I²SL's New **Labs2**Zero Program

Laboratories have an outsized impact on carbon emissions due to their energy-intensive nature, so it is vital to understand the steps that lab owners, managers, designers, and engineers can take to help decarbonize them. To develop a roadmap to decarbonize the world's high-tech research facilities, I²SL is creating the Labs2Zero program, comprised of a variety of options and information that address both the complexity of laboratories and the need to make them more efficient while reducing the emissions associated with their building and operations.

- **Energy and Emissions Scorecard for Labs:** Starting in 2023, Labs2Zero will be able to take data entered into the I²SL Lab Benchmarking Tool (LBT) to provide quantitative, normalized scores based on energy use intensity (EUI), as well as the greenhouse gas emissions associated with EUI. Each project will receive a scorecard that will enable comparison to other laboratory facilities in the LBT. In addition to operational carbon, the scorecard will include embodied carbon emissions and water use intensity, eventually.

- **Actionable Insights and Measures (AIM) Report:** This standardized report will recommend energy and carbon reduction measures to achieve energy savings and emissions reductions customized to your lab, plus estimated implementation costs and calculated return on investment, based on the information entered into the LBT and as a way to improve upon the numbers in the energy and emissions scorecard. It will also include case studies of proven technologies and techniques to reduce energy intensity and emissions.

- **Design2Zero:** For new lab construction and major retrofits, this feature will allow building designers and engineers to select a desired energy and emissions score and receive the estimated EUI and greenhouse gas emission targets based on planned design characteristics. Design2Zero will provide suggestions on the best approaches to reduce energy and emissions to help achieve that desired score or rating, factoring in both estimated performance and costs.

- **Lab Emissions Performance Certification:** To publicly recognize and celebrate those facilities leading the way in energy and emissions reduction, I²SL will develop a certification scheme to verify the labs' performance on the scorecards and validate baseline lab safety requirements. Users can pay to both have their labs certified through this program and receive technical assistance from an accredited professional who has demonstrated knowledge through this program.

- **Training and Accreditation Program:** Individuals will be trained to benchmark lab buildings, act on AIM report recommendations, use the Design2Zero tool, and/or earn accreditation to verify lab building results as part of the lab certification program.

Volunteer for **Labs2**Zero

Interested in getting in on the ground floor to help develop various aspects of the Labs2Zero program? There are a variety of technical advisory councils (TACs) forming to start work in late 2022 and throughout 2023 to develop and review the various aspects of the Labs2Zero program, including the new energy and emissions scorecard and usability of the tool.

- **Energy Score TAC:** Members with experience determining building energy use intensity (EUI), or familiarity with lab energy usage requirements and alternatives, can volunteer to help develop the Labs2Zero scoring approach, including the factors affecting EUI and alternatives for reducing it.

- **Carbon Emissions Score TAC:** Volunteers with experience generating lab emissions inventories for and familiarity with sources of operational carbon, as well as an understanding of embodied carbon in lab facilities, are sought to serve on this group.

- **Assessment and Design Tools TAC:** To determine the report content and insights Labs2Zero will provide for existing and new buildings, I²SL is seeking volunteers with experience in and familiarity with energy and carbon reduction measure for labs, as well as those who understand building energy calculations, air quality/safety requirements, ventilation, and lab plug loads.

- **User Experience Working Group:** This working group will focus on ensuring that Labs2Zero provides the services users need; I²SL will be looking for members with either programming experience or users of the LBT, energy scoring tools, or emissions calculators to provide input.

- **Lab Benchmarking Tool (LBT) Enhancement TAC:** Members who have participated in the I²SL Lab Benchmarking Working Group, or used it, will help suggest and review enhancements to the tool in support of the Labs2Zero program.

Interested in volunteering for a TAC or working group? Visit www.i2sl.org and click on the Labs2Zero banner. As one of I²SL's most significant initiatives to date, Labs2Zero will also require significant industry investment and support. For organizations wishing to sponsor the Labs2Zero program, please contact Gordon Sharp at president@i2sl.org.