

TC CPI | Tompkins County Climate Protection Initiative

2017 TCCPI MEMBER ACCOMPLISHMENTS

Alternatives Federal Credit Union

- One of the founding members of the Ithaca 2030 District
- Made 115 loans for solar energy installations totaling \$1,484,133
- Staff “Green Team” working to continually improve energy efficiency and reduce waste
- Working with local energy consultants DESquared and Greenstar Cooperative Market on the feasibility of a local, cooperative community solar benefits program

Cayuga Medical Center

- Exploration of Energy Projects to improve the Hospital's Energy Star Rating and Efficiency began in 2017.
- 2017- 2018 Facilities Master Plan underway with a review of current/future Physical Plant Infrastructure.
- Cornell Master of Engineering students completed a project to review alternative energy uses at the hospital that included the use of many combined sources. These included solar photovoltaic, large scale battery storage, and (CHP) combined heat and power.
- Planned project for 2018 Site Lighting upgrade to LED to save more than 260,000 kWh annually, CO2 Emissions – 311,951 lbs./yr., SO2 Emissions – 4,159 lbs./yr., NOx Emissions – 17,937 lbs./yr.
- Installed LED Lighting in Boiler House to replace T12 lighting fixtures.
- Continuation of replacement of Pneumatic Controls with (DDC) Direct Digital Controls during construction renovations.
- 2017 – 2018 study of project cost and funding incentives for T8 Fixture Replacement with LED fixtures throughout the hospital for future Capital Budgeting.



City of Ithaca

Secured over \$160,000 in grant funding, managed existing grants

- Earned NYSERDA Clean Energy community designation, making City eligible for a \$100,000 grant
- Awarded \$35,000 by Park Foundation for shared Sustainability Planner position
- Awarded three Electric Vehicle Charging Stations through NYSERDA grant (estimated value \$24,000)
- Awarded \$4,885 by Urban Sustainability Directors Network to bring staff from Burlington, VT, Fort Collins, CO, and Evanston, IL to Ithaca for two days to discuss green building policies
- Administered two existing grants (Park Foundation, Funders' Network for Smart Growth and Livable Communities)

Continued Green Building Policy project

- Comprehensive study of policy tools to incentivize or mandate green building standards for new construction
- Hired consultants, formed advisory committee, hosted peer-learning exchange, drafted report

Continued efforts to install large solar array at Ithaca Tompkins Regional Airport

- Would provide renewable electricity equivalent to about one third of City government electric needs, at a reduced cost, and with significant GHG emissions reductions
- Signed updated power purchase agreement (PPA) with TESLA



Supported LED streetlight conversion

- Secured \$100,000 in NYSERDA funding (see grants section, above)
- Provided significant research and analysis assistance to Public Works
- Retrofits would annually save \$200,000 and reduce GHG emissions by 60%
- Plan to buy back streetlights from NYSEG in 2018 and start upgrades in early 2019

Installed five electric vehicle charging stations in city garages

- Level 2, two-port EV chargers installed in Cayuga St., Seneca St., and Dryden Rd. parking garages (one charger each location)
- Two Level 2 Tesla EV chargers installed in Seneca Street garage
- All chargers available for free public use

Adopted benchmarking policy for City facilities

- Mandates tracking of energy use in city facilities over 1000 sq. ft.
- Discloses benchmarking information to public annually

Supported development of Waterfront Area Plan

- Presented to Waterfront Working Group
- Helped draft energy and sustainability text in plan

Continued publication of Ithaca Sustainability newsletter

- Now over 600 subscribers
- Also maintained Facebook page (now over 550 likes)
- Readers are not only locals, but also organizations at a regional and national level



Supported local initiatives through participation in steering committees, free meeting space, and promotion:

- Tompkins County Energy Roadmap; Ithaca 2030 District; Community Choice Aggregation working group (project of TCCOG); Sustainability Center; Electric Vehicle Infrastructure Plan; Energy Smart Community; TCCPI



Developed and strengthened relationships with local, regional, and national organizations

- Lawrence Berkeley National Lab
- Urban Sustainability Directors Network
- Northeast Energy Efficiency Partnerships
- The Funders' Network for Smart Growth and Livable Communities
- NYSERDA
- Energize NY
- Various municipal sustainability departments

Coalition for Sustainable Economic Development

- CSED continued to meet monthly in 2017, discussing such issues as local tax and labor policies, affordable housing, renewable energy, and energy efficiency. Development projects such as City Centre, East Hill Village, new facilities for GreenStar, and mining expansion at Cargill were also a major topic of discussion.
- CSED members weighed in at public meetings on solar development in Dryden, heat pumps for Harold's Square, Tompkins County housing strategy, and the non-pipeline alternative to the proposed West Dryden Road pipeline, among other issues.
- In each of these areas, CSED members made a discernible difference by speaking out.
- CSED also published in October an opinion piece in the Ithaca Voice, calling for the City to take "a new direction ... in its thinking about the issues of gentrification and affordable housing."

Cornell Cooperative Extension of Tompkins County

- *Bulk Wood Pellet Infrastructure Boost Program*: \$1.7M NYSERDA-funded 4-year program (2014-18) to spur the adoption of wood-pellet-fired high-efficiency commercial heating equipment across the Southern Tier Region, and the infrastructure to support it (bulk pellet delivery trucks, large regional pellet storage, outreach and education to raise awareness in key demographics). (more information available at <http://ccetompkins.org/energy/renewable-energy/biomass/southern-tier-bulk-wood-pellet-program>.)
- *Renewable New York and Go Solar Tompkins*: Joint NYSERDA-funded program with Catskill Mountainkeepers to run Solarize-type enrollment aggregation programs in two large regions of NYS (CCETC was responsible for Tompkins, Schuyler, Chemung, and Steuben Counties; others were active across the rest of the Southern Tier and in the Capital and Hudson Valley Regions). (Final report available at <http://ccetompkins.org/resources/renewable-ny-final-report>.)
- *Energy Efficiency Appointments*: Part of a larger Park Foundation-funded program. These are focused on low- and moderate-income residents who are directly engaged through home visits where Energy Educator discusses simple DIY energy-saving measures and instructs tenant/owner on installation up to four, benefits of professional energy assessment, and access to incentives and programs to help with energy upgrades. In just the last half of 2017, 43 one-on-one appointments led to 10 Weatherization Assistance Program Applications, resulting in free upgrades including insulation, air-sealing, new furnaces, windows (and non-energy improvements including handicapped ramp, roof, electrical).
- *Clean Energy Communities*: One of our Energy Educators is the CEC Coordinator for the Southern Tier, working with municipal officials to save energy in their facilities and communities through targeted steps (they become "designated" by tackling 4 of 10 "high-impact actions", which makes them eligible to apply for grants to fund additional clean energy projects). For a sample CEC newsletter, go to <http://mailchi.mp/78fa3809e733/state-of-the-region-grant-funding-high-action-spotlight-and-more-246935>.
- *Button-Up Enfield*: A pilot project of CCETC, endorsed by the Enfield Town Council and Enfield Neighbors for Clean Air and Water, this initiative used the "Tupperware Party" or house party approach to engage groups of residents who heat with oil and propane to improve their homes in order to use less energy, reduce thermal leakage, and be more comfortable.
- *Green Buildings Open House*: This is one of the premier tours of its kind in the country, featuring some of the best examples of green building methods, materials, and technologies in Tompkins County (focused on residential but at times including commercial and municipal; annual from



1998 to 2014, biannual since). In 2017, we scaled the event back to one day, showcasing 10 houses. (More information available at <http://ccetompkins.org/gboh>.)

- *Student Housing Energy Reduction Program*: The goal of this program is to create “Certified Tenants,” students who have the information and skills they will need for energy-efficient off-campus living. This initiative also hopes to increase energy efficiency upgrades among rental properties by making building energy efficiency part of the market consideration. The program reaches roughly 250 students, two dozen faculty members, and dozens of staff members each year through workshops, presentations, events, and trainings, and currently enlists 15 Eco-rep students delivering workshops and doing peer education, and 3 student leaders taking responsibility for organizing the work.
- *Ithaca 2030 District*: Ithaca became an official 2030 District in mid-2016. Currently with 15 buildings represented, CCETC serves on the Advisory Board and helps develop resources for District Member building owners.
- *Energy Smart Community*: a collaborative project focused on modernizing our electricity system through smarter infrastructure, reduced peak demand and increased customer engagement. CCETC and Cornell University are partnering with New York State Electric and Gas, the local utility, to develop and test the technologies, educational approaches, and customer options that lead to greater adoption of cleaner and distributed energy sources; improved grid reliability, resilience and safety; and reduction of overall energy use and shifted use off of times of peak demand achieved when businesses and residents have expanded choices and increased energy literacy.
- *Alliance for Non-Pipeline Alternatives*: This is a diverse group of community members working to find alternatives to build-out of the natural gas pipeline (or other gas infrastructure), specifically in the Lansing gas moratorium area. To date the group has succeeded in spurring NYSEG to propose a combination of measures to reduce overall gas consumption and pressure boosters to increase the pressure in the line, which NYSEG and the community is continuing to work through.
- *Green Building Policy Project*: The City and Town of Ithaca has been leading an effort to look at possible green building policies that could be adopted and either made into recommendations, incentivized, or mandated. Energy Outreach Team Leader is active on the Advisory Committee and he and other members of the Team provided substantial comments leading to the draft report that came out in early 2018. The intent is to develop a report of recommendations and what is possible that could be adopted by the City Council and Town Board and then, in a second phase, written into policy.
- *Residential Energy Score Project*: In collaboration with others, CCETC provided leadership and organization in designing and implementing an energy rating system for homes in order to make energy efficiency a significant part of the market for home sales. A scoring system was designed and we are waiting for completion of a similar statewide effort to be rolled out by NYSERDA partly based on recommendations developed through RESP.
- *Other Programs*:
 - Internet of Things / Things Network—working to network buildings across the county that can remote meter energy use (and other measurables)
 - Building understanding about energy systems—Helping community members understand how building energy systems work and how they can participate in improving them
 - Tompkins County Energy Road Map—CCETC serves on the steering committee
 - Microgrid Islands of Energy—CCETC has been involved in the early feasibility stages of several microgrid projects in the Ithaca area, including one involving the city and town’s wastewater treatment facility.

