Galloway Township Energy Audit

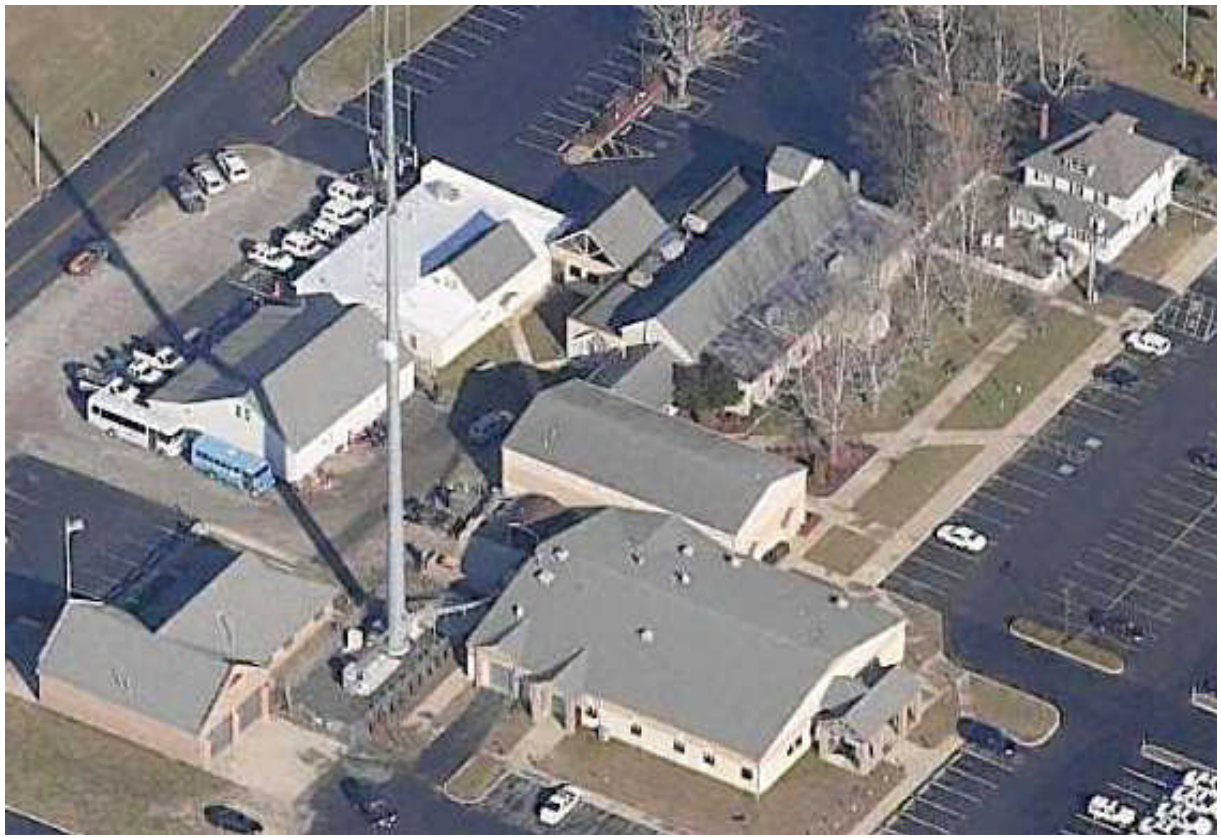
Prepared For:
Galloway Township

Contact :
Stephen J. Bonanni Sr., M.A.
C.P.W.M. – C.P.M., Director

Prepared By:
Dome – Tech, Inc.

Prepared Under the Guidelines of the State of NJ Local Government Energy Audit Program

August, 2009;
Revised September 2009



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GALLOWAY TOWNSHIP
ENERGY AUDIT REPORT
TABLE OF CONTENTS

1. Executive Summary

2. ECM Summary By Payback

3. Energy Audit Report
   - Energy Audit Purpose & Scope
   - Historic Energy Consumption
   - Facility Description
   - Greenhouse Gas Emissions Reduction
   - Energy Conservation Measures
   - Renewable/Distributed Energy Measures
   - Energy Procurement
   - Notes and Assumptions
   - Operations & Maintenance
   - Next Steps

4. Appendix
   - Portfolio Manager/Energy Star
   - Facilities Total Annual Energy Use
   - Energy Use Graphs
   - Equipment & Lighting Inventory Lists
   - ECM Lists
   - ECM Costs & Calculations
   - Renewables Calculations

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September 30, 2009

Stephen J. Bonanni Sr., Director
Township of Galloway Department of Public Works
300 E. Jimmie Leeds Road
Galloway, NJ 08205

RE: EXECUTIVE SUMMARY FOR TOWNSHIP OF GALLOWAY
STATE OF NEW JERSEY LOCAL GOVERNMENT ENERGY AUDIT
FINAL REPORT

Dear Mr. Bonanni:

Dome-Tech was retained by the Township of Galloway, as a pre-qualified participant in the Local Government Energy Audit ("LGEA") Program, to perform an energy audit. The objective of the energy audit was to evaluate the Township's energy consumption, establish baselines for energy efficiency and identify opportunities to reduce the amount of energy used and/or its cost.

