

Memorandum For the Record

October 7, 2019

Subject: Chemung County Energy Efficient Initiatives

To: Chemung County Legislature

The purpose of this memo is to notify the Chemung County Legislature of all the "Green" initiatives that County has identified and accomplished. These efforts have saved the County manhours, resources and reduced utility cost.

The County Executive and Legislature have been proactive in this effort since 2009, outweighing the current initiatives of local towns and villages.

It is imperative to remember that due to the age of county facilities compared to towns and villages, the County recognized the need to modernize and "Green" buildings to as early as 2009. Most town and village facilities are newer and more modern. The historic nature of our facilities adds requirements that are not easily accommodated in the "Green" effort.

Hazlett Building LED Lighting:

Specifics as requested:

- Original light study was completed by Lime Energy in partnership with NYSERDA
- The cost presented to the County by NYSERDA to purchase and install LED in the Haslett Building: \$110,000.00
- County B&G assessed that they could perform the task at cost savings to the County:
 - o Material: \$50,917.00
 - o Labor: \$16,723.00
 - o TOTAL: \$67,640.00
 - o SAVINGS TO THE COUNTY: \$42,360.00
- 673 LED light bulbs have been installed reducing the total count by 100
- For Your Situational Awareness(FYSA):
 - o Complete LED facilities:
 - Park Station
 - Harris Hill
 - Jail/Justice Bldg
 - o Fairgrounds: 30% complete; \$6,800. 2020 Budget
 - o HRC Bldg: \$40,000.00 in 2020 budget to begin Phase 1. There is more effort and expense due to the type of ceiling.
 - o Family Fitness Center: 36/400volt lights are being replaced with 100 volt LED's. To date, 24 have been replaced.

BUILDINGS AND GROUNDS

- 2009 Courthouse - Air conditioning project
Installed a new centralized high efficiency air conditioning system for the main courtroom.
- 2011 Data Processing – Replace old air conditioning system with a new high efficiency system.
Partnered with NYSERDA on this project to receive energy rebate money.
- 2011 Airport – Replace old chiller and cooling tower system with a new high efficiency system.
Partnered with NYSERDA on this project to receive energy rebates.
- 2014 Jail – Replaced rooftop heating and cooling units with new high efficiency units.
- 2015 HRC – Replaced cooling tower and pump new with new high efficiency equipment.
- 2016 – 2018 – Chemung County participated in electric curtailment program. The electric grid system during the hottest days of the summer becomes overloaded, by participating in this program we agreed to shed electric load in our buildings during those times.
- 2017 Hazlett – Replaced old air conditioning system with a high efficiency system.
- 2018 Airport – New construction added geothermal heat pump system and controls.
- Computerized direct digital control energy management systems are utilized at the following buildings for heating, ventilating, air conditioning, and some lighting systems: Airport, CCNF, Courthouse, Jail, Justice, HRC, Hazlett Building, Mohawk, Transit Building, Transportation Center, Steele Memorial Library and most recently the Airport. Most of the smaller buildings, where applicable, utilize programmable thermostats and timers to control HVAC equipment and lighting. Building occupancy schedules are constantly adjusted to insure mechanical equipment and lights only operate when necessary.
- Energy efficient lighting has been installed in most county owned buildings. Energy efficient lights and motors are installed to replace older equipment that is beyond repair.

- Roofing projects at several of our buildings have increased comfort and decreased heating and air conditioning operating costs. The new roofs provide better insulation value. All unnecessary penetrations have been eliminated resulting in tighter buildings.
- 2018 Human Resource Center – 44 windows were replaced with updated energy efficient windows. New solar shades were installed in every window.
- 2019 Human Resource Center – all remaining windows were repointed and re-caulked which helps with heat loss and cold air infiltration. Long-range goal is to replace all windows in the HRC.
- 2017 Courthouse and Clerks Building – attics were insulated which saved tremendously on heating and cooling.
- Mohawk Building – all new thermo-paned windows and doors, new high efficiency heating and cooling systems and controls, insulation was added to the roof to increase the R Value and brought up to code. LED lighting was installed on the second floor.
- In the earlier of this time frame all 4 foot T-12 fluorescent lighting was changed or retrofitted to T-8 style which was more efficient. Since then as LED technology has gotten more competitive, we started changing all outside light fixtures to LED's by either retrofitting or replacing. From 2016 to present the locations that we have competed are Chemung County Jail outside lighting, Harris Hill, Park Station and the 3rd to 6th floors of the Hazlett building. Floors 1 and 2 of the Hazlett building will be completed by the end of the year. We have also done some LED lighting at the Transit Garage, Chemung County Family Fitness Center, Chemung County Health Complex exterior lighting, all exterior lighting for county buildings, jury room, Courthouse courtroom overhead lights, some Fairgrounds barns,
- B&G 2nd floor windows were replaced with energy efficient thermos-pane windows in 2016.
- 2017 – Chemung County Family Fitness Center Kalwall Translucent Panels were replaced.
- 2017- New windows installed in the clerks building basement.
- 2012 – Justice Building windows were replaced.
- 2019- National Soaring Museum Roof is being replaced and the new roof with have a higher R value

