



Township of Branchburg

1077 US HIGHWAY 202 NORTH, BRANCHBURG, NJ 08876-3936

JOHN.GREGORY@BRANCHBURG.NJ.US

Telephone: (908) 526-1300 x101

Fax: (908) 526-2452

www.branchburg.nj.us

OFFICE OF THE ASST. TOWNSHIP ADMINISTRATOR/PURCHASING AGENT

APRIL 15, 2013

Awarding Agency	DEPARTMENT OF ENERGY
Award Number:	DE-EE0003094
Project Title:	EFFICIENCY IMPROVEMENTS AND RENEWABLE ENERGY INSTALLTIONS
Project Period:	01/01/2011-05/31/2013
Recipient Organization:	Township Of Branchburg 1077 Route 202 North Branchburg, NJ 08876
Partners:	Triad Consulting Engineers
Principal Investigator:	John Gregory, 908-526-1300x101 John.gregory@branchburg.nj.us
Business Contact:	Diane Schubach, 908-526-1300x111 Diane.schubach@branchburg.nj.us
DOE Project Officer:	Deborah Weems, 303-275-4957 Debbie.weems@go.doe.gov

RESEARCH PERFORMANCE PROGRESS REPORT

What are the major goals of the project?

Generally, the goals will not change from one reporting period to the next. However, if the awarding agency approved changes to the goals during the reporting period, list the revised goals and objectives. Also explain any significant changes in approach or methods from the agency approved application or plan.

The Township's goal for this project was to reduce its use of electricity. A secondary goal was to reduce the use of fossil fuels, provide residents charging stations should they arrive in an electric powered vehicle, reduce the townships gasoline consumption by removing high mileage converted police cruisers averaging 18 mpg with high efficient plug in hybrids.

What was accomplished under these goals?

The Township completed construction of the ground mount system on August 16, 2012 and the carport system on May 16, 2013, Vehicle Chargers where installed in July 2012 and May 2013, Plug in hybrids were purchased through NJ State Contract and delivered July 2012 and April 2013.



The Township immediately saw a decrease in electrical usage with a few of the late summer months generating credit electrical bills. Mileage on the vehicles that were replaced went from 18mpg average to 65mpg average. The departments assigned the new vehicles can travel throughout the Township primarily on just the batteries.

This project combined with other energy saving projects through the NJ Bureau of Public Utilities, including HVAC system controls, lighting upgrades and occupancy sensors, which changed the utility usage from an estimated 55% to an estimated 95-105%. Consequently the 50kw carport had to be moved to the municipal annex which houses Public Works, Recreation and the Health departments.

One disappointment at the present time is the public's use of the charging stations has been zero. My opinion is that most of this area of Somerset County is a bedroom community and the mileage being offered by strictly electric vehicles is not enough to warrant the purchase and other associated cost of ownership along with a lack of charging facilities.

What opportunities for training and professional development has the project provided?

Training of the solar facility has been limited to the reporting of generation and use of the online generation reporting system, this has been done by the installer of the system. the local community college offers solar maintenance courses and we are looking to send some of our Buildings and grounds people to these classes.

How have the results been disseminated to communities of interest?

The Township has made available for anybody interested the generation information regarding the 2 solar projects on the web. The information can be found at: <https://easyview.auroravision.net/easyview/index.html?entityId=1145365> for the 250kw system and <https://easyview.auroravision.net/easyview/index.html?entityId=1450286> for the 50kw system. We has a resident in the area pursuing their Doctorate using our system as their thesis for sustainable energy and the New jersey Institute of Technology.

What do you plan to do during the next reporting period to accomplish the goals?

There will be no more reporting after this report.

What individuals have worked on the project?

Name:	Gregory Bonin
Title:	Township Administrator
Project Role:	Project Manager
months worked:	Entire project
Contribution to Project:	Gregory Bonin assured project stayed on track with schedules and reporting

Name:	John Gregory
-------	--------------



Title: Asst Township Administrator/Purchasing Agent
Project Role: Project Investigator
months worked: Entire project
Contribution to Project: John Gregory did all of the DOE reporting, and procurement for the entire project

Name: Diane Schubach
Title: Treasurer
Project Role: Project Investigator
months worked: Entire project
Contribution to Project: Diane assured the adequate funding of the project in keeping with the construction schedules. Diane also completed the transaction withdraws with the DOE/

Name: Douglas Ball
Title: Township Engineer
Project Role: Project Manager
Months worked: Entire project
Contribution to Project: Doug ensured his staff, the consultant, and the contractor performed all required aspects of the contract, managed Change orders, and settled disputes

Name: Rob Corson, Triad Engineering
Title: Consulting Engineer
Project Role: Consulting Project Manager
Months worked: Entire project
Contribution to Project: Rob designed the project put together bid specifications verified technical work and ensured his staff and the contractor performed all required aspects of the contract, managed Change orders, and settled disputes

Name: Paul Witwick
Title: Consulting Engineer Specialist
Project Role: Consulting Project Manager
Months worked: Entire project
Contribution to Project: Paul reviewed the project bid specifications vs bids received, verified technical work and ensured the contractor performed all required aspects of the contract, managed Change orders, and settled disputes

What is the impact of the project? How has it contributed?

The project is still being evaluated as to the cost and societal benefits. However, it has already had an effect to the Township of Branchburg and the state as a whole either indirectly or directly. Direct benefits to the Township include:

- Reduction in the Townships overall consumption of energy resulting in an approximate savings of \$60,000 in electrical costs.



- Increased fleet mpg resulting in less fuel being used.
- Reductions in appropriations allowing the Township more flexibility with its budget and providing services to the residents that would have been cut due to revenue caps and shortfalls.
- Additional revenue source in the form of SREC's enabling the Township to keep staff and reduce the need for layoffs.

Indirect Benefits to the Township, State, and Nation:

- Reduction in pollution due to the vehicle fleet being updated and the inefficient vehicles being retired.
- Reduction in the use of energy benefiting the local electrical grid and reducing the reliance on utility generated electricity.
- Savings being used to keep employees thereby not contributing to the unemployment rate
- Contracting of NJ firms thereby contributing to the local economy.

Change of primary performance site location from that originally proposed

The following Changes/Problems were encountered while doing this project. All changes listed were approved prior to being started.

1. Energy savings measures implemented changed the percentage of consumption from 45%-55% to 95%-105% as the Township is only allowed to net meter and not generate more than it consumes the second part of the project needed to be relocated to provide power to a different building on the same complex. Therefore the additional 50kw was located at the municipal annex which houses the departments of Public Works, Health, and Recreation.
2. Plug in vehicles – a third vehicle and dual head charging station were added.
3. The most significant problem regarding this entire process was the inexperienced contractors who all decided to get into the photovoltaic business in the down economy post the 2008 recession. The Township received six (6) bids for each section of the project. However, truly qualified experienced photovoltaic installers were approximately 1/3 of the bids received. In one case we had a plumber and an HVAC contractor bid. Along with the lack of experience with the bidders was the lack of experience with public works contracts. The combination of these two elements resulted in legal challenges and delays in the start of the projects. Both legal challenges were found in the favor of the Township but these reduced the availability of funds which may have been able to be used to create a bigger benefit for the Township and the taxpayers.



Pictures of the Projects.

Sign at entrance to Parking lot for the major project



Solar pictures
50kw Carport