The scope of the audit is standardized under the Program, and consists of the following:

- Benchmarking historic energy consumption utilizing EPA Energy Star's Portfolio Manager
- Characterizing building use, occupancy, size, and construction
- Providing a detailed equipment list including estimated service life and efficiency
- Identifying and quantifying energy conservation measures (ECMs)
- Evaluating the economic viability of various renewable/distributed energy technologies
- Performing a tariff analysis and assessing savings potential from energy procurement strategies
- Providing the method of analyses

Based upon data received for the period March 2008 – April 2009, the Township of Galloway had an annual expenditure of:

- Electricity: 927,426 kWh at a total cost of $134,011
- Natural Gas: 14,867 therms at a total cost of $22,034

Please refer to Section 2 of this report for a detailed list of identified Energy Conservation Measures (ECMs), along with a summary of their preliminary economics (estimated project cost, estimated annual energy savings, applicable rebate(s), etc.). In this report, all identified ECMs are ranked and presented according to their simple payback; however, please note that the master ECM table can also be sorted by building, by measure type, cost, etc.

If all identified ECMs were to be implemented, they would provide the following estimated benefits to the Township of Galloway:

- Total annual electrical savings: 246,830 kilowatt-hours; 26.6%
- Total annual natural gas savings: 5,015 therms of natural gas usage; 33.7%
- Total annual cost savings: $37,600; 24%
- Total annual CO_2 emissions reduction: 111 tons
- Total estimated gross implementation cost: $215,490
- Total estimated rebates $14,275
- Total Like in Kind – Equipment replacement $77,060
- Total estimated net implementation cost: $123,965
- Total average simple payback: 3.3 yrs

The projects that are recommended for implementation at specific facilities include: installing vending machine power management devices, implementing demand control ventilation, installing programmable thermostats, tying in the courtroom roof top units with the lights, optimizing the time of day settings in the police station restrooms and locker rooms, upgrading lighting, and replacing older A/C units.

The Township of Galloway data was entered into the US EPA ENERGY STAR's Portfolio Manager database program. Buildings with scores of 75 or higher may qualify for the ENERGY STAR Building Label. Energy Star scores are only applicable to certain types of buildings (i.e. predominantly office buildings, warehouses, schools, etc.), therefore the Score column in the report reflects NA in cases where the facility is a different building type.

Distributed/Renewable Energy Systems were reviewed for the Township with the following conclusions:

- Dome-Tech considered three different types of wind turbine technologies that consisted of both building-mounted and traditional ground-mounted variety. Due to attractive payback and high potential for energy reduction, the 50 kilowatt ground mounted wind turbine project appears to be the most attractive option. Should the Township of Galloway decide to pursue a wind turbine project, Dome-Tech recommends commissioning a more detailed study.
- Dome-Tech investigated solar options for each of the facilities in the Galloway Township audit. Please see Section 2 of this report for detailed information for each facility.

Regarding the procurement of utilities, Dome-Tech understands that the Township of Galloway is served by eight electric accounts behind Atlantic City Electric, under rate classes MGS and AGS. Dome-Tech understands that the Township of Galloway has Basic Generation Service Fixed Price and Basic Generation Service-Commercial accounts. Each year, the NJBPU continues to move new large energy users into BGS-CIEP by lowering the demand threshold for electric accounts receiving secondary service. The District is also served by two natural gas accounts behind Public Service Electric and Gas Company. Now is an ideal time to seek longer-term rate stability through a fixed price arrangement through a retail supplier.

During the development of this audit, Dome-Tech was assisted by facility personnel, who were both knowledgeable and very helpful to our efforts. We would like to acknowledge and thank those individuals.

Sincerely,

Holly Savoia
Special Projects Manager

Galloway Township
ECO/ECM Summary

	Energy Conservation Measures (ECM)	Energy Savings			Gross Installation Costs*	Rebates/ Incentives	Avoided Cost	Net Implementation Costs	Annual Energy Cost Savings*	Total Annual Cost Savings*	Simple Pay Back*	Annual Avoided CO2 Emissions	Return on Investment (ROI)	Lifecycle Cost Savings*
		kWh	kW	Therms										
1	Install Programmable Thermostats in the Muni Complex Tax Office	32,630	0	1,680	$ 700	$ -	$ -	$ 700	$ 7,830	$ 7,830	0.1	21	n/a	n/a
2	Vending Machine Power Management	4,490	0	0	$ 540	$ -	$ -	$ 540	$ 560	$ 560	1.0	1	n/a	n/a
3	Tie-in Courtroom RTUs 11 & 13 with lights	7,110	0	365	$ 4,000	$ -	$ -	$ 4,000	$ 1,710	$ 1,710	2.3	4	n/a	n/a
4	Lighting Upgrade	161,300	8	0	$ 64,830	$ 9,260		$ 55,380	$ 18,230	$ 18,230	3.0	53	n/a	n/a
5	Optimize TOD by tying in lights and fans in Police Station Restrooms and Locker Rooms	6,320	0	0	$ 4,000	$ 40	$ -	$ 3,960	$ 1,000	$ 1,000	4.0	2	n/a	n/a
6	Replace Existing Boiler with a High Efficiency Boiler	0	0	280	$ 10,370	$ 1,750	$ 6,620	$ 2,000	$ 450	$ 450	4.5	2	82%	$ 11,250
7	Replace A/C Units	470	0	0	$ 400	$ 25		$ 375	$ 90	$ 90	4.1	0	58%	$ 900
8	Demand Control Ventilation	9,840	0	970	$ 13,850	$ -	$ -	$ 13,850	$ 2,160	$ 2,160	6.4	9	n/a	n/a
9	RTU Replacement	24,670	11	1,720	$116,800	$ 3,200	$70,440	$ 43,160	$ 5,520	$ 5,520	7.8	18	48%	$ 82,800
10	Weather-stripping	159	0	18	$ 1,050	$ -	$ -	$ 1,050	$ 50	$ 50	19.8	0	n/a	n/a
Totals		246,830	19	5,015	$215,490	$ 14,275	$77,060	$ 123,965	$ 37,600	$ 37,600	3.3	111	-31%	$ 94,950

