



Minutes – Friday, January 31, 2025
Video Conference
9 am to 11 am

Attending: Brian Eden, Jeff Goodmark, Bob Howarth, Tony Ingraffea, Jen Myers, Ray Burger, Chris Skawski, Dave Bradley, Dawn Montanye, Gerri Wiley, Hailley Delisle, Ingrid Zabel, Shimon Edelman, Kim Munchel, Dan Lamb, David Kay, Diane Cohen, Edward Solomon, Hilary Swartwood, Katie Church, Leigh Miller, Jon Jensen, Bill Nowak, Fenya Bartram, Jacob Mays, Joe Wilson, Leila Wilmers, Nick Goldsmith, Rod Howe, Sara Hess, Sarah Carson, Susan Riley, Wayne Bezner Kerr, Cynthia Brock, Janelle Bourgeois, Karim Beers, Margaret McCasland, Marie McRae, Paul Moore, Rebecca Evans, Savannah Vega, Terry Carroll, Tom Hirasuna, Evan Kurtz, bethany ojalehto mays, Peter Bardaglio

Center for Community Transportation: What's Up for 2025? – Stepping in for Laura Vineyard, executive director of the Center for Community Transportation, Jeff Goodmark, *director of micromobility, looked ahead at what 2025 will bring for the Center for Community Transportation.*

- Ithaca Carshare, Bikewalk Tompkins, and Ithaca Bikeshare are three main programs of Center for Community Transportation (CCT)
- 2024 difficult year for CCT – spent several months without executive director – Laura came on as the new executive director in late July
- Lot of recalibration and rethinking about how organization is going to be successful
- Niki Ray-Israelsohn is director of Bikewalk Tompkins
- Bike Walk Tompkins works to make Ithaca and Tompkins County a community where walking, biking, and rolling are safe, convenient, & accessible for all people
 - Education & Outreach: learn to ride programs for youth and adults, bike repair shop
 - Access & Services: safe space where people can come in and learn about transportation options in community
 - Advocacy & Encouragement: senior bike rides, Halloween bike rides
- Community Bike Shop very successful in 2024
 - Community Bike Shop had 1,190 sign-ins, up 189% from previous year
 - 119 bikes sold or donated (+3%)
 - 120 FTWN-B community participants in Shift Program
 - 2,594 participants across all education events
 - 430 Elementary School rodeo riders
 - 411 group ride participants (ages 5-85)
 - 51 youth and adults who learned how to ride a bike
- Advisors and partners with:
 - Move Ithaca Active Transportation Plan
 - Tompkins County Joint Safety Action Plan

- Rt. 13 Cayuga Waterfront Revitalization Project
- Collaborations with, among others:
 - BOCES
 - Cinemapolis
 - Cornell University
 - GIAC Senior Rides
 - GO Ithaca
 - Ithaca Underground
 - Ithaca Welcomes Refugees
 - Tompkins Whole Health + CMC
 - Women's Opportunity Center
- Bike shop (Bike Works) reopening in February and Streets Alive Film Fest in March at Cinemapolis
- 2025 Goals & Programming
 - Community Bike Shop
 - Incorporate an additional open shop session weekly (total of three weekly) & Shift Program sessions twice a month (open shop + class)
 - Monthly volunteer nights & mechanic skills classes
 - Volunteer tiers with benefits + possible membership model
 - Bike Safety & Skills Education
 - Increase adult learn-to-ride participants
 - Launch “Small Group Navigation” tours
 - Community Engagement
 - Bike Valet
 - Lighted Full Moon Rides
 - Adaptive & E-bike petting zoos
 - Group Rides with specific community partners
 - Advocacy
 - Planning phase for Open Summer Streets & revival of Streets Alive
 - Continuing conversation and pressure to improve Floral Ave, Elm St, & State St. safety for pedestrians & bicyclists
 - Planning phase for protected bike lane demos
 - City adoption of the Active Transportation Plan
- 2024 huge year for Ithaca Carshare – shut down in early 2023 due to insurance issues
 - Reopened March 11, 2024 and have been running 24/7 since!
 - Welcomed new staff Sandy, Maggie, and Sean
 - Enrolled more than 500 new members!
- Fleet usage first ten months (3/11/24-1/10/25)
 - Total number of bookings: 9,067
 - Number of miles driven: 140,195
 - Total car hours available to members for bookings: 135,789
 - Total hours booked by members: 23,038
 - Percentage of available hours booked by members: 16.97%
 - Usage Revenue: \$213,305.21
 - Membership Fees: \$121,815.36
- Total Usage Revenue & Membership Fees: \$335,120.57
- Operating only with 20 vehicles – had to sell bunch of cars in 2023 to stay afloat until we could reopen again