Cornell University

- Cornell University has been approved as an [EPA Green Power Partner](#) as of September 2017. During its initial 12-month reporting period, Cornell used 15.4 **million kilowatt-hours** of green power. The EPA provides technical assistance and recognition for partners, who voluntarily commit to using [green power](#) for all or a portion of their electricity consumption. Cornell’s five regional 2MW solar farms and on-campus hydroplant and rooftop PV arrays now generate the equivalent of 10% of the Ithaca campus’ annual electricity use.

- Campus energy use forecasts for 2018 are below 2000 (despite a 20% growth in campus square footage) due to the [Energy Conservation Initiative](#).
- [Snee Hall energy conservation project](#) will save \$76,000 and 177 Tons CO2 annually. The project upgraded space controls in a majority of the spaces throughout the building.
- [EnergySmackdown](#) is an annual six-week competition for the Cornell campus to reduce or eliminate energy use in our personal lives and between buildings. Cornellians win prizes, learn how to conserve, and together as a campus focus on learning behaviors that help us reduce our carbon footprint.
- EnergySmackdown concludes with the [winter energy setback program](#) – this element of the competition alone saved \$115,000 due to reducing 1,431,700 kWh of electricity usage during the break.
- Cornell launched the [Climate Change Seminar-Perspectives on the Climate Change Challenge](#) in February, and an EdX [Climate Change Science, Communication, and Action](#) online course in September – both free and open to the world.
- [Staff Sustainability Champions](#) program launched as a collaboration between the Campus Sustainability Office and the Employee Assembly to recognize and motivate staff in acts of sustainability leadership across campus.
- The [Sustainability Life Recipes](#) initiative launched to promote the Get Your Green Back Tompkins program's steps in the Cornell community. Campus Sustainability Office communications team created the Recipes which are included in major campus communications channels.
- Cornell's Department of Molecular Biology and Genetics recently obtained a premium thermal imaging camera for Mann Library. This [free resource](#) is now available for check-out at the [Mann Library](#) circulation desk to anyone with a Cornell ID! It enables users to discover energy inefficiencies as a result of abnormal heat distributions, building structural defects, and plumbing issues, among others. In addition to assisting in academic projects, the camera can be used by students, faculty, and staff for exploring highly-frequented built environments such as offices, classrooms, and even homes to pinpoint and reduce heat waste.
- Cornell participated in the national [Freezer Challenge](#) designed to optimize cold storage management practices in laboratories, the Freezer Challenge harnesses a spirit of competition and a score sheet to target [five areas of freezer management](#). 2 participating labs save \$5460 and 68,000 kWh/year.
- Cornell is leading the Ivy League in sustainability, recently earning a [Gold rating](#) for the sixth year in a row from the [Sustainability Tracking, Assessment, and Rating System \(STARS\)](#). — a program under the [Association for Advancement of Sustainability in Higher Education \(AASHE\)](#) that helps colleges keep track of their environmental progress.
- Cornell University is ranked #7 in the country in the 2017 Princeton Review's Guide to [Top 50 Green Schools](#) and [Guide to 375 Green Colleges](#). Cornell University is the only Ivy League school in the top 20, and is one of two New York State universities recognized in the top 15 schools.
- Cornell launched a new online [Sustainable Campus and Community Map](#) in 2017. In just a click you'll find reusable bottle water filling stations, bike share and car share locations, environmentally friendly trails, electric car charging stations, campus sustainability centers and institutes, and reuse centers.
- Cornell researchers will use a \$1 million grant from the National Science Foundation to create, test and optimize new residential electric storage systems. The grant, titled "Energy Smart Community - Leveraging Virtual Storage to Turn Advanced Metering Infrastructure Into a Smart Service System," seeks to bolster grid flexibility, integrate distributed renewable energy sources and reduce household electricity costs. The project will test whether adding rechargeable batteries (electric residential storage) to individual residential smart meters can produce significant benefits.



- The Maplewood Apartments – graduate student residences under construction between Mitchell Street and Maplewood Avenue by EdR Collegiate Housing – will be an all-electric neighborhood with 444 units and 872 beds. A Cornell team received a \$25k grant to deploy wireless monitors and systems in a living laboratory. Their goal is to obtain performance detail on how air-source heat pumps – which extract heat from outside air to put indoors – perform under Ithaca’s severe winter conditions.
- In June, Cornell President Martha E. Pollack and the presidents of 11 other major U.S. research universities known as the “Ivy-Plus” group signed the following statement:



“In 2015, we were proud to be among 318 institutions of higher education in signing the American Campuses Act on Climate Pledge, affirming our commitment to accelerate the global transition to low-carbon energy while enhancing sustainable and resilient practices on our campuses.

“Today, we reaffirm that commitment, which is consistent with the Paris Agreement and recognizes the concerted action that is needed at every level to slow, and ultimately prevent, the rise in the global average temperature and to facilitate the transition to a clean energy economy. Universities have a critical role to play in reducing our own greenhouse gas emissions, continuing to advance evidence-based understanding of the causes and effects of climate change on the environment, the economy and public health, and developing solutions.

“The scientific consensus is clear that the climate is changing largely due to human activity, that the consequences of climate change are accelerating, and that the imperative of a low carbon future is increasingly urgent. As institutions of higher education, we remain committed to a broad-based global agreement on climate change and will do our part to ensure the United States can meet its contribution.”

Downtown Ithaca Alliance

- The DIA, in collaboration with Ithaca Carshare and Tompkins Consolidated Area Transit (TCAT), is currently implementing a pilot Transportation Demand Management (TDM) plan with the immediate goal of removing up to 100 single occupancy vehicles from the city garage system. This will optimize downtown land use and taxpayer revenue by forestalling the construction of a new garage.
- It will also reduce carbon emissions by millions of pounds and promote health, social engagement, and employee goodwill. NYSERDA grant funds were applied for to capitalize a project that will create individualized TDM plans and offer one-on-one planning assistance along with a suite of new transit services (including remote parking and an emergency ride home program) to workers and residents in downtown Ithaca.



- Downtown projects, such as the additional bike racks that are being installed as a result of a grant from a local foundation, will decrease dependency on automobiles and increase walkability and access to public transit.

- Downtown Ithaca’s newly built granite fountain, located on Bank Alley on The Commons, is a recirculating fountain that reuses water, an excellent water conservation measure.

- New structures such as The Hotel Ithaca expansion, Ithaca Marriott, Monks on the Commons, and the Carey Building addition include many green features such as energy efficient windows and lighting. The new Tompkins Trust Company building, which is nearly complete, will include similar energy efficient features as well.
- Downtown Ithaca continues to be a “walker’s paradise” where daily errands can be completed without the use of a vehicle, according to Walk Score. Walk Score is a tool that rates the walkability of more than 10,000 neighborhoods throughout the continent. The numerical Walk Score for the Ithaca Commons is 97 out of a possible 100, the same as 2016. Our Walk Score is just three percentage points shy of Greenwich Village; by contrast, Lansing ranks in at 38, and Cayuga Heights ranks in at 28. We were also listed as number one on *MSN Real Estate* s“Ten Cities Where You Want to Walk to Work.”
- Solar trash compactors along The Commons help to reduce the carbon footprint. These compactors compress their contents to allow more trash per bag so they don’t have to be emptied as often. Fewer collections mean cost-savings for labor, fuel and maintenance and reduced greenhouse gas emissions. Powered by the sun, these eco-friendly compactors work in every kind of weather — snow, rain or shine. The DIA has coordinated a shared recycling and trash compactor program to encourage proper disposal of recyclable materials generated by over 300 businesses and residents on and around the Commons.
- The DIA continues to work on a transit corridor plan to improve bus service between downtown Ithaca and the campus communities. Downtown Ithaca is the regional transit hub for Tompkins Consolidated Area Transit (TCAT), which was recently recognized by its industry peers as being the best transit system of its size in North America. TCAT contributes greatly to the community by reducing traffic congestion and greenhouse gas emissions. It saves the cost of building parking facilities. Its fleet currently includes eight electric-diesel hybrid buses.
- Downtown Ithaca is home to the headquarters of Ithaca Carshare, a non-profit car sharing service with a growing fleet of fuel-efficient vehicles shared by over 1,500 members. Users can save hundreds of dollars per month in avoided gas, maintenance, and insurance costs while reducing traffic congestion, pollution, and space and money devoted to parking. Independent studies show that for each Carshare vehicle, over 15 privately-owned vehicles come off the road.
- Bike Walk Tompkins, a Ithaca Carshare managed program, has taken the lead on bringing a bike-share program to downtown Ithaca as part its Blueprint for Better Bicycling program. As the number of people who use this program bikeshare program increases, we’ll see a reduced number of people using their vehicles to travel around downtown, thus reducing greenhouse gases in our area.
- Press Bay Alley, two blocks southwest of the Ithaca Commons, serves as a pickup spot for the Full Plate Farm Collective CSA each Thursday. CSA (Community Supported Agriculture) is a cooperative relationship between a farmer and consumers; consumers commit to buying a crop “share” and growers commit to growing that amount of produce. Full Plate Farm Collective farms grow over 50 acres of organic vegetables and share the vision of building community, farming with integrity, and growing high-quality food with fair prices for all involved.
- Downtown Ithaca is an important green retailing showcase, with at least 14 independent, locally-owned stores that specialize in reused and recycled products. Shopping at reuse stores means no additional energy was used. Such stores include Sheldon Hill Vintage & Estate Jewelry, SewGreen, The Vintage Industry, Pastimes Antiques, Trader Ks, Autumn Leaves Used Books, and Home Green Home.
- Watershed, located in the Downtown Ithaca Business Improvement District, is committed to reducing environmental waste. Behind the bar, they use high-end citrus products instead of fresh fruit to decrease food waste without compromising on drink quality. In a standard bar, it takes about 4 pounds of ice to chill a glass and shake a cocktail, but at The Watershed many of the



drinks are built in the glass to lessen the amount of ice and water used in the bartending process. With a menu constantly changing based on what's available, Watershed opted for digital menu boards instead of going through a wasteful cycle of updating printed menus on the regular.