cars	28.8333
trees	73.9803

Energy Audit Purpose & Scope

Purpose:

- The objectives of the energy audit are to evaluate the site's energy consumption, establish baselines for energy consumption and identify opportunities to reduce the amount of energy used and/or its cost.

Scope:

I. Historic Energy Consumption: Benchmark energy use using Energy Star Portfolio Manager

II. Facility Description – characterize building usage, occupancy, size and construction.

III. Equipment Inventory – detailed equipment list including useful life and efficiency.

IV. Energy Conservation Measures: Identify and evaluate opportunities for cost savings and economic returns.

V. Renewable/Distributed Energy Measures: evaluate economic viability of various renewable/distributed energy technologies.

VI. Energy Purchasing and Procurement Strategies: perform utility tariff analysis and assess potential for savings from energy procurement strategies.

VII. Method of Analysis: Appendices

Historic Energy Consumption

Utility Usage and Costs Summary Time-period: March 2008 – April 2009

SCHOOLS	Electric			Natural Gas		
	Annual kWh	Annual Cost	$ / kWh	Annual Therms	Annual Cost	$ / Therm
Galloway Township Munipical Complex				13,434	19685.33	$ 1.47
Building 1 - Main Building	62,201	$ 7,852.58	$ 0.13			
Building 2 - Multi Purpose Building	32,757	$ 5,553.06	$ 0.17			
Building 3 - Municipal Building	230,560	$ 35,649.97	$ 0.15			
Building 4- Police Station	408,680	$ 55,464.90	$ 0.14			
Veteran Park at Glen by the Bay	77,097	$ 10,421.31	$ 0.14	1,433	$ 2,348.92	$ 1.64
Galloway Facility at American Legion	63,411	$ 10,218.14	$ 0.16	*NA*	*NA*	*NA*
Tartaglio Recreational Park	52,720	$ 8,851.20	$ 0.17	*NA*	*NA*	*NA*
TOTAL or AVERAGE	**927,426**	**134,011**	**$ 0.15**	**14,867**	**22,034**	**$1.55**

Please see Appendix for full utility data and consumption profiles for all Buildings.

Historic Energy Consumption

ENERGY STAR SCORES

- Energy Star Score is calculated to establish a facility-specific energy intensity baseline.
- Energy Star can be used to compare energy consumption to other similar facilities and to gauge the success of energy conservation and cost containment efforts.
- Buildings with an Energy Star rating/score of 75, or above, are eligible to apply for an official Energy Star Building label.
- Energy Star scores are only applicable to certain types of buildings (i.e: office buildings & warehouses only), therefore the Score column below is marked NA where the facility is a different building type.

Facility Name	Total Floor Area	Energy Star Score	Eligible to Apply for ENERGY STAR	Current Site Energy Intensity (kBtu/SF)	Source Energy Intensity (kBtu/SF)
Galloway Township Munipical Complex	64,929				
Building 1	17,082	*100*	*Yes**	33.9	65.3
Building 2	8,715	*NA*	*NA*	161	537.9
Building 3	2,000	*NA*	*NA*	390.2	1303.3
Building 4	2,590	*NA*	*NA*	42.8	142.8
Veteran Park at Glen by the Bay	4,130	*NA*	*NA*	93.3	235.9
Galloway Township Facility at the American Legion	7,000	*NA*	*NA*	30.5	102
Tartaglio Recreational Park	19.86 acres	*NA*	*NA*	*NA*	*NA*

** Billing needs to be updated and reviewed as well as an engineering review of the building for Energy Star approval*

Historic Energy Consumption (continued)