- Need to get number of cars back up – working with organizations, funders, and NYSEERDA so we can purchase additional cars
- Members by plan (total number of members):
 - It's My Car monthly: 180
 - It's My Car annual: 97
 - Just In Case monthly: 311
 - Just In Case annual: 633
 - Total members: 1,221
- Had 1,400 members before shutdown
- Goals for 2025
 - Purchase five new cars in the spring/early summer. Use any reimbursable grant money + trade-ins for more new cars in the fall to reach a total of 25 vehicles in the fleet by the end of the year.
 - Place a car in Varna in the spring, and track usage as part of the planning for mobility hubs in rural areas through the NYSEERDA Clean Mobility planning grant.
 - Attract new members through increased outreach and marketing campaigns that target commuters, low-income members, employers, and students.
 - Increase usage by implementing new communication tactics with new members.
 - Increase the number of Easy Access members so it more accurately reflects the percentage of people in Tompkins County living at or below the federal poverty line.
- Had 1,400 members before shutdown
- Since launching in late 2022 Ithaca Bikeshare has had 166,400 rides – 5.4 rides for every person in Ithaca – tremendous amount of buy-in from community
- 13,641 people have downloaded our app and taken at least one trip – 65 active Easy Access members
- Increased our rides by 20% in 2024 over 2023
 - In 2024 we have provided 10,000 trips to or from our target low income areas
 - 92 days with \$1000+ revenue – goal is 250 days
 - Members took 45,552 trips in 2024 (51% of all trips) – goal is 30% membership trips
 - 545 trips in a single 24 hour period – goal is 750 trips a day
- Ithaca Bikeshare still seeking new partners so we can make our program more robust

Q&A

- David Kay: Great to see kind of growth Ithaca Bikeshare has experienced – what kind of alternatives would people use if they didn't have this option?
- Jeff: National data shows that about 37% of rides replacing single-occupancy car trip – very impactful from that perspective
- Important for us to make sure our services are available every single day regardless of weather
- Ingrid Zabel: Can you tell us more about your program for seniors?
- Jeff: Bikewalk Tompkins has senior programs that run all summer long – schedule for 2025 not set yet
- Our goal is to get people who may not have ridden a bike in awhile into a bike that is safe and comfortable for them
- Do curated group rides and invite seniors into our BikeWorks maintenance and repair shop

- Dawn Montanye: Great to have local bike program that is committed to area – how does the reduction in membership affect your ability to service the low-income population? Are you looking for state and federal funding to fill in some of gaps?
- Jeff: Anyone who wants to can sign up for the easy access program and get free access to bikes
- David Kay: Did the closing of Way2Go affect your program at all?
- Jeff: Not really – CCT works much more closely with Golthaca – they administer our Easy Access program and they're qualifying folks for it

Park Building Decarbonization Fund – Nick Goldsmith

Nick Goldsmith, program officer for the Park Foundation's Sustainability Ithaca, discussed an important new initiative, the Building Decarbonization Fund, which will provide funding for non-profit buildings in Tompkins County.

- Why is the Building Decarbonization Fund (BDF) needed?
 - Increasing effects of climate change demonstrate need for more resilient infrastructure.
 - Building sector one of largest sources of greenhouse gas emissions.
 - More non-profits coming to Park seeking assistance with building improvement projects, which can be expensive and hard to manage.
 - To address these challenges, Park has developed the pilot BDF to equitably distribute funding and technical assistance for projects in local non-profit buildings.
 - Pilot fund developed with community input and will continue to evolve during implementation.
- Funding Provisions
 - Pilot grant fund of \$500,000
 - Grants between \$20,000 and \$100,000 will be awarded.
 - Revolving loan fund of \$500,000
 - Low-interest loans between \$20,000 and \$100,000 will be awarded.
 - Interest rate of 0.5%; Payback period of five years.
 - Loans will require full funding match; matching for grants desired, not required.
- Proposals will be accepted beginning January 10, 2025
- Proposals for Q1 are due January 31, 2025. Funding awards will be announced and paid in March.
- Proposals for Q2 are due March 27, 2025. Funding awards will be announced and paid in June.
- At least half of the funding will be reserved for Q2. Additional rounds of funding will be offered if funds remain after Q2.
- Who can apply?
 - Not-for-profit 501(c)3 organizations in Tompkins County are eligible for consideration
 - Exceptions: higher education institutions, K-12 schools, and government agencies are not eligible for the pilot funds.
- What projects are eligible for funding?
 - All projects must reduce GHG emissions or increase resiliency.
 - Examples: energy efficiency (insulation), electrification (heat pumps), EV chargers, on-site renewable energy.
 - Efficient electric equipment is prioritized over fossil-fuel equipment.