- Decorative lighting in Downtown Ithaca is energy efficient. The DIA uses LED lighting to decorate the poles on The Commons during the holiday season.
- Downtown living is sustainable living. According to the Center for Sustainable Economy, a couple living in an apartment in downtown Ithaca, using TCAT, and adopting excellent green habits (e.g. unplugging appliances, composting, buying organic food) would have a carbon footprint approximately 34 percent of the national average. A couple with the same commendable habits but residing in a single-family home outside of town and commuting in a mid-size car would be at 76 percent. Allowing for more vertical growth will allow more in our community to take part in this "green revolution".
- The DIA has implemented composting and recycling systems for its major downtown events, including Apple Harvest Festival, the Summer Concert Series, Chowder Festival and Chili Cook-Off, which are attended by over 100,000 locals and tourists. Local service organizations like the Cornell Rotary Club have helped to oversee these composting stations.
- Downtown Ithaca is home to Coltivare, a farm-to-table restaurant and bar as well as a major culinary education facility. Coltivare, an initiative of Tompkins Cortland Community College, offers a unique hands-on experience alongside working professionals for students studying sustainable food systems and entrepreneurship. The team aims to find all their menu items within a 300-mile radius, with some food sourced from the college's own farm. Their new waste management system, which reduces food scraps to a grain-like compostable material to be used by the farm, is the first of its kind in the United States.

Finger Lakes Land Trust

- The Finger Lakes Land Trust completed six land protection projects within Tompkins County during 2017, securing approximately 600 acres of forest and frontage on a number of streams. In addition, the Land Trust completed three more projects just outside the county, securing wetlands bordering Taughannock Creek and adding a key parcel to Finger Lakes National Forest.
- With the county, highlights include the protection of 166 acres of forest within the Six Mile Creek Watershed – the source of Ithaca's drinking water supply; the addition of 194 acres to Danby State Forest – a key link in the Emerald Necklace Greenbelt that features a mile of the Finger Lakes Trail; a 69-acre addition to the Land Trust's Charles Spencer Preserve in Newfield; and the protection of 79 acres on Ithaca's West Hill – a key link within the proposed West Hill Wildway.



- In addition to its land protection work, the Land Trust also offered a variety of educational programs to the public and initiated efforts to rehabilitate a popular stretch of the Finger Lakes Trail at Lick Brook. The organization also partnered with the City of Ithaca and Tompkins County to secure a commitment from New York State of \$640,000 to advance protection of sensitive lands within the Six Mile Creek Watershed.

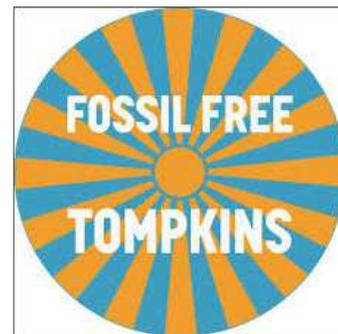
Finger Lakes ReUse

- Finger Lakes ReUse is expanding its capacity in the face of a growing global waste problem, currently working to develop its Ithaca ReUse Center to accommodate more processing and retail of reused materials. ReUse was honored for its environmental impacts by receiving a 2017 eTown "eChievement award."
- *Two ReUse Community Centers in Tompkins County (open daily) provide convenient ways to donate and purchase furniture, building materials, housewares, electronics, books and textiles which in turn support job training, work experience programs and waste reduction programs.*

- Shoppers made 104,000 visits to the two ReUse Community Centers in 2017, which earned a combined \$994,000 in register sales, supporting nearly 80% of total organizational expenses.
- Volunteers donated 13,000 hours of labor at our stores, averaging 34 volunteers per month, alongside 26 living-wage permanent employees.
- An estimated 420 tons of materials were diverted from potentially ending up in landfills this year, a 27% increase over 330 tons in 2016
- Through a Collective Impact grant from the Community Foundation of Tompkins County, ReUse adapted the ReSET (ReUse Skills and Employment Training) program to serve formerly incarcerated participants with a longer, paid program and expanded, formalized supportive services.

Fossil Free Tompkins

- In 2017, Fossil Free Tompkins focused its efforts on defeating the West Dryden Rd pipeline and securing NY State's first proposal for Non-Pipe Alternatives.
- The year started on an encouraging note, with NYSEG drafting a letter to our anti-pipeline leadership group and the Public Service Commission outlining a plan to implement a compressor solution to maintain system pressure in the Lansing area and to issue a non-pipe RFP to support growth/development in Lansing. Soon thereafter, however, the Chair of the Public Service Commission resigned, followed by the retirement of NYSEG's CEO, causing a 6-months delay.
- In August, things were back on track - NYSEG submitted a petition to the PSC for permission to install the compressors and issue an RFP.
- In September, we met with NYSEG's new CEO and with PSC's new Chair - and both were supportive of the project.
- In November, PSC approved the State's the compressor project and ordered NYSEG to issue an RFP for non-pipe alternatives - the first in the State - perhaps even the country!
- The RFP was issued in December - and responses are due in Apr 2018. Unfortunately the RFP created many barriers to application by heat pump installers, and it appears CNG/LNG "virtual pipeline" solutions may be proposed - so our work continues.



Get Your GreenBack Tompkins

- In its second year of operation, Get Your GreenBack's personalized system of energy advising—which includes a cadre of volunteer Energy Navigators who do outreach and follow up with interested individuals—is showing results.
- Through presentations and tabling we engaged directly with over 800 local residents on energy programs and incentives. Over 500 of these were through the efforts of volunteer Energy Navigators, who used their contacts with large employers, libraries, service groups, as well as tabling at fairs, to connect with interested residents.
- 15 people started, and 12 finished the training and did some volunteering this year. Together, with those who continued from last year, there are currently over 15 active Energy Navigators.
- We developed three separate engagement activities to use when tabling, all of which have been tested and refined by Energy Navigators, and used to engage over 200 people of all ages: a fishing game, a Twister-like game, and a spinning wheel with questions.



- Even though our energy advising program is just in its beginnings, it has attracted significant outside attention. NYSERDA and NYSEG, in particular, will be supporting the continuation and expansion of the energy advising system and Energy Navigators to surrounding counties.
- Get Your GreenBack worked closely with Healthy Food for All, the agriculture leader at CCE-Tompkins, and a dozen local farms to produce a brochure about CSAs. The Cayuga Medical Center paid for its printing, and a number of doctor's offices were happy to distribute them.
- Fourteen stores with the support of Tompkins County Solid Waste, Local First Ithaca, and the Sustainability Center contributed almost \$3,000 to cover the printing and design costs of the fifth edition of the Reuse Store Rack Card, which has been rebranded the "Reuse Trail."
- We received a \$1,300 Tompkins County tourism grant which we used for a "Treasure Hunt," an event which took place during October in which participants had to visit between 3-10+ stores to find clues to complete a game card and enter a raffle to win gift cards. Fourteen stores and over 1,600 people participated in the Treasure Hunt.
- Cornell University, Ithaca Sustainability, and TCCPI are all taking advantage of Get Your GreenBack content to share with their respective readers. This year Cornell's Sustainability Office (CSO) created a "Life Recipes" article series with GYGB content to use in a newsletter that goes out to all university employees.
- We developed and printed a brochure with the three steps needed to go "Net-zero", that is have a home that produces all the energy it uses. It was developed with the support and input of the CCE Energy Team, HeatSmart, and area contractors. A companion slide presentation was developed which has been used both by the GYGB coordinator and Energy Navigators to give presentations.
- With the help of a student intern, GYGB compiled eight mostly local surveys that looked at what is getting in the way of people riding bikes. The three main obstacles in order of importance were perceptions of safety of riding on Ithaca's roads, owning a bike, and the terrain and weather.

HeatSmart II

- HeatSmart II is now finished with enrollment and installation, and only some final reports are still forthcoming.
- Public Outreach has again reached every town in Tompkins County and the City of Ithaca. Two public meetings were held in each municipality. These meetings featured an overview talk, by the HeatSmart Program Director, on the technologies and essential role of heat pumps in meeting climate goals. They also provided opportunity to interact with the three vetted installer partners prior to enrollment.



- HeatSmart was less productive than hoped in 2017, producing only 42 final contracts for installers. Perhaps another dozen or two benefitted from HeatSmart's educational program but ultimately chose an installer other than one of the three HeatSmart installer-partners to do the work. These are still a success from HeatSmart's perspective. We have also been contributing substantially to successful efforts to convince commercial projects to use heat pumps. A great

deal of the cause for the lower than expected number of contracts was simply a depressed market for such building improvements throughout the state. These extrinsic factors will be better in the year ahead because fuel prices have gone up modestly for two years in a row, there was some good cold weather this past winter, and the federal tax cuts for Ground Source Heat Pumps has been restored.

