

Sustainability Advisory Committee
Energy Subcommittee Annual Report
2015

The Albany Sustainability Advisory Committee (the “Committee”) seeks to support and promote energy efficiency and various forms of renewable energy, and to create an overall reputation of sustainability for Albany. In helping the City of Albany and its residents to work toward these goals, the Energy Subcommittee seeks to reduce climate-warming greenhouse gases. As stated so clearly in the Climate Action Plan: “*In Albany a warmer overall climate can result in many adverse impacts, such as more intense and frequent storms, sea level rise along the tidal Hudson River, and an increase in high heat days and heat waves.*” The Energy Subcommittee believes that it is imperative to act quickly in addressing climate change to reduce these adverse impacts now and well into the future.

Over the past year, the City of Albany’s Mayor’s Office of Energy and Sustainability worked with the New York Power Authority (NYPA) and the private sustainability consulting firm VHB to create a comprehensive Energy Plan for the City of Albany. This energy plan is part of the Five Cities Energy Plans initiative and incorporates *The City of Albany Climate Action Plan*¹ and other key planning and environmental documents prepared for the City of Albany. Through the Five Cities Energy Plans, NYPA is expanding Governor Cuomo’s Build Smart initiative to the five largest cities in New York State. The goal is to significantly reduce energy usage through energy efficiency and other best practices. The plan is bold and, if implemented correctly, should have a profound and very positive impact on the everyday operations of the City and its residents. For example, one of the main goals of the Plan is to “*Promote building efficiency throughout all sectors of the community, including municipal buildings.*”

The Energy Subcommittee is now tasked with effecting the many goals of the City of Albany’s Energy Plans. To do this, the Energy Subcommittee has identified three main target audiences for these efforts:

1. City of Albany-owned buildings, facilities, and transportation assets
2. City of Albany residents and their homes, businesses, and autos
3. Business owners who operate a business in Albany, but do not reside in Albany

The Energy Subcommittee began its important work by aligning already-established priorities of the City with the interest and expertise of its subcommittee members. The subcommittee believes that this arrangement will lead to a more sustained effort in assisting the City to achieve its goals. The following is a list of these priorities, including a brief description of each, as well as a discussion on status and outlook.

¹ Albany 2030 – the City of Albany Comprehensive Plan, Appendix D is the Climate Action Plan.

Initiative/Project	Time Frame for Completion	Work/Action Necessary to Move Forward	Energy Subcommittee Point Person/People (if Applicable)
Hiring of Energy Manager for City of Albany	Summer, 2015	Contract with NYPA finalized; interviews with prospective candidates	SAC to interview candidates along with City Department heads
Producing Energy from Within Water Mains	Completion of feasibility study by the end of 2015 – Phase 1.	Complete review of feasibility study during Fall of 2015	Joe Coffey
Microgrid - Solar Photovoltaics (PV) – Distributed Generation	Microgrid or PV system contract in place by August 2016.	Determine if microgrid is feasible. If not, create RFP for solar/storage facility. Investigate feasibility of Community Net Metering and discuss with Albany Affordable Housing Coalition.	Pete Sheehan, Joe Coffey
Participation in the Clean Energy Fund	Awaiting June 8 filing by NYSERDA.	N/A	Jill Kasow
Street Light Upgrades to LED/Solid State Lighting	Depends on passage in Assembly and Senate	Determine potential passing of bills. If not in foreseeable future, determine next option.	Jason Zarillo, Wayne Bequette
Energy Efficiency for Municipal Buildings, Residences, and Businesses	Ongoing – more finite time frames necessary	Establish time frames for each component (changes for RECO, etc.)	Julien Bouget, Pete Sheehan
Education on the Importance of Energy Efficiency, Sustainability, and Renewable Energy for the Next Generation of Citizens and Leaders in Albany	TBD	Establish contacts with Albany High, Charter Schools and younger populations as well.	Wayne Bequette