- Both applicant-owned and rented buildings and spaces are eligible.
 - Funding is intended for existing buildings/spaces
- What projects are eligible for funding?
 - Projects may include improvements that are necessary to enable main project, such as electric upgrades, remediation, or repairs.
 - Projects may include components such as project management, design work, energy studies, and third-party commissioning.
 - Free technical assistance offered by the local Business Energy Advisors program.
 - Free energy use tracking offered by the Ithaca 2030 District.
 - Projects should be completed within one year of the funding award date – funding not intended for already completed projects.
- The Fund aims to align with City of Ithaca Justice50 program by allocating at least 50% of funding to organizations that serve Climate Justice Communities (CJC).
- What are Climate Justice Communities? Communities that bears disproportionate burden of negative impacts of climate change and are least able to prepare, withstand and recover from those impacts.
- BDF uses same criteria to identify CJC-serving organizations as City of Ithaca uses table to identify climate justice individuals and households
- If your organization serves CJs, describe how your organization and/or building/space meets the individual criteria in the table. Please address at least one criterion from at least three of the four columns. This could relate to:
 - The organization's mission and policies
 - The communities that are intentionally serviced by the organization (e.g. neighborhoods, demographics)
 - How the organization is serving those communities (e.g. focus on rural)
 - The composition of the staff and board of the organization, especially leadership
- Additional Resources
 - Free technical assistance, including guidance on funding available for these types of building projects, is offered by the local Business Energy Advisors program.
 - Free energy use tracking and cohort-based learning on building decarbonization and resilience are offered by the Ithaca 2030 District.
 - NYSEERDA offers subsidized energy studies through two different programs. The Green Jobs - Green New York program offers energy studies for a very low cost for non-profits.
 - Additional grant funding opportunities are included in BDF guidelines.
- Learn more at www.parkfoundation.org – please help spread word

Q&A

- Sara Hess: Are rural churches that have food pantries eligible to apply to this program?
- Nick: Yes, as long as they're a 501c3 organization
- David Kay: How will Park decide whether program is successful? Could you say more about mix between grant and loan?
- Nick: Organizations can apply for up to \$100,000 with any mix of grant and loan that makes sense for their organization
- Board has not given us firm metrics for success – “let's do it for a year and see what happens” – may or may not repeat program next year

Estimating the Operational Emissions of Cornell University

Heat Decarbonization Pathways – Fenya Bartram, Eric Potash, bethany ojalehto mays, Jacob Mays, and Tony Ingraffea

The research team presented its findings on two different approaches to decarbonization at Cornell University, the near-term decarbonization pathway and the delayed decarbonization pathway.

Fenya Bartram

- Some background on Ithaca Energy Code Supplement (IECS)
- Became law in 2021 – part of the Ithaca Green New Deal, Ithaca’s climate justice policy
 - Driven by climate justice organizations such as Sunrise Ithaca
 - “Community-wide carbon neutrality by 2030”
 - “Ensure benefits are shared among all local communities to reduce historical social and economic inequities”
- Goal: “Deliver measurable and immediate reductions in greenhouse gas (GHG) emissions from new buildings, major renovations, and new additions”
- Requires all new construction and significant renovations to phase out fossil fuel use beginning in 2026

