260508 Meeting Minutes

Attendees: Alyssa Player, Jaasiel Alvarez, Kate Malecek, Tasha Cammidge, Chris Kalaw, Tuyako Khristoforova, Linda Mondaca, Allen Lee, Maddy Adolph, Olivia Finney, Emily Shi, Annie Lam, Luisa Segovia, Vijaya Kumar, Barbara Orozco, Grace Solini, Max Christman, Megan Marthews.

- This month, RSVP here to order catered food from Mediterranean Grill Catering Menu! (**please RSVP by Wednesday 9am**)! **Please remember to bring your laptops and bring your biodegradable/compostable items for our test.** For bonus sustainability: folks can bring their own cups and/or utensils and/or plates as an alternative to our usual compostable ones!
    - Note: they used a lot of plastic packaging!

Will update Restaurant Guide and our Coffee, Breakfast, and Dessert Guide

Introductions …

Million Advocates for Sustainable Science Petition

- International Institute for Sustainable Laboratories (I2SL) along with My Green Lab are petitioning to change funding granting agency policy to promote sustainable research
- By signing the letter you can help transform how science funding organizations set expectations for efficiency, resiliency, and sustainability in the way scientific research is conducted
- Reached 1100+ signatures!

New quarterly challenge: Energy Savings!

- Ever wonder how much energy your lab uses?
- Sign up to get a FREE energy monitoring sensor and see!
- Email (greenlabsinfo@caltech.edu) to request a sensor!
- Plug in your sensor and monitor baseline energy usage and consumption of your equipment.
- If you want to reduce your energy consumption, talk to your lab about changing lab behaviours (like turning off equipment after use) or set up the timer feature to turn off the equipment overnight!
- Save energy!
- **There will be prizes**
- A different lab will be highlighted on our website every quarter
- **Submit to greenlabsinfo@caltech.edu by July 1**

- Anyone want one?
    - All labs present want at least 1! TC will reach out and hand them out next week once IMSS finishes the setup

Green Labs Monthly Tip: Water!

- Check for leaky faucets and report any to AiM
    - Faucets that drip once per second can waste up to 3,000 gallons of water per year!
    - Check your autoclaves, ice machines, water-cooled equipment, and sinks
- Replace single-pass cooling with more efficient methods

Green Labs Adventure (April 2026-April 2027)

- Win a movie night for finishing various Green Labs Tasks! Sign up here!

Sustainability Update – Max Christman!

- Walked through the 2025 Annual Sustainability Report!
    - Max notes that he is just doing a brief overview, but it's worth reading to hear all the stories outside of the numbers
- Below are questions from the audience (along with comments from MC for context):
    - MA: solar panel aging contributing to raising costs? Because they are less efficient so we purchase more?
        - MC: yes and no. Solar contributes only 1-2% of our energy consumption. We also have aging infrastructure elsewhere, and our cogeneration plant went down a few years ago, and has been hard to fix.
    - AL: could we build solar elsewhere to increase the amount we get from solar?
        - MC: Yes, we could build in the Mojave desert (and we have!) but how do we guarantee those electrons come here? We'd need to build transmission to better support it. We could sell those electrons elsewhere and/or partner with Pasadena Water and Power (PWP) on projects. If we have more control of our generation it generates fewer risks (though PWP is pretty good)(for example: Stanford uses 100% energy from their equivalent of PWP and were out of electricity for over a week during fire season a few years ago! If they were reliant on their own system that may not have happened)
    - MC: we have reduced water costs compared to other states, but that won't always be the case. So, that's our next target!
        - OF: is that why there is a lot of brown grass right now?
        - MC: YES! We've partnered with several groups to reduce 100,000 square feet of grass and change it out for native vegetation, more trees etc, and this will save us over 2M gallons of water (~1% of our annual water costs)
        - MC: another example is using recycled water in cooling towers
    - MC: increased trash compared to 2024, but also increased recycling (up 20%!); we're now making a revenue on that stream rather than paying for it, including all the plastics, Styrofoam etc that this group uses, we made about $10k this year
        - VK: public recycling diminished after Chen displaced the public dropoff site – is that coming back?
            - MC: Unfortunately, probably not. In 2018 we saw a reduction in the value of some plastics (there were some laws that changed, meaning we could no longer ship those materials overseas), and we were seeing a lot of inappropriate dumping at Caltech (such as e-waste) that Caltech became responsible for paying for disposal of. That site was getting too large to manage and our partners fell off. So, unlikely to come back.
    - We have lots of LEED certified buildings
        - KM: very little communication about that
        - MC: yes, I agree. We're working more closely with PD&C to make sure those accomplishments are widely publicized.
    - MC: Mobility metrics are pretty on par from last year, mostly focused on how people get to work, lots of users still using cars
        - ES: are students included in that?
        - MC: Yes, if they are undergrads and have a student job on campus, and grad/post-docs are included.
        - KM: EV participation and benefits for EV users? Because this reduces emissions across campus?