- HeatSmart has developed close ties with the NYSERDA Office of Renewable Heating and Cooling. We have benefitted from interactions and resources. We have members serving on advisory panels and stakeholder groups for both demonstration projects and policy formulation. When NYSERDA gave its webinar on the formal policy proposal on heat pump incentives, HeatSmart received praise at two or three points in the presentation.
- A NYSERDA funded demonstration project on replacing boilers with ASHP is being led by Taitem. One of the strong recommendations they received during negotiations with NYSERDA's advisory panel was that they should collaborate with HeatSmart in finding suitable sites. HeatSmart now has a subcontract within that effort.
- HeatSmart has been an inspiration for new programs throughout the northeast These include HeatSmart Massachusetts as well as the current NYSERDA PON 3723 to fund HeatSmart like groups throughout the state. Our logo now has multi-state recognition. The HeatSmart program is featured in the "Northeast/Mid-Atlantic Air-Source Heat Pump Market Strategies Report 2016 Update," published in January 2017 by Northeast Energy Efficiency Partnerships (NEEP). See pages 45-46, 57-58 and download the report here: http://www.neep.org/sites/default/files/NEEP_ASHP_2016MTStrategy_Report_FINAL.pdf This report sets a goal of having 40% of NE households using ASHP as primary heat source by 2030.
- HeatSmart has applied for ongoing funding from both the Park Foundation and PON 3723. If fully successful, the Program will feature three different enrollment periods during a funded period lasting through the summer of 2020.
- We are currently running final program assessments and developing new materials such as a set of purchaser case studies to distribute through our website. The case studies are being done in conjunction with some Cornell seniors from Professor Max Zhang's course [MAE 5010] which critically examines the technology of energy systems that will be acceptable in a world faced with global climate change, and local pollution. The HeatSmart case studies will constitute a Term Project for the class.

HOLT Architects

- HOLT continued championing, and participating in, the accomplishments of TCCPI with in-kind contribution of Andrew Gil's time, serving as a member of the TCCPI Steering Committee and also of the Ithaca2030 Advisory Board. This included Andrew's contributions to the NYSERDA Grant for establishing the Ithaca2030 District, attending monthly steering committee meetings and HOLT's hosting the first several Ithaca2030 District Members' Quarterly meetings.
 - HOLT has continued to investigate methodologies for better understanding the energy needs and uses of it's 619 West State Street offices as well as potential actions for lowering the overall energy use. Presently 85% of all heating and lighting energy used is produced by the photovoltaic array on the roof, but HOLT hopes to get ever closer to being truly Net Zero. Toward this end, HOLT the generous offer to engage in a pilot program of real-time energy monitoring, a program administered through Cornell Cooperative Extension.
- Graham Gillespie, President of HOLT Architects, served on the TCAD and Tompkins County "Energy and Economic Development Task Force", the community-based work group charged with making recommendations to the Tompkins County Legislature to meet the community's energy and economic development goals in concert with meeting the Tompkins County Legislature's goals for GHG emissions reductions.



- HOLT completed a 4-year LEED certification process for The Park Foundation Offices, achieving LEED Platinum certification in June 2017
- HOLT played an active role in the meetings of the Green Building Policy Advisory Committee.

Ithaca 2030 District

- Currently, member buildings in the District include the following:
 - Alternatives Federal Credit Union
 - Argos Inn
 - Cascadilla Oasis, LLC
 - City Hall
 - Cornell Cooperative Extension-Tompkins County
 - Gateway Commons
 - HOLT Architects
 - Ithaca Bakery
 - Press Bay Alley
 - Printing Press
 - Purity Ice Cream
 - Space@GreenStar
 - Taitem Engineering
 - Tompkins County Human Services Annex
 - Tompkins County Chamber of Commerce
- Monthly utility data is being collected for the property owners and uploaded to Portfolio Manager to determine EnergyStar scores.
- An energy and water dashboard to track monthly consumption has been established. The dashboard pulls data automatically from Portfolio Manager every few days.
- We launched a real-time energy and water monitor pilot demonstration involving four District buildings.
- Energy, water, and transportation baselines for the 2030 District have been established.
- The NYSERDA grant team produced a detailed market analysis report, district strategy plan, and public outreach strategy.
- In addition, the team put together a small commercial building toolkit and financing guide. All of these materials as well as other relevant resources can be found at <http://www.2030districts.org/ithaca/resources>.
- The first two quarterly District Partner meetings were held in July and December, and the first quarterly e-newsletter was issued in December.
- The District Partner meetings bring together the property owners and other stakeholders to discuss issues of mutual concern and provide updates on the progress of the 2030 District.
- In August the executive director attended the 2030 Districts Network Summit in San Francisco and presented on "Driving Innovation in Ithaca: Affordable Real-Time Energy Monitoring & Modular Solar Nanogrids."



Ithaca Carshare

- The organization continued to broaden focus beyond just carsharing to include Bike Walk Tompkins and other transportation initiatives that meet the mission of enhancing transportation access in our community while reducing the negative environmental and economic impacts of cars.
- New in 2017, we worked with project partners Way2Go and Randall West to develop the [TrueCost Tompkins](#) project. TrueCost focused on the combined costs of Transportation and Housing. A locally calibrated index map was developed, 12 case studies were gathered and published, and the "Meeting in a Box" model was used to present the index map



and case studies to 12 community stakeholder groups. These tools were designed to easily be used by stakeholders in future meetings or presentations around the community.

Carsharing Impacts

- 558 new Ithaca Carshare members reported that they would sell or avoid the purchase of 152 vehicles
- 1,416 members took a combined 19,588 trips totaling 227,044 miles (or 14 trips and 160 miles per member)
- Fleetwide fuel economy increased to 33 mpg, 29% above the national average of 25.2 mpg
- As a result of the shifted driving habits of these members and higher than average fuel economy, an estimated 14,116 gallons of gasoline and 126 metric tons of carbon dioxide were avoided.

Bike Walk Tompkins

- Received a \$218,000 grant from NYSERDA to develop a Blueprint for Better Biking and facilitate the introduction of a bikeshare in Ithaca, with an 18 month project goal of doubling bike mode share. This project created one new job at Bike Walk Tompkins.
- Kept a strong focus on building awareness and culture around biking in the community:
 - Organized the 10th and 11th editions of Streets Alive!, with each event closing 10-15 city blocks to cars and opening them up to people to bike, walk, roll, dance, play, etc. for 4 hours. Each event uses 50-80 volunteers and draws an estimated 2500 participants.
 - Facilitated two intersection murals at Auburn/Lewis and South Titus/Fair, and one temporary traffic calming demonstration at Clinton and Plain.
 - Hosted 4 community bike rides with the Fingerlakes Cycling Club
 - Hosted the 5th Streets Alive! Film Festival at Cinemapolis
 - Participated in awareness and advocacy efforts for bike infrastructure improvement projects including the University Ave. and West State/MLK Jr. St redesigns and the extension of the South and East Hill Rec ways.

Ithaca College

Office of Facilities

- 2.9 MW solar farm celebrated its one year anniversary and, to date, has produced 3.46 GWh of electricity for the College and prevented 2,574 MT of CO₂e emissions.
- Garden Apartments, Emerson Hall, the old tennis courts, the Park School quad area, Fitness Center, Campus Center quad area, and A&E all received LED walkway lighting upgrades.
- Circle Apartments and Boothroyd Hall bathroom LED lighting conversion
- Campus Center Dining Hall renovation including LED lighting upgrades
- Ceracche updates including LED lighting upgrades
- West Tower window replacement
- Williams Hall LED lighting upgrade
- School of Business LED lighting upgrade



Office of Energy Management & Sustainability

- Installed additional building-level water and electricity sub-meters to identify usage patterns
- Completed an energy audit in the Center for Natural Sciences with assistance from ECT and GreenerU. Energy conservation recommendations are under consideration.
- Climate Action Plan Reassessment Team established to consider progress made during the “first five years,” and what we should focus on during the “next ten years.”
- Completed comprehensive Scope 3 emissions assessment with help from Parking Services, Travel Services, and International Programs.
- Improved our internal marketing and communication efforts

- Established monthly sustainability themes including Waste, Transportation, Water, Food, Energy, Health, Social Justice, Business, and Climate Change.
- Continued the Eco Reps and OEMS Intern programs, hiring 12 students throughout the year.
- Secured Staples funding to establish off-campus sustainability internship positions within the School of Business and Environmental Studies.
- Attended the AASHE conference in San Antonio, Texas
- Hosted off-campus speakers whose work is dedicated to renewable energy.
- Hosted first Sustainability Luncheon, which included faculty and staff from across disciplines discussing the problems and opportunities associated with current American diet trends.

Campus Engagement

- Participated in Orientation and First Year Residential Experience (FYRE) events.
- Eco Reps began sorting compost, recycling, and trash at football games in Butterfield Stadium, which will continue every fall. Eco Reps also promoted recycling at the annual Cortaca game.
- Conducted a student project in a class of 20+ students to research and present potential sustainability PAR projects.
- Participated in annual Recyclemania competition, which resulted in 16th place for diversion of food organics.
- Further engaged FYRE Community Council with Eco Rep program to encourage FYRE student participation in targeted competitions and events.
- College Circles Energy project provides the Circles apartment residents with electricity and gas bills that also include CO2 equivalents.
- Presented monthly Student Leadership Initiative (SLI) discussions geared at engaging students in a new sustainability dialogue surrounding the monthly themes.
- Participated as presenters for the Ithaca College Seminar (ICSM) Series – a program of interdisciplinary liberal arts courses for freshmen students.
- Strengthened relationship with Student Housing Energy Reduction Program (SHERP) and Cornell Cooperative Extension (CCE). Presented SLIs to students interested in saving energy in off-campus housing.
- Continued to guest-lecture in various courses.
- Hosted monthly events to engage students in sustainability dialogue surrounding monthly themes
- Increased circulation and improved monthly “Installments”, a quick read posted in campus restrooms that highlight global sustainability issues.
- Participated in “Lights Out IC” – a campus-wide effort to turn off lights for 1 hour in December
- Continued Office Supply Collection and Reuse (OSCAR) with improvement to space and communication of what is considered reusable
- Continued Take It Or Leave It (TIOLI), a free program that encourages students to donate and reuse gently used dormitory and school supplies. TIOLI also includes an end-of-year clean-up of campus residential buildings where items are donated to Ithaca Reuse.
- Continued College Circle composting initiative with plans to expand to the program to Garden apartments.
- Installation of shower timers and targeted water-saving messaging in campus residential hall bathrooms.



