemical reagents from humble citrus peels. These new reagents can be made in fewer steps than traditional reagents, reducing the quantity of material needed and avoiding the byproduct waste produced. The significance of

this discovery earned the U.S. Environmental Protection Agency's (EPA) prestigious Green Chemistry Challenge Award for 2021.

Another example of BMS looking for ways to integrate sustainability principles into the development of its cutting-edge medicines is the adoption of My Green Lab's Certification—an international "gold standard" for laboratory sustainability best practices. Building on Go Green Labs, BMS' internal certification program

which helps reduce laboratory environmental impact, the My Green Lab Certification will help BMS explore new processes, technologies, and methods on their journey to saving water and energy and reducing waste. The program also helps lab employees consider environmental sustainability in their daily operations, including the environmental impact of reagents and consumables.

Based in San Diego, California, My Green Lab has a portfolio of programs designed to improve the sustainability of scientific research. BMS is excited to see how this partnership will further propel their green chemistry initiatives and will continue to seek collaboration with partners on innovative solutions for positive impact that is in harmony with the environment and their long-term sustainable goals. ■

Activate, which was launched in May 2023 by Manufacture 2030 (M2030) and six of the world's leading pharmaceutical companies, including BMS, supports the decarbonization of a key segment of the pharmaceutical value chain.

Reducing Environmental Impact With The World's First Benchtop Media Maker

Submitted by Nucleus Biologics

- We celebrate the approval of each new advanced cell and gene therapy because of the lives it will save and the scientific achievement of the accomplishment—a reassurance that science and technology can solve some of the most serious health challenges we face as a society. Due to the significant potential of these cutting-edge advances to save the lives of patients who otherwise have little hope of survival, society is eager to adopt these therapies after careful regulatory consideration. At Nucleus Biologics, we believe our life sciences community and the community at large will also adopt the same sense of urgency when addressing another urgent issue that can impact the health of millions, namely, how we can lessen the harmful impact of single-use plastics on our environment.



One Such Technology To Lessen Our Impact Is Here.

Our contribution to responsible environmental stewardship is Krakatoa™, the world's first benchtop media maker. As shown in a life cycle assessment, media produced with Krakatoa provides a 65% reduction in greenhouse gas emissions per 500 mL of media produced. A significant portion of the reduced environmental impact results from the delivery mechanism, namely the onsite solubilization of media in compostable pods which significantly reduces single-use plastics realized in traditional media delivery, and the reduction of greenhouse gases resulting from the shipping logistics of traditional media.

Cell culture media is a critical component to any cell culture model including cell therapies that can influence downstream efficacy—it can make your cells more



efficacious and viable. Our team often educates clients on how to achieve this with custom cell culture media, and a novel product like Krakatoa will usher in a new era of change in the crucial process of cell culture. This is especially critical at a time when the promise of cell therapies is likely to introduce an explosion in cell culture reagents which, if unchecked, could magnify the current negative environmental impacts of single-use plastic use, storage, delivery, and disposal of media.

Changing A Paradigm Often And Understandably Elicits Some Hesitation

Greenwashing, or the practice of touting environmental gains while masking subpar performance, is rampant. We cannot afford to greenwash scientific products. The products that are used in the development of next generation therapeutics must perform equivalently to current off-the-shelf offerings. Because we support this integral industry and believe in the promise of next generation therapies, we have taken this as a moral imperative during our development process. Our instrumentation is backed by strong data showing the equivalent performance of media in cell culture applications. Internal advocates for greener methods, be they ESG managers or otherwise, are equipped with relevant data to prove the efficacy and functionality of this model in research and development labs across the industry.

Sustainability Is Relevant To Our Industry, But Innovation Must Be Revolutionary.

What does the next evolution of cell culture look like? As therapies become increasingly personalized and the cultures associated with them become progressively sensitive and complex, custom media is clearly a cornerstone component of success. Scientists require the means to quickly iterate formulations to drive desired outcomes during development and

downstream for scale-up. When time is of the essence (one in every five people waiting on a therapy won't live long enough to receive it), developers must not be beholden to sole source supply and proprietary formulations. Flexibility and the ability to fine-tune reagents to optimize therapies for specific cell types and models is a luxury uniquely afforded by the Krakatoa when paired with the digital platforms and services offered by Nucleus Biologics.