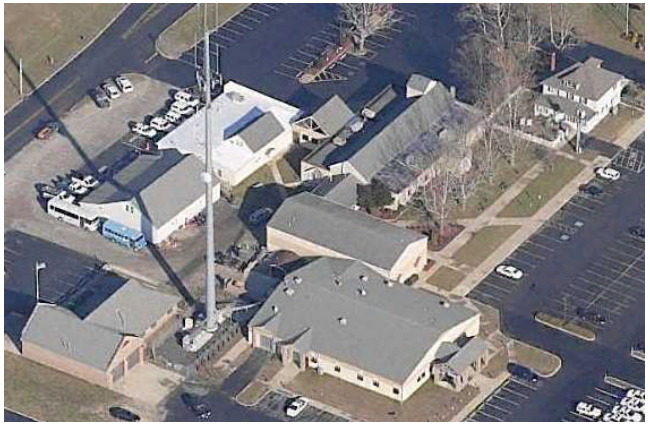
Portfolio Manager Sign - In

- An account has been created for Galloway Township in Portfolio Manager. You will have received an email to notify you of the generation of this account and shared access with Dome-Tech. Please use this to read your facility information. Please feel free to alter this information when the report is finalized. We would ask that you leave the sign-in information alone until then. Your college's information is currently shared as read only.
- When the report is finalized the shared access will be changed so that you can use / edit the information and change as you wish.
- Website link to sign-in: https://www.energystar.gov/istar/pmpam/index.cfm?fuseaction=login.Login

Facility Information

- **Building Name:** **Municipal Complex**

Address:	300 E. Jimmie Leeds Road Galloway, NJ
Gross Floor Area:	64,929 sf
Year Built:	1940
# Staff:	66



Description: The complex consists of four buildings with various connections between the main building and the DPW building, and the main building and the inter-connected courtroom / prosecutor's office / police station building, in the shape of a U. The senior center is connected to the old ambulance building (not in scope) and the multi-purpose building stands alone.

The main building and connections are one-story, with the exception of a small one-room construction office above the DPW building. The senior center is one-story also. The multi-purpose building has two stories and a basement.

The main building consists of offices, conference rooms, and break rooms. The building loops around to the courtroom, that has the prosecutors' offices at the rear of the building, adjacent to the police station. The senior center consists of small offices, a multi-purpose room and a kitchen. The multi-purpose building consists of offices on the upper level, a post-office on the main level, and storage in the basement.

Facility Information

Construction Features:

Facade:	Cement block (main building), vinyl siding w/stucco (main building/DPW), brick (senior center), vinyl siding (multi-purpose building), stucco (police dept/ court building)
Roof Type:	Pitched, asphalt shingle (main building and police station), mix of pitched, asphalt shingle and flat, rubber membrane, white (main building/dpw), pitched asphalt shingle (multi-purpose building)
Windows:	No tinting, dual pane, no blinds, inoperable (courtroom foyer- main building), interior shades on majority of windows (main building office, etc.) mix of operable/inoperable (police dept), covering 40-50% glass, and doors, tinted (dpw), operable, dual pane, interior shades/blinds (senior center), double hung, dual pane, operable (multi-purpose building)
Exterior Doors:	Steel frame, painted wood, in need of weather-stripping (historical room of main building), main entrance glass doors don't close – gap at bottom (police dept), all other doors in good condition

Facility Information

Major Mechanical Systems:

Air Handlers / AC Systems / Ventilation Systems

- **Main building**
  - One (1) Goodman air handling unit (AHU), one (6) Thermastor dehumidifiers, one (1) RHEEM package unit, one (1) RUUD package unit, one (1) RUUD split system, eight (8) York package units, one(1) Soleus Air portable HVAC and dehumidifier, one (1) Whirlpool window a/c unit
- **Police Department**
  - Three (3) A/C units (Goodman, Fujitsu, Tappan)
- **Senior Center**
  - One (1) York package unit
- **Multi-purpose building**
  - Two (2) International Comfort Products fan coil units

Boilers/ Heating Systems

- **Police Department**
  - Two (2) AO Smith electric wall heaters, two (2) Marley Electric heaters (vestibule), two (2) Bell & Gosset 7 ½ HP pumps, six (6) Premier 2 hot water heaters
- **Multi-purpose building**
  - One (1) Utica boiler, one (1) Hotpoint hot water heater

Facility Information

- **Building Name:** **Glen by the Bay at Veteran's Park**

Address: 628 S. New York Road, Galloway, NJ
Gross Floor Area: 4,130 sf
Year Built: 1952
Staff: 3
Description: The building was previously a residence, now utilized as a daycare/camp in the summer and houses the community services office.

- **Construction Features:**

Facade: 1960's domicile; concrete (main level), cedar shingle (upper level)
Roof Type: Pitched, 3-tab architectural asphalt shingle, in good condition
Windows: Vinyl, dual pane, operable, interior blinds, in good condition
Exterior Doors: In good condition

- **Major Mechanical Systems:**

Air Handlers / AC Systems / Ventilation Systems

- One (1) Pappan air handling unit (AHU) and one (1) unidentified AHU, one (1) Frigidaire A/C unit

Boilers/ Heating Systems

- One(1) John Wood hot water boiler, one (1) Weil McLain hot water heater

Facility Information

Building Name: American Legion

Address: 621 W. White Horse Pike, Galloway, NJ
Gross Floor Area: 7,000 sf
Year Built: 1969
Staff: 4

Description: The building was recently purchased by the Township, which will utilize it in the future as a senior services building. It is presently empty and about to undergo renovations.