Tony Ingraffea

- What is the Earth Source Heat Project? (ESH)
 - Obtain hot water by mining heat from rock 2+ miles beneath campus to heat buildings
 - Replace the steam/hot water coming from the natural-gas-burning Combined Heat and Power Plant (CHP)
 - Different from ground source heat pumps
- ESH is Plan A for campus heat decarbonization: 2035 completion?
- Interim President Kotlikoff on 1/21/2025:
 - “In the long term, the most promising way for us to meet our energy goals is Earth Source Heat: a game-changing technology with the potential to meet cold-climate heating needs with less electricity than other options....”
- But does ESH preclude implementation of other measures in the interim? ESH is experimental: In its research phase, a no-guarantee experiment
- First major step: a \$10M+ vertical borehole in 2022 to obtain critical data (CUBO)
- Next step: deepen and re-enter CUBO to de-risk ESH
- Waiting on a \$10M+ grant from DoE to fund this step
- Scope of project is huge – providing 95% of campus heat needs will require multiple well pairs, each well will be about 3 miles long, and fracking will be needed to connect the wells in each pair
- Key question: what should we do before 2035 and what if ESH fails?

Jacob Mays

- Cornell’s energy transition, in essence, a timing decision
- “If successful, the final build-out of Earth Source Heat would be optimally sized to deliver about 95% of campus’s annual heating demand.” - ESH FAQ
- If unsuccessful, the most viable backup plan for ESH relies on ground-source heat pumps (GSHPs)

- In principle, GSHPs added to the district energy network could supplement ESH when it comes online
- What would be the emissions impact of installing GSHPs (e.g., in conjunction with construction projects) as we learn more about the prospects for ESH?
- Key point to consider: how do we estimate emission consequences of long-term capital project like building electrification?
- According to NYSERDA, standard is to assess building electrification based on long-run emissions rates
- Short-run vs. long-run marginal emissions rates
 - Short-run MERs
 - Resource mix available on the grid is assumed to be fixed
 - Increased demand (e.g., from heat pumps) is met by marginal unit on grid
 - In New York this is usually a gas plant
 - Long-run MERs
 - Resource mix available on the grid is allowed to change
 - Increased demand leads to increased supply in the long run
 - In New York this may be met by a combination of resources: 1) Building new wind/solar; 2) Retaining old gas longer; and 3) Imports (e.g., from Quebec or Pennsylvania)
- Short-run rates seen as a poor estimate of impacts
- *Energy Policy* (June 2024): “Short-run marginal emission factors neglect impactful phenomena”
- *iScience* (March 2022): Short-run rates “overpredicted the emissions induced by all the load interventions we examined, often quite significantly.”
- In context of IESC goals, we want to assess whether adding GSHPs in near term would result in emissions reductions relative to status quo operations
- We will do this on the basis of estimated long-run emissions rates, in contrast to prior analyses from Cornell

Fenya Bartram

- IESC requires phase-out of fossil fuels for new construction by 2026, but ESH is not expected to come online until 2035 at earliest – Cornell requesting amendment to IECS as result
- How should Cornell provide heat to new construction and renovations before Earth Source Heat (ESH) is targeted to come online?
- Following IESC requirements, new construction on Cornell campus before 2035 would require installation of heat pumps
- We consider three major emissions sources:
- Use of natural gas in the Combined Heat and Power (CHP) Plant
- Electricity needed to power alternative heating systems (GSHPs, ESH)
 - Assumed to come from the grid
 - ESH more efficient than GSHPs
 - Replacing lake source cooling (LSC) with GSHPs for cooling
- Electricity co-production at the CHP
 - Assumed to displace electricity from the grid
- Illustrative test case: Emissions impact of near-term versus delayed decarbonization for current construction projects ongoing at Cornell (2024)

- 8 major new construction or renovation projects planned or underway at Cornell in 2024
 - 4.48% of campus total square footage → Assume 4.48% of energy use (for both heating and chilled water)
- Engineering feasibility: We assume that buildings can remain on the district energy system; GSHPs provide an additional infusion point into the system.
- Implementation of the New York Climate Act (CLCPA) will reduce grid emissions
- How does falling behind on grid decarbonization goals impact findings? Our model considers different scenarios for grid decarbonization:
 - **CLCPA decarbonization:** Emissions reductions consistent with CLCPA targets (Emissions factors taken from E3 report produced for NYSERDA, assumed to fall to zero in 2040)
 - **Delayed (CLCPA+3) decarbonization:** Decarbonization rates from above case are delayed by 3 years
 - **“No CLCPA” decarbonization:** Long-run marginal emissions rates for PJM-East, a nearby region with weaker decarbonization policy (Emissions rates modeled by NREL and remain positive through 2050)
- What might be the long-run emissions impact of installing GSHPs in 2026?
 - Results: Installing ground-source heat pumps in 2026 leads to emissions reductions even when CLCPA goals are not being met
- What happens to the benefits of GSHPs if they aren’t installed until 2030 instead of 2026?
 - Results: Smaller but still significant emissions reductions from GSHPs as we approach completion of ESH