Our recent success in partnering with Center for Breakthrough Medicines (CBM), a CDMO on the cutting edge of numerous lifesaving therapies that uses Krakatoa to quickly iterate advanced buffers, has shone a bright light on the myriad of complexities involved in therapy development and how new technology can fit in. Partnership, an increasingly cited necessity for the development, production, and regulatory success of therapies, is also key in implementation (as it is with any novel technology). It helps that CBM is a resolute advocate for sustainability and has a parallel vision for the future of science. Finding partners like this provides invaluable feedback and can steer new development, just as CBM will with beta testing future bioreactor scale versions of Krakatoa.

Flexibility and the ability to fine-tune reagents to optimize therapies for specific cell types and models is a luxury uniquely afforded by the Krakatoa when paired with the digital platforms and services offered by Nucleus Biologics.

"The Only Thing We Have To Fear Is Fear Itself."

The author of this oft-quoted message, Franklin D. Roosevelt, did not live to see the advancement of science to prevent the disease with which he suffered. Change, especially in applications such as these, rightfully raises valid questions and concerns with its implementation. While we could say we should perhaps be more fearful of the consequences of the status quo, instead, let us embrace the aforementioned message: we have the technology to meet some of society's most serious problems. The health of our citizens and our planet is at stake. Let's get to work collaboratively to advance and secure the health of both. ■

1 "How do you decide?": The CAR-T cell shortage is forcing impossible decisions (advisory.com)

Embracing Change And Empowering Communities: CGI's Commitment To Sustainable Transformation

Submitted by CGI Technologies and Solutions Inc

- **In today's ever-evolving landscape, organizations worldwide are compelled to adapt and transform in response to influential macro trends. From reconfiguring supply chains to accommodating demographic shifts and embracing the energy transition, these trends are reshaping industries at an unprecedented pace.**

At CGI, we leverage the expertise of our dedicated team of more than 90,000 members to form strategic partnerships with our clients. Together, we navigate the dynamic challenges of our times by implementing digital strategies that drive success. Central to our clients' achievements is the unwavering commitment to serving their customers and citizens, ensuring that everyone can benefit from the transformative power of technology. Moreover, we take pride in collaborating with clients, academia, and local charitable organizations to improve the economic, social, and environmental well-being of our shared communities.

As a leading global business and IT services firm, CGI recognizes the importance of operating as a responsible and ethical company, with three primary stakeholders in mind: our clients, our members, and our shareholders. Through an inclusive annual strategic planning process, we engage with each of these stakeholders, valuing their insights, which inform our business plans for the year ahead. Now more than ever, Environmental, Social, and Governance (ESG) initiatives are integral to these stakeholder dialogues.

Despite welcoming over 10,000 new members, we have maintained our CO2e emission intensity per member within the levels of 2021.

We firmly believe that what gets measured and made visible, gets done. As an active signatory to the United Nations (UN) Global Compact, CGI upholds a commitment to respecting human rights worldwide and safeguarding our planet. In setting our ESG objectives and targets, we adhere to UN principles and global best practices, cascading these goals into the plans of our business units. To ensure transparency, we openly share our commitments, quantified targets, and progress through the publication of our [ESG report for fiscal year 2022](#).

CGI's dedication to ESG excellence has garnered recognition from leading external organizations. We are proud recipients of the platinum rating for Sustainability Performance from EcoVadis, in acknowledgement of our disciplined approach to integrating sustainability into our daily business practices across the globe. Additionally, our ESG goals and progress are assessed by the Dow Jones Sustainability Indices (DJSI), reinforcing our commitment to responsible and impactful operations.

Environmental sustainability lies at the core of our endeavors. Over the past year, we've made substantial progress in our journey toward achieving net-zero emissions by 2030. Implementing innovative practices, we have effectively reduced CO2e emissions related to our operations, buildings, and travel. Despite welcoming over

10,000 new members, we have maintained our CO2e emission intensity per member within the levels of 2021. Moreover, CGI's active participation in the UN Climate Change Conference, COP27, allowed us to engage in vital discussions on sustainability services and solutions. We highlighted how technology can play a pivotal role in advancing climate change goals,



operating innovatively, and leveraging data for long-term stakeholder value.