        - MC: yes, EV users technically cost 0 for emissions (so helping with air quality), but they still contribute to traffic which is another metric we have to report to the state and city
- MC: Emissions survey complete!
    - Scope 1 (natural gas and transportation) and scope 2 (purchased electricity (PWP and fuel cells in this)) are direct emissions Caltech has
        - We are making a plan for net 0 emissions of scope 1+2 by 2045
    - Scope 3 is indirect emissions (such as purchased goods and services, new building sequestered carbon, etc.)
        - We are working mostly here on reducing emissions by changing how Caltech purchases etc.
- JA: ventilation is a huge energy hog – can we recirculate the air to save energy? Other places do this
    - MC: We do. Labs are single pass, but offices and shared spaces are recirculated using economizers to reduce energy burden of heating working spaces. During Covid we stopped this and went to single pass. During the fires we also stopped using economizers as they pull air from the outside. Those two actions were left undone, so there was a large energy burden that we're addressing now to undo those actions and ensure economizers are working correctly again
- KM: What are you doing to create a benchmark of existing energy consumption etc? Are you considering deferred maintenance etc.
    - MC: Yes! Energy Use Intensity (EUI) needs to be normalized for the type of building/equipment, and I want to create a baseline against a building itself so we can see if there are adjustments needed due to drift, but to do that we need data at hand. So, we have hired a PT student over the summer to help with this. Right now a lot of the data is disparate and hard to get due to broken meters etc. This project will address that.
- AL: I've heard rumours about some new energy cogeneration stuff, can you tell us about that?
    - MC: Yes, but only that we are in the planning stages of redoing our cogeneration plant and upgrading it, making it more efficient and completely recovering any CO2 emissions from this new plant. We had other plans in the works that have since fallen through, but this new plan will be announced in more detail soon!
- JA: What are you most excited about for 2026?
    - MC: well, a lot of things! The first is that my team is growing and I'm certain it will continue to grow and thrive in the coming year. Another is the fume hood project; TC and I walked a space today and there is just so much potential for energy savings and making spaces safer. I'm also excited about the food pantry CK is developing with one of our students. Something I'm personally working on is, now that our scope 3 inventory is complete, I want to start divestment of fossil fuel investments from our endowment. Other universities have begun to do this, too, and the time is right for such a change. Lastly, water is definitely an untapped frontier here; there are so many ways we can recycle water and/or treat water on campus, meter, and more. I'm excited about that!
    - AL: where is the industrial cold water from? In CCE we have three taps, one is industrial cold water, the other is tap water, and then DI?
        - MC: I've not heard of that. I'd have to ask the plant, as that's not something I'm familiar with! I'll look into it and let you know.

- CW: are you working with Security on the bike share program?
    - MC: Yes! Especially in the ebike program and funding, working with the parking office, and we helped submit the bike-friendly university application (you can see the plaque on San Pasqual MC thinks!).