Construction Features:

Facade: 1940's - Concrete and cement block
Roof Type: Flat (unable to access)
Windows: Single pane stained glass
Exterior Doors: Metal frame with single pane glass

Major Mechanical Systems:

Air Handlers / AC Systems / Ventilation Systems

- Three (3) Carrier package units, two (2) Bryant package units

Boilers/ Heating Systems

- One (1) Weil McLain natural gas boiler, one (1) Modine unit heater, one (1) Markel electric space heater

Facility Information

Building Name: Tartaglio Park

Address:	305 Duerer Street, Galloway, NJ
Gross Floor Area:	19.86 acres
Year Built:	2008

Construction Features:

The park consists of recreation fields for football and soccer. The football field has 28 1500 watt metal halide lamps on 4 light poles. The soccer fields have 120 1500 watt metal halide lamps on 12 light poles and 8 1000 watt metal halide lamps on 8 light poles. Security lighting consists of 12 400 watt high pressure sodium metal halide lamps on 7 light poles.

Greenhouse Gas Emission Reduction

Implementation of all the ECOs will yield:

- 246,830 kilowatt-hours of annual avoided electric usage.
- 5,015 therms of annual avoided natural gas usage.
- This equates to the following ***annual*** reductions:

- 111 tons of CO2;

  -OR-

- 29 Cars removed from road;

  -OR-

- 74 Acres of trees planted annually

The Energy Information Administration (EIA) estimates that power plants in the state of Connecticut emit 0.694 lbs CO2 per kWh generated.

The Environmental Protection Agency (EPA) estimates that one car emits 11,560 lbs CO2 per year.

The EPA estimates that reducing CO2 emissions by 7,333 pounds is equivalent to planting an acre of trees.

Notes and Assumptions

- Project cost estimates were based upon industry accepted published cost data, rough order of magnitude cost estimates from contractors, and regional prevailing wage rates. The cost estimates presented in this report should be used to select projects for investment grade development. The cost estimates presented in this report should not be used for budget development or acquisition requests.

- The following utility prices provided were used within this study:
  - Electricity Cost ($/kWh): $0.15
  - Natural Gas Cost ($/therms): $1.55

- The average CO2 emission rate from power plants serving the facilities within this report was obtained from the Environmental Protection Agency's (EPA) eGRID2007 report. It is stated that power plants within the state of CT emit 0.694 lbs of CO2 per kWh generated.

- The EPA estimates that burning one therm of natural gas emits 11.708 lbs CO2.

- The EPA estimates that one car emits 11,560 lbs CO2 per year.

- The EPA estimates that reducing CO2 emissions by 7,333 pounds is equivalent to planting an acre of trees.
- Avoided Costs (Like-In-Kind Replacement) are used for capital improvement projects that are not warranted solely based on energy savings. Therefore, avoided costs are the replacement costs for like (capacity, efficiency, etc.) equipment; it is assumed that the existing equipment will be replaced at the end of its useful life. The net implementation cost is the difference between premium efficiency and model/configuration and like-in-kind replacement.

Energy Conservation Measures ECM #1: Programmable Thermostats - RTUs 8 & 9

Municipal Complex - Tax Office	
Estimated Annual Energy Cost Savings:	$7,830
Gross Estimated Implementation Cost:	$700
NJ Smart Start Rebate:	$0
Net Estimated Implementation Cost:	$700
Simple Payback (years):	0.1
Annual Avoided CO_2 Emissions (tons):	21

- A review of the facilities showed that the HVAC systems were controlled by non-programmable thermostats.
- Dome-Tech recommends replacing the non-programmable thermostats with programmable thermostats.
- Installing programmable thermostats will provide scheduled temperature control to prevent overheating and cooling when the building is unoccupied.

ECM #2: Vending Machine Power Management

Estimated Annual Energy Savings:	$560
Gross Estimated Implementation Cost:	$540
NJ Smart Start Rebate:	$0
Net Estimated Implementation Cost:	$540
Simple Payback (years):	1.0
Annual Avoided CO_2 Emissions (tons):	1

- Dome-Tech recommends installing a VendMiser vending machine power management device on all three (3) vending machines (two in the main building and one outside the police station).
- The device uses a passive infrared sensor to power down the machine when the area surrounding it is vacant. Then it monitors the room's temperature and automatically re-powers the cooling system at one- to three-hour intervals, independent of sales, to ensure that the product stays cold.
- The microcontroller will never power down the machine while the compressor is running, eliminating compressor short-cycling. In addition, when the machine is powered up, the cooling cycle is allowed to finish before again powering down (reduces compressor wear and tear).

ECM #3: Tie-in Courtroom RTUs 11 & 13 with lights

Municipal Complex - Courtroom	
Estimated Annual Energy Cost Savings:	$1,710
Gross Estimated Implementation Cost:	$4,000
NJ Smart Start Rebate:	$0
Net Estimated Implementation Cost:	$4,000
Simple Payback (years):	2.3
Annual Avoided CO_2 Emissions (tons):	4

- A review of the facilities showed that the HVAC systems serving the courtroom are manually controlled.
- Dome-Tech recommends tying in the roof top units 11 &13 with the lights, and only implementing Occupied Mode on Tuesdays and Thursdays when court is normally in session.
- Dome-Tech further recommends implementing Demand Control Ventilation strategies when the roof top units are replaced.