At CGI, our social initiatives are driven by a steadfast commitment to respect and diversity. We understand the invaluable contributions that diversity brings to our company and the work we deliver for our clients. Through measurable goals, we strive to advance diversity, equity, and inclusion (DEI) both internally and by championing digital inclusion for all. Additionally, we lead educational programs that empower the future workforce, especially those who are underrepresented in the IT industry.

To foster positive change in the communities where we live and work, CGI introduced the CGI For Good digital volunteering tool. This innovative online platform provides access to a wide range of in-person and remote volunteering and pro bono activities, enabling our members to collectively generate societal value in collaboration with local organizations.

Through measurable goals, we strive to advance diversity, equity, and inclusion (DEI) both internally and by championing digital inclusion for all.

Governance lies at the heart of our operations worldwide. Guided by the CGI Management Foundation, we uphold rigorous corporate governance standards and frameworks that align with the highest ethical principles. Our commitment to responsible digital

services and solutions extends to the assessment of ESG commitments among our key suppliers. We ensure full respect for human rights within our supply chain and global operations.

2022 was a year of remarkable growth for CGI, driven by our unwavering commitment to stakeholders and our unyielding pursuit of ESG excellence. As we move forward, we remain dedicated to embracing change, empowering communities,

and continuing our accelerated progress toward a sustainable future for all. ■



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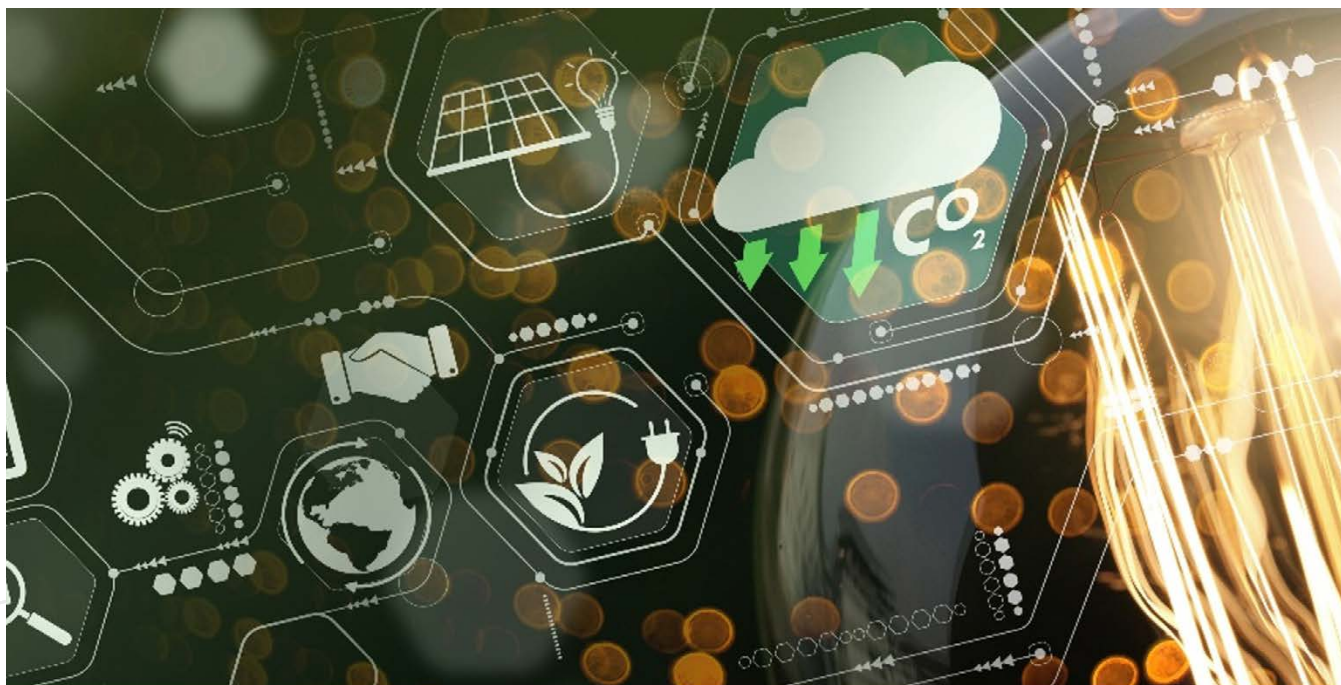
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SUBMIT BY AUGUST 11TH

A Look Into Scientist.com's Sustainability Journey

Submitted by Matt McLoughlin, Sr. Vice President of Categories & Compliance, Scientist.com



■ **As an online tech enabled marketplace within the pharmaceutical industry, Scientist.com has a responsibility to promote environmental sustainability. To this end, we've invested significant time and resources to support sustainability through multiple initiatives. As an SME, our sustainability journey began in 2020; however, since then we have taken great strides.**

By hosting an online platform, we have zero Scope 1 emissions (Stationary, Mobile, Fugitive, and Process). As such, our goal is to educate and inform service providers on our marketplace as to what these are and how they can better understand and control these emissions as part of their own business.