Transportation

- Supported sustainable transportation through partially-subsidized TCAT bus services.
- Support ride-sharing through the Finger Lakes Ride Share Coalition, in partnership with a number of local higher educational institutions and Zimride.



- Improved accessibility of Ithaca College Natural Lands by building turnpike-style paths.
- Held IC Transportation Day – a day dedicated to encouraging alternative transportation to campus.

Dining Services

- Hosted Forward Food, an event dedicated to training food service employees on the benefits of plant-based foods as well as equipping them with recipes and preparation advice.
- Continued to communicate message of plant-based eating benefits to students (received award from Humane Society of the U.S. for exceptional plant-based options in early January 2018)
- Continued work on Dining Services Energy Master Plan in partnership with Sodexo
- Supports student organization, Stop Wasting Ithaca's Food Today (SWIFT), which packages surplus meals for donation to the Rescue Mission.
- Made improvements to portion control for catered and dining hall meals to further eliminate food waste.
- Continued back-of-house composting initiative.
- Expanded message to encourage use of reusable items in dining halls and retail dining locations.
- Continued to collect used cooking oil for biofuel purposes.

Education

- Continued the Integrated Core Curriculum themes of “The Quest for a Sustainable Future” and “Power and Justice”, two of more sustainably-focused program elements. Course offerings under each theme were expanded.
- Student Affairs and Residential Life continued to engage faculty and staff with First Year Residential Experience. Staff and faculty partnered with residents to plan events that focus on sustainability, social and emotional learning, and diversity and inclusion.
- Continued campus GREEN tour with First Year Residential Experience
- South Hill Forest Products is a student-run business dedicated to providing high quality, all natural non-timber forest products to the community, using the natural resources within the Ithaca College Natural Lands. This experiential learning based class focuses on sustainable production methods including honey from our bee hives, maple syrup from the sugar bush, mushroom farming, and other medicinal remedies.
- School of Business hosted the first ever Ithaca College Sustainability Week from April 17th – April 22nd with daily educational and recreational opportunities focused on the 3 pillars of sustainability. Events included guest speakers, participation in the Climate March, panel discussions, and hosted meals.

Ithaca-Tompkins County Transportation Council

- From mid-2016 to mid-2017 Tompkins County and its consultant, Energetics, Inc., developed a NYSERDA funded Electric Vehicle (EV) Infrastructure Plan for Tompkins County. This project includes a description of strategies and technologies for EV recharging stations with particular attention to local (Ithaca-Tompkins County) conditions, developed an Excel spreadsheet site evaluation tool for EV charging station suitability, applied the tool evaluation to numerous sites around the county and, finally, prepared a detailed analysis/plan for EV charging station installations at preferred locations. A study description and all reports (including the evaluation tool) are available at <http://www.ccofcny.com/tompkins-county.html> and <http://tompkinscountyny.gov/itctc/projects#EV> . The site evaluation tool is available for anyone to use.
- Tompkins County and the ITCTC are currently engaged with Energetics, Inc. to coordinate local participation in a NYSERDA project that identifies Tompkins County as an EV Deployment Community. Subsidies were offered for installation of 11 charging stations in 2017. During 2018



there will be substantial community outreach and education to promote EV use in Tompkins County.

- The ITCTC continued to advance online ridesharing in the greater Tompkins County area. The effort has a new name, Finger Lakes Rideshare, and can be found at <https://www.zimride.com/flxrideshare/> or www.fingerlakesrideshare.org. The system is seeking to expand to a regional rideshare program powered online by Zimride. Binghamton University joined the FLX Rideshare Coalition in 2017. Conversations are ongoing with Cortland County, SUNY Cortland and Tioga County. Implementation of the regional rideshare program is ongoing. Current partners include: Tompkins County, Way2Go, Cornell University, Ithaca College, TC3, TST-BOCES, Wells College, Binghamton University and ITCTC. This list will grow as neighboring counties and institutions decide to participate.
- The ITCTC is working with a consultant firm, RSG, Inc., in a NYSERDA funded project to develop an enhanced model to determine greenhouse gas emissions from the transportation sector. This work started towards the end of 2017 and will continue through 2018.

Learn@EcoVillage Ithaca

- We introduced a new educational program for Learn@EcoVillage, the Ithaca Biodiversity Project. This program empowers youth to help wildlife and our planet, at a local level, through establishing native habitat for birds, butterflies and other wildlife.
- Ian Shapiro and Liz Walker taught two Net Zero Energy Building workshops, for architects, developers, and green builders. Architects were able to earn 14 Learning Units for each of the two-day workshops, and LEED professionals earned 14 GBCI CE hours. The May and October workshops were held at EcoVillage, and featured building examples from the three neighborhoods.
- We held a successful kick-off event in February for SouthSUP, our partnership with Quinn Energy and Southside Community Center. We are doing an experiment - providing free meals on cold winter nights to neighbors, and then monitoring peak energy saved. This is based on research conducted at EcoVillage. It's a win-win: saving energy, providing yummy meals, and building community.
- We hosted student groups and professors from Syracuse University, Temple University, College of Saint Rose, and SUNY Potsdam.
- EVI was featured in FLOW magazine (both digital and hard copy) in France, and will be re-published in the German FLOW magazine as well. Michele Foin, the reporter, spent over a week here, and has published multiple articles in French and Swiss magazines about EcoVillage Ithaca.
- EcoVillage Ithaca is one of 20 ecovillages around the world to be included in a new book, *EcoVillage Design*. EVI was also featured in *Awakening Into Unity*, volume 1 in The Global Awakening series, and in an online magazine, *Independence Monthly*.
- Liz Walker led a 3-day visioning workshop for Waterloo Cohousing in Canada.
- We received a \$25,000 grant from the Park Foundation for "Asking the Right Questions: Green Building Knowledge for Local Decision Makers." This allowed us to offer workshops to Town Planning Board members, local elected officials, planners, and others who interface with developers. We partnered with Taitem Engineering and the County Planning Department to teach the latest in green building information.



Local First Ithaca

- Produced our 7th Annual Guide to Being Local
- Continued our work with the Ithaca 2030 District and Tompkins County Climate Protection Initiative Steering Committees

- Worked with the nationally known group Civic Economics to produce the first, comprehensive analysis of the economic impact in our community of local, independently owned businesses

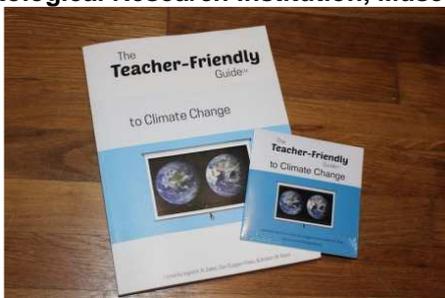
New Roots Charter School

- New Roots was identified as one of ten leading schools in the field of education for sustainability in the nation by the Green Schools National Network. As an inaugural member of the Catalyst Network, New Roots will prepare to become a replication hub for other schools in 2020.



- A team of New Roots teachers, students, and administrators visited schools with environmental stewardship missions across the Northeast as part of Teaching Our Cities, an EPA-funded project in 2017, and hosted other project participants for a two-day workshop at New Roots and EcoVillage at Ithaca in August. The project goal is to develop and refine curriculum that engages students with a study of the environmental and human landscape of their cities and regions.
- All New Roots students participated in a course called *A Sense of Place* in September, investigating the relationship between people and the natural environment in our region through the lens of Education for Sustainability (EfS) standards.
- New Roots mathematics students worked with Cayuga Nature Center staff to learn about physical plant challenges they were facing due to climate change, then used mathematics to develop and present solutions to those problems.
- New Roots environmental chemistry students continued work on their longitudinal study of water quality in Cayuga Lake to test the efficacy of indigenous ecological knowledge in remediating water quality problems in Stewart Park. Students petitioned Ithaca City Council and the Department of Public Works for permission to plant a 50x50' test plot of cattail and calamus, then worked with a local native plant nursery to obtain plants and establish the plot.
- Students studying urban gardening planted and cared for cherry tomatoes, strawberries, basil, parsley, kale, and perennial herbs in containers on the porch of the Clinton House and along the street.
- Students in our LEAP year program learned about permaculture and did community service at the Permaculture Park.
- Spanish students visited Cornell to learn about migrant workers in our region.
- Students purchase healthy snacks from a low-impact snack machine in our lobby!
- All students and staff enjoy a free, healthy Farm to School lunch each day featuring locally and regionally-sourced foods.

Paleontological Research Institution, Museum of the Earth, and Cayuga Nature Center



Climate Change, the latest in our series of Teacher-Friendly Guides to help secondary school teachers in their classrooms.

- We are curating the New York Climate Change Science Clearinghouse and Resilient MA: Climate Change Clearinghouse for the Commonwealth of Massachusetts (to launch soon). These sites are intended to help New York and Massachusetts local governments, businesses, and residents find reliable climate data and maps, decision-support tools, documents, and other resources to help adapt to climate change.