Jacob Mays

- Is our “pessimistic” case for grid decarbonization pessimistic enough?
- Prospects for grid decarbonization
- The Good News
 - Nearly everything being added to the grid is clean
 - Nationwide, 2.5 GW of gas capacity added in 2024 out of 62.8 GW of new generation
 - In New York, only two gas projects in interconnection queue, both recent additions
- The Bad News
 - Pace of new additions in New York is well behind CLCPA targets
 - Ongoing challenges with supply chains, siting, permitting, and interconnection (nationwide, but even more challenging in New York)
 - Unclear outlook for Federal policy in the near term
- New York grid projections currently available from NYSERDA and NREL are over-optimistic, but believe that using short-run rates is too pessimistic
 - No higher long-run rates are available in the published literature
 - Using short-run rates known to be incorrect
- Intent of NYSERDA projections is to support decision making on vehicle and heat electrification across the state
- Estimates of long-run rates implicate the entire IECS and the decarbonization strategy of the state, not just Cornell’s district energy system
- Need to regularly refresh estimates of long-run emissions rates taking into account recent trends in generation deployment

Conclusion

- IECS decarbonization depends on two things happening in parallel:
 - Decarbonization of electricity grid
 - Electrification of building heat
- We find 54–92% emissions reduction (GWP20) from installing GSHPs in 2026
- using a range of estimates for long-run grid decarbonization available in the literature
- While these estimates could be refined with more detailed building modeling (as performed by the Cornell Energy Team), we believe the most critical input assumption is long-run emissions rates

Q&A

- Peter (to Jacob): What do you see as the main point of the argument presented today?
- Jacob: Decarbonizing grid is most important factor – important to make sure we actually accomplish this
- bethany ojalehto mays (in chat): Can you say a bit more about how Princeton is undertaking building decarbonization?
- Jacob: Princeton installing geothermal heat pumps across campus – much dirtier grid in NJ than in NY – not familiar with details of their analysis of consequential emissions but they must have been using scenario that assumed declining rates over time
- Sarah Carson: Key difference between Princeton and Cornell is that Princeton does not have lake source cooling – latter many more times efficient than even best GSHPs
- Impact of lake source cooling left out of group's white paper and today's presentation – need to take into account cooling as well as heating
- We agree that portfolio of solutions makes sense but we think moving forward with GSHPs while waiting for ESH would have negative impact on environment – will increase emissions in short term
- We would love to continue to collaborate and work on refining models with better data
- Peter asked Jacob if he wanted to address how they took into account impact of lake source cooling
- Jacob: Ours is very much top-down model but in our analysis lake source cooling does not make that much difference due in part to how clean upstate grid is
- Tony Ingraffea: If we only use short-run marginal emissions rates in our analysis, it negates any effort to install ground source heat pumps both on and off campus
- Fenya: We're not advocating to convert entire campus to GSHPs, but rather just new construction going forward – also GSHPs could be used to supplement lake source cooling
- Bob Howarth points out group is using GWP20 (Global Warming Potential over 20-year time period) as required by NYS law and Cornell is using GWP100 – as result, less weight given to methane in Cornell's accounting
- Fenya: We still see benefits in using GSHPs even with GWP100, although not as much
- Wayne Bezner Kerr: Amount of new load involving wind and solar in NY much less than what's expected in places like Texas – also we know what short term marginal rates are as opposed to uncertainty about what long term marginal rates might be
- Jacob: Less an issue of what is being deployed in NY (renewable vs. fossil) than an issue of not enough renewable energy being deployed – what is being deployed is overwhelmingly clean
- We need to work on refining our understanding of what the long-term marginal rates are but despite this, Jacob believes it's a better approach than using the short-term rates

- Wayne pointed out that as result of Trump's threatened tariffs, Canada likely to cut off export of its clean hydro power which will lead to greater reliance on natural gas from south of NY
- David Kay agreed with Jacob that question of how quickly we can decarbonize grid just as important as decarbonization of buildings – unfortunately, there is growing pushback against largescale solar in particular in NY – would be very surprised if NY meets its decarbonization goals