One of the first and easiest shifts we made to ensure or own environmental sustainability was to address our Scope 2 emissions. In 2020, we transformed all offices to carbon neutral by utilizing 100% renewable energy. This step enabled our Scope 2 emissions to immediately drop to zero—a carbon reduction of 4.3 tCO₂e per annum. As we will be moving headquarters later this year, we have ensured we maintain this goal.

The more challenging aspect of ensuring corporate sustainability is understanding our Scope 3 emissions. While not a requirement for an SME as a responsible company, we are being proactive, nonetheless. We are in the process of tracking and understanding our Scope 3 emissions to report internally to our Senior



Management Team, while implementing a number of changes that have already had a positive impact.

The first example is encouraging staff to utilize online, or virtual resources as much as possible when meeting with external stakeholders and clients as part of our Environmental and Travel and Expense policies. We feel that since the pandemic, virtual meetings have been embraced by companies as a viable and valuable alternative to in-person conversations. However, when we do need to travel on business, we require travel by staff to be carbon neutral where possible or at least carbon offset.

The second initiative we undertook was addressing perhaps our highest Scope 3 emission—Servers. Over the past few years, we have relocated our computer servers in Amazon Web Services (AWS) to regions that utilize 95% renewable energy. Our goal is to cut our server usage in half by 2024, resulting in a significant cut in Scope 3 MTCO2e emissions.

Though admittedly young, our sustainability journey has now enabled us to demonstrate our commitment via externally recognized sustainability initiatives. We were awarded a Silver Medal by EcoVadis for our 2021 and 2022 Sustainability Performance, putting us in the 80th percentile of all rated companies. We are a member of the Carbon Disclosure Project (CDP) and were awarded an Awareness rating for 2021, and our 2022 data is now submitted and under review. Finally, we have committed to set near-term, company-wide emission reductions in line with climate science with the Science Based Target Initiative (SBTi). As such, we have committed to reduce Scope 1 and Scope 2 GHG emissions 46% by 2030 as well as to measure and reduce our Scope 3 emissions.

Yet, as the world's largest marketplace for outsourced research services, we understand we have responsibilities outside of our internal initiatives. So, we have worked with our industry partners to provide additional support and opportunities to share and meet their sustainability requirements (clients) and accomplishments (suppliers). For example, we have

implemented new features that enable suppliers to promote their commitment to sustainability within their company profile. They can now highlight their efforts for following external bodies, such as the SBTi, Carbon Disclosure Project (CDP), My Green Lab and others.

By making it easy for marketplace suppliers to distinguish themselves in this way, we hope sustainability will become a key reason clients select one supplier over another. We have also created a Sustainability Webinar Series, to be launched this summer, that will enable suppliers to interact directly with our clients' sustainability teams to better understand their expectations, how to improve their efforts and where to seek additional guidance.

We realize that as a global company that connects research organizations from around the world, we have a unique opportunity and definite responsibility to do our part to ensure environmental sustainability within the life sciences community. ■

We have committed to reduce Scope 1 and Scope 2 GHG emissions 46% by 2030 as well as to measure and reduce our Scope 3 emissions.



If your company is committed to reducing your carbon footprint, contact KIM BROCCINI to learn more about CLSAdvantage partners who have sustainability programs and partners.

CLSAdvantage
INNOVATION AND PRODUCTIVITY PARTNERSHIPS

Sterling Bay, Harrison Street Embrace Sustainable Design At Pacific Center, San Diego's Latest Life Sciences Campus

Submitted by Sterling Bay



■ Sterling Bay and Harrison Street, two of the nation's top real estate development firms, have embarked on an ambitious project in San Diego's Sorrento Mesa submarket, with the construction of Pacific Center, a brand-new, five-building life sciences campus. Alongside its impressive scale and amenities, the development will strongly emphasize sustainable design,

showcasing Sterling Bay and Harrison Street's shared commitment to environmentally conscious real estate development.