- We published *The Teacher-Friendly Guide to*

- We started a [crowdfunding campaign](#) to raise money to send the Teacher-Friendly Guide to teachers across country, starting with the Northeast. This campaign has inspired donations to send the guide to other parts of the country as well. As of this writing we have raised over \$100,000.
- We conducted sessions on climate change education at national and regional conferences (e.g., Geological Society of America, Science Teachers Association of New York State, Association of Math Teachers of New York State, and more), and teacher professional development workshops on climate and energy literacy.
- We worked with New Roots High School 9th graders and elementary school-age summer campers on climate change-related outdoor education activities at Smith Woods and the Cayuga Nature Center. This work was funded by the Park Foundation.
- We continue to offer climate change education programs for the general public, such as guided phenology walks, an Ask-a-Scientist table about hurricanes and climate change, and demonstrations of climate and weather concepts using a Weather-in-a-Tank apparatus.

Park Foundation

- Sustainable Ithaca awarded 8 grants for a total of \$495,000 for renewable energy and efficiency education and policy in Tompkins County.
- The Environment Program made 56 grants nationally and in New York state for a total of \$2,242,500 on climate end energy issues.
- The Foundation filed or co-filed shareholder resolutions with ExxonMobil, Chevron, Dominion, Anadarko, Hess and Energy on issues such as climate change risk and fugitive methane emissions. Approvals ranged from 23.7% to 39%, with one resolution successfully withdrawn (Anadarko) when the company agreed to issue the report requested.

Renovus Solar

- Interconnected over 100 residential systems in Central NY
- Notable commercial clients include Ithaca Beer, Fort Locks Storage, Northeast Pediatrics, Stick and Stone Farm, Town of Danby, Dathyn Farms, and Candor Central School District
- Built over 1 MW of community solar, began construction on another 1.2MW

Snug Planet

- 2017 marked a shift in Snug Planet's focus. Energy efficiency is, and always will be a part of Snug's mission. But over the last few years it's become clear to us that more efficient use of fossil fuels alone will not get us to our climate targets. We can achieve deeper cuts in residential emissions by replacing fossil-fuel based heating and hot water systems with modern heat pump technologies.
- In 2017, we installed over 30 air-source heat pumps. At this point, we believe that we have a scalable, cost-competitive approach to fossil-free homes, for both retrofit and new construction.
- In addition, we expanded our delivery of traditional efficiency work, including energy audits, insulation, and air sealing. One noteworthy project we insulated was Ithaca Terraces, a cluster of 12 net-zero townhouses built on an infill site within walking distance of Ithaca Commons.

Sustainable Tompkins -- Finger Lakes Climate Fund

- The Finger Lakes Climate Fund continued its work in 2017, encouraging people to offset their carbon emissions generated by vacations, commuting, and their home, using our recently redesigned website.
- Offsetters had the option to form teams for the 'Carbon Races.' The Mothers Out Front Corning Team took first place in our 2017 Carbon Races -- they offset more than 252,000 lbs of carbon last year.
- Our most recent carbon offset grants went to Habitat for Humanity to help pay for the 4.7 Kw of solar panels going onto each roof of a duplex in the Northside neighborhood in Ithaca.



- The Sustainable Finger Lakes Map took flight in 2017 with the assistance of many community members. A team of “Greeks Go Green” and Alpha Phi Omega students from Cornell, for example, worked in November on adding new sites to the map. Over 500 regional green businesses and sustainability initiatives are now on the Map.
- We shared the story of the Finger Lakes Climate Fund at the NY Climate Solutions Summit in October, the Grassroots Festival in June, and the Ithaca People’s Climate March in April, which was sponsored by Sustainable Tompkins.
- We continued to post timely articles and other information about climate change on our Facebook and Twitter pages.

Taitem Engineering

- netZero Village, a new low-rise apartment complex in Rotterdam, New York supported by NYSERDA, was monitored from construction through occupancy to gauge whether it achieved net zero energy status. It did!
- Taitem produced a Design Toolkit for LED lighting, available here: www.taitem.com/wp-content/uploads/led-design-toolkit.pdf . This was created as part of a NYSERDA-funded research project conducted with Lighting Research Center, Rensselaer Polytechnic Institute, which demonstrated the benefits of sensor-controlled LED lighting in multifamily common spaces.
- Ian Shapiro continued his Zero Energy Building Design training series this year. Hosted at EcoVillage, Ian focused on fundamentals and strategies for zero energy design, emphasizing different green building approaches.



- Two Taitem Senior Energy Analysts began working onsite with regional industries as part of NYSERDA’s Onsite Energy Manager Program. Rob Rosen is working at Corning, Inc., and Jim Holahan is working at Gutchess Lumber. They are each tasked with supporting the development of an energy management plan for a manufacturing facility.

- Taitem’s Solar PV department had a busy year, culminating in the December installation of a 12,600 square-foot, 548.4 kW solar carport with 540 PV panels at King + King Architects in Syracuse.
- The PV department also participated in regional solarize initiatives, including Solar Schuyler, Solar Southern Tier Central, and Go Solar Tompkins. Taitem was also a qualified vendor in the first two rounds NYSEG’s Smart Solutions program.
- Taitem is providing energy modeling services through NYSERDA’s New Construction Program for three new energy-efficient multifamily buildings in Ithaca: Harold’s Square, City Centre, and Amici House. Taitem also provided mechanical, electrical, plumbing, structural, and fire protection design for Amici House, a project of Tompkins Community Action.
- Taitem’s AeroSeal group completed a comprehensive ventilation and indoor air quality upgrade project at the WYCA in Brooklyn, as part of a large renovation project to provide modern, energy-efficient, affordable housing for 300 women.
- Taitem’s Energy + Sustainability staff completed about 40 agricultural energy audits, including dairies, greenhouses, wineries, and more.
- Beginning as a NYSERDA Existing Facilities Program consultant in 2014, Taitem has continued to help implement the Energy Reduction Plan at two UHS Hospitals in Binghamton. Construction will begin this Spring to convert nearly 100% of their lighting to LED, which is projected to reduce electric demand by close to 700kW and annual usage by 3,300 MWh.
- Taitem is continuing its relationship with TST BOCES; the Energy Management Services team of TST BOCES relies on Taitem for energy consulting and design engineering support for their clients. Projects in 2017 included lighting upgrades at Trumansburg High School, HVAC upgrades at Cayuga Onondaga BOCES, and exploring applications for wireless energy management controls in school facilities.
- Taitem’s QA team, working for the Natural Resources Defense Council and NYSERDA, finalized a new standard for the physical needs assessments required by public housing authorities. Called

the Integrated Physical Needs Assessment (IPNA), this new tool promotes saving energy in PHA capital planning.

- Taitem is continuing its consultancy with Avangrid/NYSEG, on building out its energy efficiency programs and implementing its Community Energy Coordination/Smart Solutions program.

TC Action

- Our Building Performance Institute certified energy technicians performed energy audits, efficiency upgrades and resident education to save energy for little or no money. This year, 45 households with low incomes benefited from our Weatherization Assistance Program.
- Three families made energy improvements through Assisted Home Performance with Energy Star, which provides income-eligible households with a 50% subsidy for efficiency upgrades.
- Through Green Jobs-Green New York twelve additional families from all income levels chose TCAction to complete their home energy assessments.
- Fifty- seven households with low-incomes received electricity reduction measures through TCAction's Empower NY, 21 of these households received Energy Reduction Measures and 36 received Home Performance Measures.
- TCAction also was successful in receiving grant awards to build the Harriet Giannelis Childcare Center (5 classroom Head Start/Early Head Start Center) and Amici House (23 apartment Supportive Housing Program for singles and families aged 18-25 with or without young children, experiencing homelessness).
- We also applied and were approved to participate in NYSERDA's Multifamily New Construction Program for Amici House.
- We are working with Taitem Engineering to reach Performance Tier 2 with a maximum incentive of \$23,000. Our plans are to open the new Childcare Center September 2018 and March 2019 for Amici House.



Tompkins County

- **NYSERDA Clean Energy Community** – Formally achieved CEC designation by submitting required documentation of actions.
- **DEC Climate Smart Community Certification** – Formally achieved CSC certification by tracking actions Tompkins County government has taken as a smart community.
- **Business Energy Navigator** – Applied to NYSERDA for funds to develop a targeted program to assist businesses in making energy improvements to their facilities.
- **Municipal Tools to Promote Deployment of Renewable Energy Systems** – Worked with municipalities to develop tools to encourage widespread deployment of renewable energy systems.
- **Energy Task Force** – Established an Energy Task Force to provide advice to the Planning Department and the County Legislature on energy, climate change, and energy-related economic development.
- **Energy Strategy** – Initiated work to develop updated the 2020 Energy Strategy based on conclusions and recommendations from the Energy Roadmap and the Energy and Economic Development Task Force.
- **Disaster Recovery Plan** – Applied to NYS Dept of State funds to develop a disaster recovery plan to prepare the community to take the actions necessary, including those that build economic resilience, to bounce back from a disaster should it occur. This plan will include an assessment of the vulnerability of the County government's critical facilities to the impacts of climate change to ensure continuity of services post-disaster.

- **Energize NY Finance** – Continued to collaborate with the City of Ithaca and Energize NY staff to implement the Energize NY Commercial Property Assessed Clean Energy program to help



efficiency and renewable energy upgrades to buildings by offering access to low-cost, long-term financing.