Updates

- **32 Certified labs!! WHOOOOO**
    - Please get CERTIFIED TODAY! To get certified, finish the easy, 30-minute Green Labs Certification and submit it to sustainability@caltech.edu.
    - Certified Labs-exclusive event planned for April!
    - We have a FREE LAB RECYCLING PROGRAM STARTING IN NOVEMBER!! – you can recycle pipette tips, conical tubes, and more!
    - So far our first month diverted 40.5 kg clear plastic and 6 kg coloured plastic
- New recycling signage ahead of the safety inspection next week!

Updates on our Student Interns

- Does anyone want an energy assessment or fume hood sensor? Reach out to us!
- Writing both projects up as white papers before the summer
- Hosted a clothing swap with WiBBE March 16-April 22
    - Received 215 donations (weighing 52.5 kg), rehomed 115 and donated 105 (weighing 27 kg) to the CaltechY Professional Drive and to the Women's Room from Pasadena's Friends in Deed organization
    - Making a permanent program that is housed outside Alles 181, run an event every quarter or so
-

Updates – Pilot Programs

- FUNDING IS AVAILABLE – SEE PILOT PROGRAMS WEBSITE
- May 3– Styrofoam recycling day
    - Sign the petition! Technical bulletin from I2SL, LCA of Styrofoam
    - Do you want a location added? LET US KNOW!
    - How to do LCAs
- Pipette tip pilot is now a Caltech-run program
    - Now accepting all brands!
    - Over 1 dumpster full the first 2 weeks!
    - Do you want a location added? LET US KNOW!
- Lomi
    - Moving to giving dirt to Catalina Compost
    - 1,078 lbs of dirt (or 5,391 lbs food waste) – hasn't been collected yet for last month!
- -70˚C/-80˚C Comparison Pilot
    - 5 labs involved, collaborating with NIH and UVA + Norway labs collaboration
- Investigating animal bedding composting… more to come on that soon!
- PolyCarbin
    - Initial order replaced 31 pounds of crude oil and reduced 122 pounds of CO2E via sustainable procurement
    - 22 labs have bins installed!

    - So far our first month diverted 40.5 kg clear plastic and 6 kg coloured plastic
- Fume hood sensor project
    - Around $1,300 savings per fume hood on average!!
- **Grenova pipette tip washer:** looking into funding options!
    - Survey for pipette tip types, cost per year, etc. to gather data
    - Looking into funding options
- Marketplace
    - **$200,110** (1,800 kg) diverted
    - **$5,438** (100 kg) donated to local schools (so far!)
    - Open house rehomed **$96,000** in just 1 day!
    - Over $149k of supplies and $200k of equipment online!
    - Sustainability website launched in February
    - Plants! They have arrived and we are growing now
- **Follow us on Instagram** →

Update from Chris

- Two students:
- Ola - Scope 3 emissions project
    - Product specific - Code matching
    - Company specific - Proxy emissions factor through spend with specific company
- Tiffany - Pop-up food pantry
    - Business case
    - Funding proposal
- Working on the grass replacement initiative -see cute signs!

Update on Fume Hood Project

- Sidequest: Women in STEM outreach event!
    - Alex and I led a "separation" activity
        - Pen chromatography, running a gel with dye that separates, and making DNA from strawberries!
    - Bhakti ran a MASH-building activity
        - 21 sensors built (many are partially built!)
- Now have 71 sensors built !
    - New 3D print design
    - Installing before end of summer
        - Will collect baseline data then turn sensors on
    - 1-2 summer students working on it
    - Surveyed Schlinger for locations of all fume hoods
    - Ansh and Rohan are presenting at I2SL in September!
- Hibernated 27 fume hoods in Crellin, Church, and Noyes
- Annual project savings of $212,265!
- Continuing to survey for more to hibernate
- Turndowns
    - Church walkthrough today – will start work over the coming weeks (anticipated savings of $70-121K annually!)
    - HVAC requirements being decreased

- Possibly replacing blower fans or fume hoods in older buildings
- Safety issues
    - Old and leaking chemicals
    - Opening doors
    - Collaboration with Divisions and EHS
    - Fume hoods not operating correctly
    - “Wind tunnels”
    - Lots of aging infrastructure

Next meeting June 12