Incorporating these next-generation sustainable design elements reflects a growing trend in the commercial real estate industry, where developers strive to create environmentally responsible and energy-efficient spaces. This is particularly challenging in the life sciences sector, as traditional lab buildings, according to the U.S. Department of Energy, use far



more energy per square foot than office buildings due to energy-intensive equipment and stringent health and safety requirements.

Energy-Efficient Lab Space:

With local energy ordinances banning natural gas use in buildings throughout California, Sterling Bay and Harrison Street have opted to make both of Pacific Center's labs fully electric, eliminating the need for fossil fuel-powered systems and reducing carbon emissions. Gensler designed the lab buildings, which total 500,000 square feet of research space, to optimize natural light, ventilation, and energy efficiency using advanced energy management systems like smart lighting and HVAC controls. Pacific Center was an early adopter of the fully electric central plant, which many new builds now utilize for optimal cooling and heating efficiency. The developers aim to minimize energy waste on-site by integrating sustainable building materials and techniques, such as energy-efficient insulation and windows coupled with energy recovery equipment in the central energy plant. Due to the highly efficient design, the project is pursuing Net Zero Energy which accounts for offsetting all operational energy and the associated carbon emitted.

Mass Timber Amenity Center:

One of Pacific Center's most significant commitments to sustainability includes a 28,000-square-foot mass timber amenity building. Mass timber is made from engineered wood products and offers several earth-friendly advantages over traditional construction materials. It's a renewable resource, sequesters carbon dioxide, and has lower embodied carbon than concrete and steel.

Using mass timber as the primary building materials for the central amenity center—a communal space that will house a fitness center and food hall—provides an eco-friendly space for occupants to relax and recharge amidst a natural aesthetic.

Sustainable Transit:

Recognizing the importance of sustainable transportation in today's increasingly eco-conscious automobile landscape, Pacific Center has incorporated electric vehicle charging stations into its on-site parking structure, encouraging vehicles that emit fewer greenhouse gases and air pollutants than traditional gas alternatives.

Additionally, Pacific Center will provide tenants and visitors ample bicycle parking and prioritize pedestrian-friendly pathways to promote alternate modes of

transit in and out of the campus.

By supporting greener commuting options, the developers aim to reduce Pacific Center's carbon footprint and alleviate traffic congestion.

Future Phases & Flexibility:

While the initial phase of Pacific Center's development emphasizes sustainability, Sterling Bay and Harrison Street's commitment to environmentally conscious work also extends to future phases of the site. Phase II will satisfy the more stringent, recently enacted sustainability codes implemented in 2022, such as increased solar power, greater efficiency, more bike racks. Also on the agenda: a garage with a solar-paneled rooftop.

Though the unique energy-related issues facing life sciences campuses present challenges, a multi-year, multi-phase project like Pacific Center allows developers to adapt to the evolving requirements of eco-conscious design and adjust the project's scope accordingly.

With new sustainability ordinances and new eco-friendly technologies in a constant state of evolution, it's never been more relevant for lab developers and designers to construct a new generation of life sciences spaces, like Pacific Center, that are equipped to operate in a low-energy, high-efficiency manner. Sterling Bay, Harrison Street and Gensler are proud to be leading these efforts in San Diego, and across the country. ■

Mass timber is made from engineered wood products and offers several earth-friendly advantages over traditional construction materials.

Sutro Biopharma's Ambitious Climate Targets

Submitted by Lester Cacao, H&S leader, Sutro Biopharma

- Many life sciences companies are calculating the average target by sector which was done by averaging the percentage of the reduction target and averaging the timeframe between the base year and the target year. Based on an average of 32 companies, the pharmaceutical and biotechnology sector has committed to reducing 45.8% of emissions in 12 years, according to the Carbon Majors Database Report 2017. That is more ambitious than the average of all companies. At Sutro Biopharma, we have begun the assessment process to develop an understanding of achievable climate target goals for our Company.