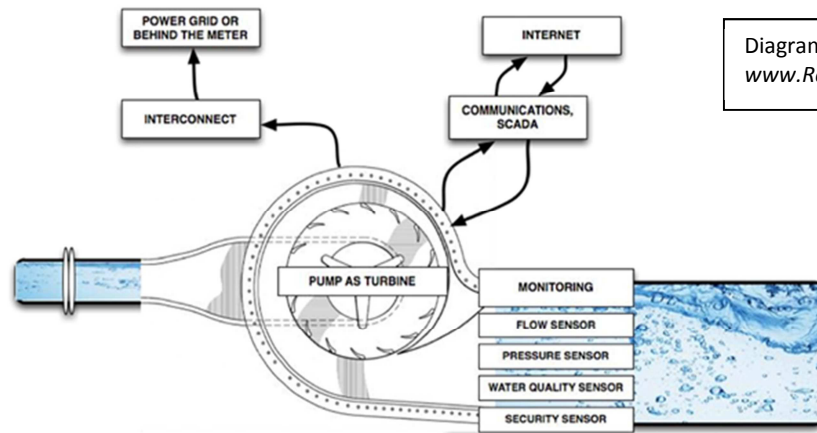
City of Albany Energy Manager

In order to support the implementation of its Five Cities Energy Plans, NYPA will finance an Energy Manager position in each of the five municipalities. As mentioned in the plan, one of the functions of the Energy Manager will be to: *“Enhance the capacity of City staff to track performance data and the implementation of projects and build awareness of energy efficiency projects, which is necessary to fully realize the benefits of Albany’s energy improvement efforts.”* The Sustainability Advisory Committee looks forward to

working with Albany’s Energy Manager to help implement the Energy Plan and other energy initiatives. It will seek to engage the residents, students and business owners of Albany in achieving these goals in a transparent and inclusive manner.

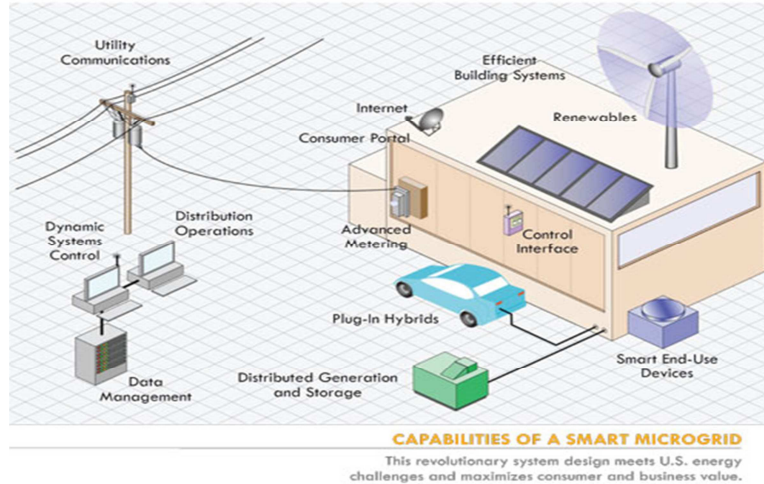
Producing Energy from Within Water Mains

This innovative pilot project is an undertaking of the City of Albany Water Department. The Energy Subcommittee is very interested in furthering this project as it moves from concept to reality. The project is being proposed to leverage the difference in elevation between the Alcove Reservoir and the Feura Bush Water Treatment Plant using the raw water transmission main. The pressure created by the elevation difference forces the water in the pipe to drive a propeller which then drives a generator used to create electricity. The City of Keene, NH, has installed this system and is now operating at “net zero” in terms of energy usage at its filtration plant. Albany would seek to run a very similar system and seeks to create almost all the energy needed for the filtration plant from this system. See diagram below for the key components of this type of system. The ultimate goal of the system would be to create 500,000 kWhs per year, out of a total load at the Feura Bush Treatment Plant of approximately 575,000 kWhs.



Microgrid - Solar Photovoltaics (PV) – Distributed Generation

This project/concept is consistent and supportive of a New York State Department of Public Service (NYS DPS) initiative referred to as REV (Reform Energy Vision) to allow for more localized energy sources and less reliance on the central power grid for energy. (See next page for a diagram of a potential microgrid.) In doing so, the current overall generation, transmission, and distribution system in New York would become more resilient and thereby less prone to outages and other interruptions. There are numerous sites and communities within the City of Albany that may be suitable for a “microgrid” such as hospitals, schools, water treatment plants, and other facilities.



The Energy Subcommittee is considering participating in the New York State Energy Research and Development (NYSERDA) NY Prize Competition. As stated in the introduction: *“The purpose of this competition is to solicit proposals to design and build community grids that improve the local electrical distribution system performance and resiliency in both a normal operating configuration as well as during times of electrical grid outages.”* The solicitation goes on to provide more details on the actual configuration and operation of the microgrid by stating:

NY Prize seeks to support the development of community grids encompassing no less than one facility providing a critical service to the public that is connected to multiple, uniquely owned/controlled buildings that act as a group of interconnected loads and distributed energy resources, lie within a clearly defined electrical boundary and act as a single controllable entity, which can connect and disconnect from the surrounding utility grid and operate in both grid-connected or island mode.