ECM #4: Lighting Upgrade

	Municipal Building	Police Station	Senior Center	Multi-purpose Bldg	Veterans Park	American Legion	**Totals**
Estimated Annual Energy Cost Savings	$6,200	$6,200	$830	$1,100	$1,100	$2,800	**$18,230**
Gross Estimated Implementation Costs	$18,000	$15,230	$3,500	$4,400	$7,700	$16,000	**$64,830**
NJ Smart Start Rebate	$3,700	$3,000	$200	$800	$640	$880	**$9,260**
Net Estimated Implementation Costs	$14,300	$12,230	$3,300	$3,600	$7,060	$15,120	**$55,380**
Simple Payback (yrs): with rebate	2.3	2.0	3.9	3.3	6.4	5.4	**3.0**
Annual Avoided CO_2 Emissions (tons)	14	27	2	2	2	6	**53**

- At the American Legion Building and the Municipal Complex, with the exception of the Senior Center that had T8 lighting already in place, the other buildings could benefit from higher efficiency T-8 fluorescent lamps and ballasts. Improved light fixture designs will further reduce lighting energy costs by reducing the total number of lamps and fixtures while maintaining the minimum lighting output as per state codes. At Veterans Park, normal household incandescent bulbs can be replaced with compact fluorescents.
- While the facilities staff is vigilant about turning lights off, Dome-Tech recommends installing occupancy sensors in most areas.. Installing occupancy sensors will automatically turn lights on/off according to actual occupancy by sensing the presence of people in the room.
- Tartaglio Park finalized construction late in 2008. Any electrical savings realized would incur a long payback period. It is Dome-Tech's recommendation to engage another lighting audit at the end of the equipment's expected service life.

*Source: Turner, Wayne, Energy Management Handbook, 1999.

ECM#5: Optimize Time of Day Schedule in Police Station Restrooms & Locker Rooms into Occupancy Sensors

Estimated Annual Savings:	$1,000
Estimated Implementation Cost:	$4,000
NJ Smart Start Rebate:	$40
Net Estimated Implementation Cost:	$3,960
Simple Payback (years):	4.0
Annual Avoided CO_2 Emissions (tons):	2

- A review of the facility revealed an opportunity to optimize the time of day schedules by tying in the lights and fans in the Police Station restrooms and locker rooms that are used intermittently.

- Optimizing the schedules to better reflect actual building occupancy will reduce heating and cooling costs.

TOD SAVINGS

UNIT	Poilce Department Restroom 1mens	Poilce Department Restroom 2 ladies	Poilce Department Locker Room 1 mens	Poilce Department Locker Room 2 ladies
Current Mon thru Fri Occ. Schedule	24/7	24/8	24/9	24/10
Current Mon thru Fri Occ. Hours (Hours per day)	24.0	24.0	24.0	24.0
Current Saturday Hours Occupied	24	24	24	24
Current Sunday Hours Occupied	24	24	24	24
Current Hours Occupied Per Year	8,736	8,736	8,736	8,736
Revised Mon thru Fri Occ.Schedule w/ holidays	08:30-16:30	08:30-16:31	08:30-16:32	08:30-16:33
Revised Mon thru Fri Occ. Hours (Hours per day)	8.0	8.0	8.0	8.0
Revised Saturday Hours Occupied	0	0	0	0
Revised Sunday Hours Occupied	0	0	0	0
Revised Hours Occupied Per Year	2,080	2,080	2,080	2,080
Scheduled Hours Saved per Year	6,656.00	6,656.00	6,656.00	6,656.00
Unoccupied Run Time (maintain set backs)	665.60	665.60	665.60	665.60
Actual Hours Saved per Year	5,990.40	5,990.40	5,990.40	5,990.40
Supply Fan HP	0.3	0.3	0.3	0.3
Return Fan HP	0	0	0	0
Supply Fan KW	0.19	0.19	0.19	0.19
Return Fan KW	0.00	0.00	0.00	0.00
Supply Fan Motor Load Factor	0.90	0.90	0.90	0.90
Return Fan Motor Load Factor	0.90	0.90	0.90	0.90
Fan Savings	$ 159.12	$ 159.12	$ 159.12	$ 159.12
# of Fixtures	2	2	4	4
kw per fixture	0.03	0.03	0.03	0.03
Lighting savings	$60.67	$60.67	$121.34	$121.34
Total Savings	$219.79	$219.79	$280.46	$280.46
TOD FACTOR	0.237	0.237	0.237	0.237

ECM #6: Replace Multi-Purpose Building Existing Boiler w/ High Efficiency Gas Boiler

Municipal Complex Multi-purpose Building	
Estimated Annual Energy Cost Savings:	$450
Gross Estimated Marginal Implementation Cost::	$10,370
Like and Kind Replacement Cost:	$6,620
NJ Smart Start Rebate:	$1,750
Net Estimated Implementation Cost:	$2,000
Simple Payback (years):	4.5
Annual Avoided CO_2 Emissions (tons):	2