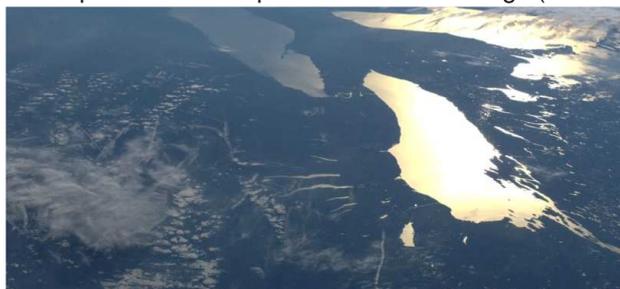
- **Electric Vehicle Deployment Community** –Serve as local liaison for NYSERDA grant-recipient, Energetics Inc., to install EV charging stations to establish a comprehensive charging network for all EV drivers, and conduct extensive community engagement to inform and educate residents and businesses about the benefits of EVs. Charging station deployment took place in 2017, the promotional component of the project is envisioned for 2018.
- **County Facility Energy and Fleet Record Management** – Enhanced recordkeeping and record sharing among County personnel for critical energy use and fleet data.
- **County Government Electric Vehicle Fleet** – In 2017, the County purchased five Chevy Volts for the Department of Social Services with funding assistance from a state grant. EV charging stations were also installed at the Mental Health and Health and Human Services Building parking lots to charge the vehicles purchased in late 2016 for the Department of Mental Health as well as those purchased for the Department of Social Services.

Tompkins County Chamber of Commerce

- The LED lighting project, begun in 2016, was completed in 2017.
- Chamber President Jennifer Tavares continued to serve on the County's Energy Task Force and the Electric Vehicle Steering Committee, and Dominick Recckio, Member Relationship Manager, is engaged with the 2030 District Partner's Group.
- The Chamber continues to share important information with our members regarding ways to reduce their energy consumption, finance upgrades to their HVAC equipment, or construct their projects using cleaner/alternative energy supplies. We are a member of Chambers for Innovation & Clean Energy (CICE).
- Tavares, in her role on the Industrial Development Agency Board, has participated in the development of new policies advancing the installation of commercial grade solar in Tompkins County, and voted to approve several projects during 2017. Additionally, the IDA has enhanced incentives available to support projects which are meeting energy efficiency requirements.

Tompkins County Climate Protection Initiative

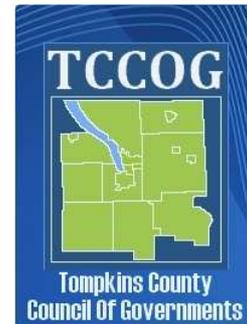
- The Ithaca 2030 District is now the flagship program of TCCPI. Fifty percent of the coordinator's hours have been committed to this project. The 2030 District is vital to achieving two important strategic goals for TCCPI: 1) strengthening the involvement of the business community; and 2) establishing a process for collecting building performance data in downtown Ithaca and benchmarking it against both national and local baselines. For more details, see the Ithaca 2030 District report above.
- The TCCPI monthly general meetings continued to be very well attended, with an average of 25 participants. That the meetings continue to attract a sizeable number of community leaders after eight years, together with the high number of requests made to present at the meetings (at least two-thirds of the agenda topics come about this way) and the fact that the agendas for the meetings are usually set several months in advance, suggest interest in TCCPI remains strong.
- Topics in 2017 included:



- **Cornell Climate Neutral Campus Options** – Bob Howarth, David R. Atkinson Professor of Ecology and Environmental Biology at Cornell University.
- **NYSEG and Alternatives to the West Dryden Pipeline** – Irene Weiser, Caroline Town Board and the TCAD Task Force on Energy and Economic Development
- **HeatSmart II** – Jonathan Comstock, HeatSmart II Program Director
- **Energy Smart Community Survey & Focus Group Results** – Rosalyn Bandy, Energy Smart Community Leader at Cornell Cooperative Extension of Tompkins County; Rich Stedman, Professor in the Department of Natural Resources at Cornell University; *and* Dylan Bugden, Graduate Assistant in the Human Dimensions Research Unit in the College of Agriculture and Life Sciences at Cornell.
- **The Datalogger Project: Enabling Sustainable Communities** – Howard Chong, Assistant Professor of Economics and Sustainability at Cornell’s School of Hotel Administration and Faculty Fellow at the Atkinson Center for a Sustainable Future
- **Clean Energy Communities Program** – Terry Carroll, Clean Energy Communities Coordinator and Energy Educator at the Cornell Cooperative Extension of Tompkins County
- **Changing Climate and Changing Energy Infrastructure: Implications for Regional Land and Water Conservation Efforts** – Andy Zepp, Executive Director of the Finger Lakes Land Trust
- **Why the Future Of Building Heating and Cooling Belongs to Heat Pumps --** Jens Ponikau, Vice President and Co- Founder of NY-Geothermal Energy Organization; Bruce Harley, Air-Source Heat Pump Technical Consultant; *and* Scott Smith, Senior Program Manager at NYSERDA
- **Green Building Policy Project** – Nick Goldsmith, City and Town of Ithaca Sustainability Coordinator, and David West from Randall + West
- **New York Climate Change Science Clearinghouse** – Ingrid Zabel, Climate Change Education Manager at PR/Museum of the Earth
- **Sustainability and Climate Action at Ithaca College** – Greg Lischke, Director of Energy Management and Sustainability
- The [TCCPI Newsletter](#), which comes out every two months, had a subscriber base of about 400 this past year, with an open rate of 36% for its six issues. In March 2017 this high open rate again earned the TCCPI Newsletter a “Constant Contact All Star Award,” which the company presents to only 10% of its users; it marked the fifth year in a row that our newsletter has been recognized in this way.
- The TCCPI [website](#), which has become a rich resource on climate change and clean energy issues, was updated on a monthly basis. All of the meeting notes, annual reports, and newsletters can be found archived on the site, dating back to 2009. The website continued to attract, on average, monthly hits of 3,000 in 2017.
- On the social media front, regular postings were made on TCCPI’s Facebook page, including articles from the TCCPI Newsletter, and we increased our “likes” from 324 to 368 during the year. In addition, the TCCPI coordinator continued to post information about energy, climate change, and sustainability issues on Twitter, and has over 2,700 followers.
- The TCCPI coordinator served on the steering committee of Get Your GreenBack and regularly attended its meetings this past year, providing input on GYGB’s strategies, priorities, and assessment of the program and serving in rotation as meeting facilitator. Articles on GYGB appeared in each issue of the TCCPI Newsletter.
- The coordinator was also a member of the Tompkins County EV Campaign Steering Committee and the Ithaca Green Building Policy Advisory Committee.
- In addition, he served on the boards of the New Roots Charter School, Groundswell Center for Local Food and Farming, Cayuga Health System, the PRI/Museum of the Earth/Cayuga Nature Center, and EcoVillage at Ithaca, Inc. In October he delivered a keynote address at an international conference in Milan, Italy on climate activism in the U.S.

Tompkins County Council of Governments

- In 2017, the Tompkins County Council of Governments Sustainability Committee formed two working groups
 1. An Energy committee, to help propagate the County's energy road map into municipalities and
 2. A Community Choice Aggregation exploratory committee.
- The Energy Committee, under leadership of Elizabeth Thomas, supervisor, Town of Ulysses, had a very successful year. With the help of Terry Carroll, a NYSERDA staff person serving the Southern Tier, assisted several municipalities (Ulysses, Caroline, Danby, City of Ithaca) in achieving designation as Clean Energy Communities and winning grant money as a result.
- In addition, stemming from discussions in the Energy Committee, municipalities across the County have teamed together in a shared-services initiative that will save both taxpayer money and GHG emissions by converting our streetlights from Halogen to LED. The City of Ithaca's Department of Public Works is taking the lead on this project.
- Community Choice Aggregation is a relatively new concept in NYS. The idea is that municipalities can, by passage of a local law, allow the town to procure energy on behalf of its residents. If enough towns band together, they can hopefully achieve lower prices than electricity supplied by the utility.
- Also exciting - and the reason several municipalities were interested in exploring this possibility - is that CCA can be used to help promote local renewable energy projects, local jobs, and energy efficiency - still at lower costs than the utility!
- At least that was the theory... In our year of exploration we learned that it was not so easy. In particular, while Community Solar Farms are becoming a more popular idea - the laws for Community Solar and CCA were incompatible.
- Community Solar requires each individual household to personally enroll into a community solar farm, whereas CCA buys on behalf of all residents at once. Fortunately, the State set up a working group to determine what was and was not working about CCA. We raised this concern, as did other orgs working to establish CCA in their communities. Good news! At their March 2018 meeting, the PSC authorized CCA's to enroll their residents into Community Solar farms *en masse!* TCCOG's CCA committee will re-engage in 2018 to pursue this opportunity!



Tompkins County Environmental Management Council

- The TCEMC engaged in a Strategic Planning Session in March 2017. The TCEMC is an advisory committee to the County Legislature. At this session, it was decided to recommend the replacement of the Energy Committee with a Climate Adaptation Committee. The County Legislature has appointed an Energy Task Force to advise it on energy issues. Given the plethora of existing organizations in the community with an energy focus, it was concluded that a continued assignment of resources to this work was not warranted. With the pace of climate change accelerating, it was believed that a Committee solely focused on this issue would provide added value to the County Legislature and the community as a whole.
- The Climate Adaptation Committee selected as its first project to study the protection of the community from intensifying precipitation events. Negative flood risk is all too often translated to communities which do not directly benefit from urban development in upstream municipalities. Many low-lying areas of Tompkins County are facing elevated flooding risks with limited resources to study these problems directly. The overarching goal of the EMC Climate Adaptation



Committee was to collect information necessary for beginning a flood hazard and risk analysis at the County level.