Energy subcommittee members are scheduled to meet with key representatives of National Grid, solar companies, and other potential partners to discuss creation of a proposal for this NYSERDA program opportunity notice. The first stage of this program opportunity notice is a feasibility study which is due May 15, 2015. At the time of this report it appears that a number of different parties will be engaged in microgrid projects. Members of the Energy Subcommittee met with representatives from the Albany Affordability Housing Coalition and NYPA. NYPA stated its interest in upgrading the steam boilers at the OGS facility on Sheridan Avenue. As a spinoff to that project, NYPA relayed that it may be interested in utilizing excess power created with this project to use as the “self-generation” portion of the microgrid.

Participation in the Clean Energy Fund

This new initiative is being supported by NYSDPS, to be implemented by NYSERDA. When up and fully operational, it will replace the existing Energy Efficiency Portfolio Standard (EEPS) and the Renewable Portfolio Standard (RPS) which will basically phase out by the end of 2015. In the Clean Energy Fund proposal put forth by NYSERDA the potential role of local municipalities is established in stating that:

Local governments are in a position to play a critical role in affecting energy choices in their communities, both as a customer themselves, and as a channel for the deployment of clean energy technologies across homes, businesses, and community institutions. In managing their own energy demand and procurement, municipalities can lead their communities by example in demonstrating the economic benefits of energy efficiency and renewable energy and the role innovative partnerships with the private sector can play to advance these efforts.

This role for municipalities is most certainly in line with the Energy Subcommittee meeting discussions held to-date.

Mayor Kathy Sheehan, with support by the Energy Subcommittee remitted comments to this proceeding, dated December 9, 2014. In her comments, Mayor Sheehan urged the Public Service Commission to “*allow a portion of clean energy funds to be allocated to municipalities as grants, for implementing large-scale clean energy projects that would have a lasting impact on clean energy, the environment, and fiscal savings.*” In the near future, the Public Service Commission will adopt new directives guiding the allocation of Clean Energy Funds, and at that time will likely opine on its determination regarding the City of Albany’s request. The Energy Subcommittee will follow the progress of this proceeding. As of the preparation of this document, the subsequent, more detailed Clean Energy Fund filing by NYSEERDA to the New York State Public Service Commission was pushed back from April 27 to June 8. The reply comments by the City of Albany (if that is pursued) would be due July 5, 2015. Energy Subcommittee members will review the June 8 filing and reevaluate the potential for municipal funding availability and determine the next steps.

Street Light Upgrades to LED/Solid State Lighting

At present, National Grid owns most of the street lighting in the City of Albany. Under this scenario, there is really no incentive for National Grid to make upgrades because they would not receive any monetary benefits of this action. The effort here is for the City to eventually take ownership of its lighting and move ahead with the installation of more energy-efficient lighting (i.e. LED/solid state lighting). The outcomes of reduced electrical usage and the corresponding reduction in greenhouse gases and various pollutants (e.g., sulfur dioxide, nitrous oxides) is an important goal for the Energy Subcommittee and indeed the entire Sustainability Council.

New York State Assembly Bill 5356, which is referred to as the *Streetlight Replacement and Savings Act*, has been introduced and seeks to authorize municipalities to purchase lighting within their boundaries and make energy efficiency upgrades. If enacted, according to the bill, the City of Albany would have to reimburse National Grid for “*original cost less depreciation and less amortization, of any active or inactive existing public lighting equipment owned by the electric corporation and installed in the municipality as of the date the municipality exercises its right of acquisition . . . net of any salvage value.*” One of the first steps for acquisition under this bill would be to determine the purchase price of applicable lighting structures. The potential savings to the City in energy costs is substantial, estimating in the millions of dollars over the life of new high-efficiency lighting. The bill has been amended from its original form (which will be analyzed by the Energy Subcommittee, and has passed the Assembly and Senate. It is awaiting signature by the Governor.

There is, however, no guarantee that this bill would be enacted into law, and so the Energy Subcommittee will recommend that direct conversations between the City of Albany and National Grid be pursued as a priority strategy for acquisition.