AIRPORT

- Airfield Lighting Change to LED Lights
- Parking Lot Expansion Lighting will be LED
- Change in Terminal Roofing Materials
- Covered Parking Solar Project to Begin 2021
- Geothermal Wells for Heating and Cooling of the Terminal
- Smart Lighting in the Terminal

NURSING FACILITY

- 2005 CCNF - Cogeneration project.
Chemung County collaborated with Clough Harbor Engineering and Atlantic energy on this project.
Four new Generators are installed that produce electric and heat for the facility. This application was a perfect fit, for cogeneration, because it is a 24 hour facility that has a constant electric and heating demand.
- 2012 CCNF – Replaced old chiller with a new magnetic bearing high efficiency unit. Partnered with NYSERDA on this project.
- 2013 CCNF – Replaced out kitchen hood and make up air unit with a new variable air volume high efficiency unit.
- 2019 CCNF – State of the art energy/water efficient dish/utensil washer purchase and installation

SEWER DISTRICTS:

Elmira Sewer District:

- 1/6/09 – Replaced grit tank flow meters to sonic meters so that measurements were more accurate and the system's pump run times would be more energy efficient.
- 1/23/09 – Replaced sludge aeration motor with premium efficiency motor.

- 2/3/09 – Replaced primary drive motor with premium efficiency motor.
- 3/25/09 – Replaced grit pump motors with higher efficiency motors.
- 3/30/15 – Replaced/updated belt filter press pump and motor.
- 2019 – Durland Ave Pump Station upgrade to include new pumps and motors.
- 6/12/17 – Updated plant air compressor.
- 9/8/17 – Began utilizing one boiler as dual fuel to be run on digester methane and supplemented with natural gas as needed (typically only in the colder months). Boiler has been running dual fuel since March 2018 without any issues.
- 1/18/18 – Introduced flow pacing for chemical dosing of PAC. Chemical feed pumps no longer run at full capacity 24/7 but dose chemical based on influent flows.
- 2/15/18 – Replaced lights in front office with LED.
- 2018 -2019 – Upgrades to Grace Street Pump Station and City Yard Pump Station. Both upgrades included new pumps/motors and controls. City Yard Pump Station's pumps were decreased in size (HP) as the original pumps were oversized for the wastewater this station receives.
- 4/2019 – Operational changes to post-aeration mixer: mixer is only run as needed to keep dissolved oxygen levels above 7.0 mg/l.
- 2019 – Changed set points on trickling filter pumps to allow wet well to fill up more which cuts pump run times on lag pumps.
- 2019 – Replacement of three influent screw pumps and motors with premium energy efficiency motors.
- 2019 – Installation of “deragger” technology at several pump stations that causes the pump to self clean when it becomes clogged with rags which results in energy efficiencies as the pump draws less power.

Sewer District #1:

- Various motor replacements over the past decade with premium energy efficient models.

- 2009 – Wygant Rd and Watkins Rd Pump Station upgrades including replacement of pumps/motors.
- 2019 – Installation of “deragger” technology at several pump stations that causes the pump to self clean when it becomes clogged with rags which results in energy efficiencies as the pump draws less power.

Future Projects:

- LED Lighting Replacement for Milton Street WWTP

CCSD has a standard of replacing pumps/motors with energy efficient models when replacements have been needed in the past. Additionally, any new light bulbs needed are replaced with LEDs. CCSD is also participating in NYSERDA’s pilot program for wastewater treatment plants for Strategic Energy Management that looks at ways to reduce energy operating costs. Hopefully this helps give you an idea of various projects and items going on at the Sewer Districts.