- The Municipal Complex Multi-purpose building has one (1) 131,300 Btuh gas fired Utica boiler.
- The boiler is 22 years old and is nearing the end of the equipment service life (ASHRAE states the service life of similar equipment to be 25 years).
- The boiler's age, size, type and configuration does not lend itself to cost-efficient operation. Generally, as boilers approach the end of their service life, the efficiency degrades and the boiler must consume more fuel in order to produce the same rated output. There is also a correlation between the risk of equipment failure and equipment age.
- Avoided Costs (Like-In-Kind Replacement) are used for capital improvement projects that are not warranted solely based on energy savings. Therefore, avoided costs are the replacement costs for like (capacity, efficiency, etc.) equipment; it is assumed that the existing equipment will be replaced at the end of its useful life. The net implementation cost is the difference between premium efficiency and model/configuration and like-in-kind replacement.

ECM #7: Replace AC Units

Estimated Annual Energy Savings:	$92
Gross Estimated Implementation Cost:	$400
NJ Smart Start Rebate:	$0
Net Estimated Implementation Cost:	$400
Simple Payback (years):	4.3
Annual Avoided CO_2 Emissions (tons):	0

- Local air conditioning units were installed to provide localized air conditioning for small private offices. The unit observed in the room above the construction office is in poor physical condition and inefficient compared to today's standards.
- Dome-Tech recommends replacing this unit with a new higher efficiency unit.
- New 10.8 SEER (Seasonal Energy Efficiency Rating) units are estimated to be at least 14% more efficient at full/part loads than the existing equipment.

ECM #8: Demand Control Ventilation (Main Building – units 7, 11, and 13)

Estimated Annual Energy Savings:	$2,160
Gross Estimated Implementation Cost:	$13,850
NJ Smart Start Rebate:	$0
Net Estimated Implementation Cost:	$13,850
Simple Payback (years):	6.4
Annual Avoided CO_2 Emissions (tons):	9

- Building codes require that a minimum amount of fresh air be provided to ensure adequate air quality. To comply, ventilation systems often operate at a fixed rate based on an assumed occupancy (e.g., 20 cfm per person multiplied by the maximum design occupancy). The result is excessive fresh air volumes which require costly (and unnecessary) conditioning.

- Demand-controlled ventilation controls the amount of outside air based upon the CO_2 levels generated by building occupants. Demand ventilation should be added to any return air system where space occupancy varies dramatically – historical room and courtroom.

- By installing CO_2 sensors and controlling the CO_2 level at less than 1000 PPM, the outside air flow is kept to the absolute minimum while space conditions are kept in compliance with building codes and standards such as the ASHRAE Indoor Air Quality Standard.

ECM #9: Rooftop Unit Replacement

Estimated Annual Savings	$5,500
Gross Estimated Implementation Cost	$116,800
Like and Kind Replacement Cost	$70,440
NJ Smart Start Rebate	$3,200
Net Estimated Implementation Cost	$43,160
Simple Payback (years):	7.8
Annual Avoided CO_2 Emissions (tons)	18

*Energy Efficiency Ratios: EER is the rating of cooling output (Btu) divided by the electrical energy input (watts). The higher the EER, the more efficient the unit.

- The existing rooftop units (RTUs) in the main building, senior center and police station are between 14-24 years old and are at the end of their estimated equipment service life (EESL) per ASHRAE standards. (The EESL for package rooftop units is 15 years.)
- Replacing these RTU's with new, higher efficiency units will significantly reduce annual energy and maintenance costs.
- New Jersey SmartStart offers rebates that usually pay for the incremental cost to upgrade to higher efficiency units.
- See Notes & Assumptions Page for description of Like-In-Kind replacement costs.

Savings do not include maintenance savings

ECM #9: Rooftop Unit Replacement (continued)

Energy Efficiency Ratios*

Unit Capacity (tons)	Existing SEER	Proposed SEER	# of Units	$/ Ton Rebate	Total Rebate
3.75	12	18	1	65	243.75
4	10	18	3	65	780
4.5	12	18	4	65	1170
5	10	18	2	65	650
5.5	12	18	1	65	357.5

- Avoided Costs (Like-In-Kind Replacement) are used for capital improvement projects that are not warranted solely based on energy savings. Therefore, avoided costs are the replacement costs for like (capacity, efficiency, etc.) equipment; it is assumed that the existing equipment will be replaced at the end of its useful life. The net implementation cost is the difference between premium efficiency and model/configuration and like-in-kind replacement.

ECM # 10: Creation of an Energy Awareness & Education Program

- Galloway Township currently has little or no observed program in place.

- The workplace is an excellent forum for encouraging energy conservation practices and town halls are also a great place to get the word out to the community. By doing so, townships can do their part to promote an energy conscious and conservation-minded society that leads to energy cost reductions, environmental benefits, and national energy independence.