Energy Efficiency for Municipal Buildings, Residences, and Businesses

It is well known and documented that there is much old building stock in the City of Albany. According to the New York Power Authority,² more than 55% of Albany's residences were built before 1940, and 25% were built between 1940 and 1970. These building vintages are poorly insulated, allow excessive air infiltration, and were not built in accordance to meaningful energy codes. There is much that can be done to significantly increase the energy efficiency of these buildings. NYSERDA and the local utility, National Grid, have programs in place that currently provide incentives to building owners to install energy efficient measures such as insulation, high-efficiency furnaces, and low-flow showerheads, among other measures. The Energy Subcommittee will work with the Outreach Subcommittee to promote energy efficiency and assist in obtaining incentives and educational material about the importance of installing energy-efficient devices and systems.

Residential Energy Conservation Ordinance (RECO)

An important aspect of energy efficiency is improvement to and enforcement of progressive energy codes. One of the recommendations included in the New York Power Authority "Five Cities Energy Plan" is the establishment of a Residential Energy Conservation Ordinance (RECO). The ordinance would establish "*energy and water conservation standards for all types of residential properties, including single-family homes, mixed-use buildings, condominiums and multifamily properties.*"³ Opportunities to implement the ordinance might be at the time of building sale or transfer, a new lease agreement, or a substantial renovation. The Energy Subcommittee plans to make recommendations to the City in light of its upcoming update to the zoning code, in order to make an Albany RECO a reality.

Net Zero Buildings

Directly related to the effort on energy efficiency for buildings is that of net zero buildings. These have now become reality in certain buildings in the U.S. The Leadership in Energy & Environmental Design ("LEED"), is a green building certification program offered by the Green Building Council (GBC) that recognizes best-in-class building strategies and practices. Net zero is a concept/course offering of the USGBC (United States Green Building Council). Many professionals in the energy and environmental fields believe that if the U.S. is to drastically reduce its carbon footprint, newly constructed (and some rehabbed) housing is going to need to reach this designation. In order to kickstart the visibility of this important initiative, the Energy Subcommittee supports the actual construction of a pilot net-zero house or business in Albany as a model for future, high efficiency buildings. There are a number of potential resources such as NYSERDA assistance and outreach to the U. S. Green Building Council that may be helpful in reaching this goal.

Incorporating Structures in New Buildings or Substantial Rehabs of Existing Buildings to Accommodate Vehicle Charging Stations

This is a very forward-looking initiative and one that is directly in line with the Energy Subcommittee goals. Vehicle charging stations locations are increasing across New York State. While most cars can charge on the normal household line of 120 volts, to charge faster requires a 240 volt line. There may be opportunity to incorporate this standard within the building codes of the City of Albany. To see the current locations of charging stations in the Albany area, go to: http://www.afdc.energy.gov/fuels/electricity_locations.html.

² Build Smart NY – Five Cities Energy Plans, City of Albany, New York Power Authority, Issued January, 2015, pg. 31

³ Ibid, pg. 31

Municipalities are permitted to adopt building codes more stringent than those established by New York State, which lists its building and energy conservation codes through the New York State Department of State at: <http://www.dos.ny.gov/DCEA/>. The Energy Subcommittee would work with the Departments of Planning, the Department of Building and Codes, the business community and other key groups to fully research the history and issues/challenges of incorporating charging stations into Albany's building codes. The City of Albany is also currently pursuing its Electric Vehicle Feasibility Study.

Electric vehicle charging stations at the Holiday Inn Express on Broadway in Albany.



Education on the Importance of Energy Efficiency, Sustainability, and Renewable Energy for the Next Generation of Citizens and Leaders in Albany

This is obviously a multi-dimensional task and involves interaction and cooperation with numerous organizations such as the Albany School District, the Sierra Club Hudson Mohawk Group, Save the Pine Bush, and many others. This effort was begun and carried on by Brother Yusuf Burgess, who unfortunately passed in November of 2014. Brother Yusuf believed very strongly in the healing and therapeutic benefits of being outdoors and living sustainably, particularly for minority youth who are often times confined to urban settings. He strongly encouraged his friends and colleagues to get involved in the Youth Ed-Venture and Nature Network.

The Energy Subcommittee will seek to engage the organizations mentioned above, among others, to focus on this important endeavor in a variety of ways. An important facet of this work could involve reviewing and adapting the curricula of the Albany public and charter schools to illustrate and personalize some of the principals of sustainability and energy efficiency. Also important in this endeavor will be the Outreach Subcommittee to utilize the proper media and messaging needed to engage the youth of Albany in making sustainability something that affects their consumer choices and encourages them to become involved.