DPW

- Improved fleet fuel efficiency with newer vehicles and equipment, including operation of light-duty vehicle lease fleet.
- Replaced power washer in DPW Wash Bay with a more efficient water saving model.
- Installed new windows, doors, and T8 lighting in DPW Admin Building.
- Installed Split Unit AC’s in DPW Admin Building.
- Installed new windows and doors in office area of DPW Shop Building.
- Installed T8 lighting in DPW Shop Building.
- Upgraded fuel facility lighting to LED lights.
- Replaced incandescent bulbs in County traffic signals with LED’s.
- Began work to replace all County traffic signals with newer equipment. (Currently under design.)
- Installed new windows and doors, and insulated walls and roof of Building #1. Replaced heating unit for warm storage in the winter.
- Implemented Engine Idling Policy for DPW vehicles.

Future improvements could include new boilers for heating DPW facilities, and replacement of T8 lighting with LEDs.

MEGA

Chemung County has been a member of MEGA since 2008. The Budget Director currently sits on their Board of Directors. The County and other municipalities participate in their various programs, which include the following innovative programs:

The Municipal Electric and Gas Alliance (MEGA) is an aggregator of electricity, natural gas and renewable power. MEGA's primary objective is to achieve the most competitive prices for electricity and natural gas for its members in order to minimize the cost of energy.

Formally established in 2001, but initiated in 1998, MEGA is a Local Development Corporation that serves local governments and affiliated entities by group purchasing of electricity, natural gas and other energy products and services. It presently serves more than 30 county governments and more than 250 municipalities, including many school districts.

MEGA knows that in order to be competitive in today's economy, you must control costs while being able to provide the highest quality services for your constituents and clients. We understand this because that's why we were created: to help save you money on your energy supply.

Renewable Energy Credits (RECs)

MEGA services include pricing for Renewable Energy Credits (RECs) in the procurement process for electricity. RECs derived from solar, wind and hydropower sources, allow customers to increase their personal or institutional support of sustainable sources by acquiring RECs to cover a portion or all of their electric usage.

Micro-Hydroelectric Power

MEGA members can now access the benefits of small hydroelectric facilities. After a competitive bidding process, MEGA selected Gravity Renewables Inc. to serve as preferred provider of energy from small hydroelectric plants across New York State. Gravity Renewables is able to offer MEGA members predictably-priced power not dependent on state incentives. Long-term fixed price contracts with small hydro plants can help stabilize energy budgets and preserve savings in a volatile energy market.

The MEGA Guarantee

New York State General Municipal Law §103 establishes standards for purchasing of commodities like electricity and natural gas with the goal of serving the public interest and protecting taxpayers. The Courts have held that these bidding laws are intended to guard against favoritism, fraud and corruption in the award of contracts, and to foster honest competition. When these standards are applied, governments can be reasonably assured of obtaining the best goods and services at the lowest possible price.

MEGA's bid to select an electric and natural gas supplier includes language that will authorize other local governments to enter into contracts with the winning bidders. This provision, known commonly as "piggybacking", permits all local governments to benefit from the bid results without having to engage in their own bids. This is permissible provided the supplier consents and specific language is included in the bid documentation. MEGA's bid, issued by a host county, includes the requisite language to enable the extension of the contract to all local government subdivisions.

This cooperative purchasing approach whereby a single government entity has already gone through a formal bid process, established a contract for products or services, and issued awards to one or more successful bidders has been proven to reduce administrative costs, increase efficiencies and stretch local budgets stressed by demands to do more with less.

Given this backdrop of legislation governing the procurement process, it is important to note that the energy market has expanded exponentially over the past few years. While expanded choices support the goal of "fostering honest competition", increased competition requires increased vigilance and attention to detail. One way to meet this obligation is to ask any suppliers of electricity or natural gas that may contact you if their pricing approach meets the GML requirements for an open competitive process as MEGA's does. Participation in the MEGA program provides this guarantee.

The future cost of utilities for County facilities has been with a long relationship with MEGA. The initiatives in this area have guaranteed the County "ENERGY CREDITS" that are reliable and dependable via hydropower.