Investing In Sustainability

Though our Green Business Certification, Sutro has invested in the following:

- Reusable mugs/thermos, utensils, dishware
- Replaced all copy paper, toilet paper, bathroom/ kitchen paper towels with FSC Certified with at least 30% post-consumer waste recycled content
- For janitorial supplies, we use certified non-toxic cleaning and building maintenance products and in non-aerosol containers such as Green Seal certified, Environmental Working Group with an 'A' or 'B' rating, US EPA Safer Choice, SF Approved, EcoLogo



- Replaced all individual trash bins with centralized receptacles for bottles, paper recycling, and trash
- Invested in coffee machines that don't require single-use pods made from aluminum or plastic
- Sutro has started reaching out to suppliers to determine operationally specific emission factors which will provide better insight into their company's carbon footprint related to supply chain, usage, and disposal

Achievements So Far

California Green Business Network recognizes Sutro's commitment to integrating sustainable practices into our operations, saving money, and improving the health of our employees and customers. By taking these simple steps, we made a big impact on the environment and lead the way as a certified Green Business in California. We have achieved Green Business Certification for our South San Francisco,



CA headquarters location on April 4, 2023, and are in process of achieving certification for our manufacturing location in San Carlos, CA.

Overcoming Challenges

Since 2021, Sutro Biopharma Headquarters and R&D operation occupy a five-story green building (Silver LEED Certified) which achieved outcomes of energy efficient design, water use reduction, sustainable site selection and development, responsible materials selection, waste management, and enhanced indoor environmental quality. This created a culture of change that allowed us to achieve Green Business Certification quicker at the SSF location. The challenge is achieving certification at the San Carlos location as quick as the SSF location but with older non-LEED certified buildings.

Areas For Improvement

There is a need to improve data management, share effective initiatives, champion successes across departments, and embrace cross-sector collaboration to achieve the common goal of reducing the environmental footprint of Sutro Biopharma. For Sutro Biopharma and our stakeholders, minimizing energy use, waste generation, and use of finite natural resources brings many pressing challenges, but also many opportunities to positively realign our mission and purpose to serve patients and contribute to the global society while enhancing reputation and resilience.

Since 2021, Sutro Biopharma Headquarters and R&D operation occupy a five-story green building (Silver LEED Certified) which achieved outcomes of energy efficient design, water use reduction, sustainable site selection and development, responsible materials selection, waste management, and enhanced indoor environmental quality.

Our Work To Mitigate Climate Change

We have an important role to play in mitigating climate change. Here are some key areas where we have begun to focus increased efforts:

- **Promote** and implement sustainable practices within your organization. Encourage the use of energy-efficient equipment and processes throughout the organization
- **Develop** and implement effective waste management strategies. Encourage recycling, waste reduction, and proper disposal of hazardous materials
- **Collaborate** with suppliers and vendors to ensure sustainability standards are met throughout the supply chain
- **Encourage** water conservation practices among employees and raise awareness about the importance of water stewardship
- **Support** and invest in research and development initiatives focused on climate-friendly technologies and practices
- **Advocate** for stricter environmental standards where appropriate and actively participate in industry initiatives to address climate change
- **Engage** employees at all levels of the organization in sustainability efforts
- **Participate** in sustainability reporting frameworks to demonstrate your commitment to climate change mitigation

By fulfilling these responsibilities and taking proactive measures, we can make a significant impact on mitigating climate change and driving environmental sustainability within Sutro Biopharma. ■

For advertising and content submission guidelines,
please contact Alex Burch at
aburch@califesciences.org

About California Life Sciences (CLS)

California Life Sciences (CLS) is the state's most influential and impactful life sciences membership organization, advocating for the sector and its diverse innovation pipeline. For more than 30 years, CLS has served the community by supporting companies of all sizes, from early-stage innovators and startups to established industry leaders in the fields of biotechnology, pharmaceuticals, and medical technology. As integral components of a healthy and collaborative ecosystem, CLS also works closely with universities, academic and research institutions, the investment community, and other critical partners that promote this vibrant sector. With offices in South San Francisco, San Diego, Sacramento, Los Angeles, and Washington DC, CLS works to shape public policy, improve access to breakthrough technologies, educate lawmakers, and advance equity within our ecosystem by championing innovative solutions for some of the most pressing challenges of our times. In doing so, CLS fulfills its mission to protect and nurture California's life sciences industry, empowering discoveries that lead to healthier lives around the world. Visit CLS at www.califesciences.org, and follow us on Twitter @CALifeSciences, Facebook, LinkedIn and YouTube.