- The Committee sought to create a central database of historical flooding events to develop a complete picture of flooding across Tompkins County. Opportunities to design for multiple flooding problems at once requires that all problem locations are well documented prior to design.
- The second goal of the Committee's work was to document the flooding perceptions of community leaders in order to understand the degree of disparity in expectations. Mitigation efforts seek to reduce the current frequency and/or magnitude of flooding to some level deemed acceptable.
- Finally, the Northeast U.S. is likely to experience some climate variability in the future, necessitating a discussion of how flood mitigation practices should incorporate climate uncertainty. Recent research suggests that there is large uncertainty surrounding future flooding due to intensifying rain, changes in snow-melt dynamics, and potentially increasing drought conditions during summer. Simplistic analysis and decisions can become difficult in the face of highly uncertain problems, sometimes leading to inaction. The third goal of our effort was to better understand the level of knowledge and prior beliefs of community leaders with respect to climate change and the need to incorporate climate uncertainty into the design of flood mitigation practices.
- To evaluate the response to these challenges, the Committee on Climate Adaptation has developed a 15 minute survey to gather information on local flooding risks. The Committee developed a list of known community leaders who actively engage with flooding through policy, outreach, education, science and engineering. Results from this survey will be used to build the beginning of a County-wide flood map, to establish a baseline for community expectations for completed flooding projects, and to better understand our prior beliefs about the need to design for future climate conditions

Tompkins County Industrial Development Agency

- New Mission Statement - The Tompkins County IDA adopted a new mission statement to better reflect its work:

"The Tompkins County Industrial Development Agency delivers economic incentives to business and industry to diversify and strengthen Tompkins County's tax base and enhance community vitality, by supporting job creation, business and industrial development, and community revitalization. We strive to develop the local economy in an organized, sustainable and environmentally beneficial manner."



- Commercial Solar Policy – The TCIDA adopted an off-site commercial solar policy, providing a property tax incentive to promote community solar projects.

Community solar projects allow residential and commercial customers to purchase renewable energy generated from the sun without the high cost of installing solar on-site. Property taxes have been one of the hurdles for community solar in New York State and the TCIDA is helping to stabilize property taxes and jump-start solar development. This policy supports consumer choice for renewable energy generation, Tompkins County's goal to reduce greenhouse gas emissions by 80% by 2050, and the State's goal to generate 50% of New York's electricity from renewables by 2030.

- Community Solar Projects – Six projects were approved by the TCIDA that will generate approximately 12 megawatts of solar power, enough to power 2,400 to 3,600 homes. Projects are located in the Towns of Newfield, Enfield, and Ulysses.
- Enhanced Energy Incentive – The TCIDA and the Tompkins County Department of Planning and Sustainability jointly funded a study by Taitem Engineering that made recommendations for an enhanced energy incentive offered by the IDA for significant energy efficiency and renewable

energy in new building construction. Two projects were approved using the drafted policy in 2018. City Center, a 192 unit rental housing project and Harold's Square, a 138 unit mixed retail and office project committed to significant energy saving measures in these downtown developments including participating in NYSERDA's Multi-Family New Construction Program.

Town of Caroline

- Caroline worked on two key sustainability actions in 2017: 1) revision of our land use local laws to enhance energy and water conservation and 2) achieving NYSERDA's Clean Energy Communities designation by achieving four "high-impact action items" and qualifying for a Clean Energy Communities Program grant.
- We are in the final stages of revising our Subdivision and Site Plan Review Laws after conducting three public meetings and then working on improving each law by incorporating public input, making them consistent with one another, and clarifying process and expectations for builders and developers in minimizing greenhouse gas emissions and water use. An important aspect of the revision was to highlight New York State (SEQRA) and Tompkins County's 239 Review Guidelines, especially regarding the new 239 Addendum focused on minimizing greenhouse gas emissions. We held a Public Information Session on the new draft laws on February 14th. We expect to adopt the new laws by April or May 2018.
- On September 5th, 2017, NYSERDA officially designated Caroline as a Clean Energy Community with completion of four High-impact Action Items: we conducted a community Solarize Program, established a Benchmarking Policy for town buildings, adopted the New York State Unified Solar Permit, and completed Energy Code Training for New Construction.
- By being among the first municipalities in our region to accomplish this designation, we qualified for a \$100,000 grant. We are proposing to convert the town's lighting to LED bulbs, a projected 75% energy savings over incandescent lights.



- The first prong of our project will be to change the town's streetlights to LEDs, an involved process that will require us to purchase lamps and fixtures from NYSEG. The City of Ithaca is providing key support for this effort by sharing information and resources.

- The second phase of our project will be to convert the lighting in Caroline residences to LEDs with an outreach and engagement campaign. We have been working with a Cornell environmental

sustainability class, Cornell Cooperative Extension, NYSEG, and Alternatives Federal Credit Union to develop an effective program.

- The outcome of this project will be dramatically reduced lighting energy use and costs, engagement and education with Caroline residents to understand their energy issues and obstacles, and a legacy fund to support financing incentives to help folks move forward. The LED streetlight conversion will be our 5th High-impact Action Item under NYSERDA's Clean Energy Communities Program.
- A sixth High-impact Action Item that we have nearly completed is installation of an electric vehicle charging station at the Town Hall. The charging station was installed this fall at the town hall Park-N-Ride lot. The station requires a legitimate cell signal and we have none, so we are working on installing a cell-signal booster. Once that happens, we'll be good to go. Another positive sustainability impact of this initiative is that we are expanding Park-N-Ride space at the town hall, which will encourage more commuters to take advantage of TCAT.
- Key players from the Town's energy committee (Energy Independent Caroline) continue work on Solar Tompkins HeatSmart Program, promoting home energy efficiency and heat pumps for space heating and cooling. We have applied for funding and are hopeful for a third HeatSmart Program to begin in 2018.

Town of Ithaca

Secured **\$40,000 in grant funding**

- Awarded \$35,000 by Park Foundation for shared Sustainability Planner position (grant shared with City of Ithaca)
- Awarded \$4,885 by Urban Sustainability Directors Network to bring staff from Burlington, VT, Fort Collins, CO, and Evanston, IL to Ithaca for two days to discuss green building policies (grant shared with City of Ithaca)
- Administered these plus two existing grants (Partners for Places and Park Foundation)



Achieved NYS DEC **Climate Smart Communities designation**

- 14th NYS community to receive award
- Featured in press release from Governor Cuomo's office and in local news

Continued **Green Building Policy project**

- Comprehensive study of policy tools to incentivize or mandate green building standards for new construction
- Hired consultants, formed advisory committee, hosted peer-learning exchange, drafted report

Adopted **benchmarking policy** for Town facilities

- Mandates tracking of energy use in Town facilities over 1000 sq. ft.
- Discloses benchmarking information to public annually

Supported analysis of **LED streetlight conversion**

- Provided research and analysis to evaluate feasibility
- Retrofits would annually save \$40,000 and reduce GHG emissions by 50%-60%
- Option to join Tompkins Streetlight Collaborative to take advantage of reduced costs through shared services

Continued publication of **Ithaca Sustainability newsletter**

- Now over 600 subscribers
- Also maintained Facebook page (now over 550 likes)
- Readers are not only locals, but also organizations at a regional and national level

Supported **local initiatives** through participation in steering committees, free meeting space, and promotion:

- Tompkins County Energy Roadmap; Ithaca 2030 District; Community Choice Aggregation working group (project of TCCOG); Sustainability Center; Electric Vehicle Infrastructure Plan; Energy Smart Community; TCCPI



urban sustainability
directors network

Developed and **strengthened relationships** with local, regional, and national organizations

- Lawrence Berkeley National Lab
- Urban Sustainability Directors Network
- Northeast Energy Efficiency Partnerships
- The Funders' Network for Smart Growth and Livable Communities
- Energize NY
- NYSERDA
- Various municipal sustainability departments

Travis Hyde Properties

- In 2017 we commenced a water efficiency project for our property portfolio which consisted of replacing kitchen and bath faucet aerators, shower heads and toilets. We tested the fixtures in 2016 in a 19 unit building for proof of concept and saw an average consumption reduction of 40%. In 2017 we installed the new water fixtures in 200 more units and will complete installation across the balance of our portfolio.
- At Gateway Commons in 2017 we agreed to installing real time energy monitoring to identify and ultimately mitigate demand spikes in our energy usage. The infrastructure will be installed during the second quarter of 2018.

Weaver Wind Energy

- We completed design work on our new 2 kW wind turbine and have begun prototype testing at our wind lab. The W2 features Active Furling (AF), our innovative wind turbine control technology that greatly improves performance and durability. AF technology is paired with grid-interactive energy storage, real-time remote monitoring and control, a tilt-over hydraulic lift tower, and optional tower-mounted solar to create a hybrid Wind + Solar + Storage system (WSS). A working demonstration system is on display at our Freeville office.
- In April, Art was a featured speaker at the Small Wind Conference, the annual event of the small wind industry. His talk was entitled Active Furling Control of Small Wind Turbines.
- In May we hosted an Open House prior to the Village of Freeville Planning Board's review of our application to install a tower and turbine at our facility. Despite local support, our proposal was denied, but one positive outcome of our effort was that the Board created a Solar/Wind Ordinance for the Village and fostered a community-wide discussion about a sustainable energy future.
- In September, one of our customers was featured on the local Green Buildings Tour. Dr. William Bassett's WSS home energy system consists of our W5 (a 5 kW turbine), 11 kW of solar, and 16 kWh of lithium ion battery storage. This system powers his entire home including the charging of his Nissan Leaf.
- Art was invited this year to join the Renewable Energy Advisory Board at Morrisville State College. The College has received a \$12.9 million grant for a new building to house their many RE-related courses and activities.
- Several groups visited our wind turbine manufacturing facility this year, including summer interns from Cornell Cooperative Extension of Tompkins County and USDA Rural Development Program specialists.
- We continued to offer on-site CNC machining services at a substantial discount to the local renewable energy and entrepreneurial community with the aims of supporting their activities and building effective collaborations.