Estimated Annual Savings:	2-3%*
Gross Estimated Implementation Cost:	$1500
Expected Rebate / Energy Efficiency Credit:	None
Net Estimated Implementation Costs:	$1500
Simple Payback (yrs): (with and w/o rebate)	Varies
Annual Avoided CO_2 Emissions (tons):	Varies
Cost per Ton CO_2 Reduction ($/ton):	Varies

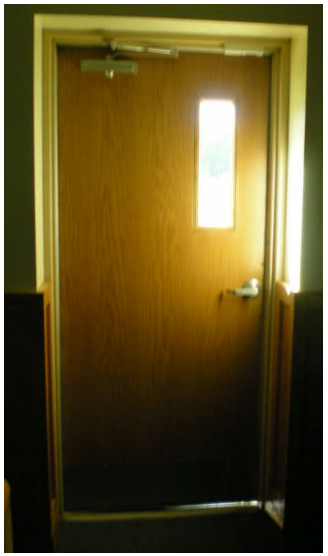
* Estimated Annual Savings are based on the robustness of the program implemented, maintenance, and annual energy costs.

ECM #11: Weather-stripping installation on exterior doors

Estimated Annual Energy Savings:	$50
Gross Estimated Implementation Cost:	$1050
NJ Smart Start Rebate:	$0
Net Estimated Implementation Cost:	$1050
Simple Payback (years):	19.8
Annual Avoided CO_2 Emissions (tons):	0

Weather-stripping

- Some of the perimeter doors have poor weather stripping that allow infiltration to enter conditioned areas causing an unnecessary increase in the heating, cooling and dehumidification load.
- Dome-Tech recommends replacing all old weather stripping on perimeter doors that do not have vestibules.
- Energy savings will be realized by the reduction of hot and cold outside air that the building's HVAC equipment must condition to room temperature.



Infiltration Area

Picture: Prosecutor's office

Renewable/Distributed Energy Measures

Distributed Generation & Renewable Energy

- Distributed Generation (on-site generation) generates electricity from many small energy sources. These sources can be renewable (solar/wind/geothermal) or can be small scale power generation technologies (CHP, fuel cells, microturbines)
- Renewable energy is energy generated from natural resources (sunlight, wind, and underground geothermal heat) which are naturally replenished
- Photovoltaics (solar) are particularly popular in Germany and Spain and growing in popularity in the U.S.
- Wind power is growing as well, mostly in Europe and the U.S.
- Geothermal applications are used widely in western U.S. (most prominent in the Yellowstone basin and in northern California)

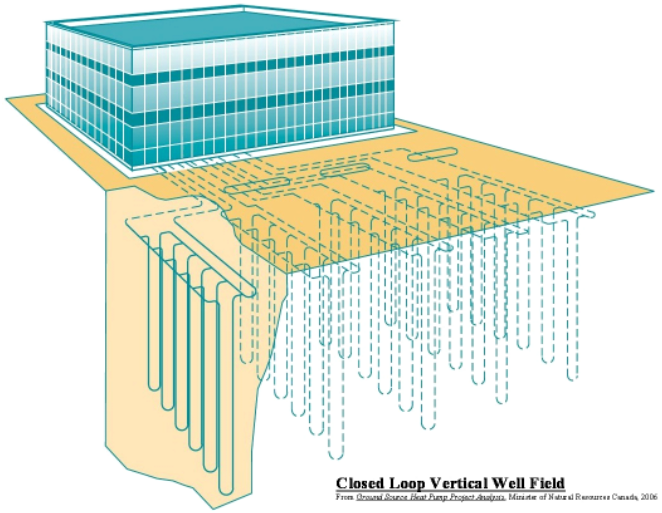
Renewable Energy Technologies: Geothermal

Geothermal ground source heat pump (GSHP) systems are HVAC systems that use the earth's relatively constant temperature to provide heating or cooling to a system. In doing so, GSHP systems move 3 to 5 times more energy between the building and the ground than is actually consumed by the system components. In comparison, this represents a 30% decrease in energy consumption when compared to conventional HVAC systems that required chillers or refrigeration coils for cooling and boilers or electric resistance coils for heating.

A GSHP system consists of three major components: the heat pump, the well field, and the heating/cooling distribution system.

Heat Pump

The heat pump is the driving force behind a GSHP system. A typical heat pump is an "air-to-water" unit, meaning the fluid carries heat to and from the earth (via the earth connection) is a water or water/antifreeze mixture, and the HVAC distribution system in the building distributes hot or cold air. Heat pumps are self-contained in a single enclosure and consist of a refrigerant compressor, earth heat sink heat exchanger, and an air distribution system (fan, refrigerant-to-air heat exchanger, and condensate removal). Heat pumps range in size between 1 to 30 tons. For larger facilities (such as schools and office buildings), several heat pump units are required.



Closed Loop Vertical Well Field

From Ground Source Heat Pump Project Analysis, Minister of Natural Resources Canada, 2006

Well Field

The well field provides the heat exchanging mechanism between the GSHP system water side and the earth. Well fields are either open or closed system. Open systems directly draw from an adjacent water source such as a lake or aquifer. Closed systems are typically polyurethane tubing buried in horizontal trenches or boreholes. The system selected for this analysis is a closed loop, horizontal well field. Wells are typically 250 to 500 feet deep each, and provide 1 ton of cooling for every 250 linear feet. Wells are spaced at 15 to 20 feet on center, and larger systems can have a significant footprint. In addition, the well boring portion of the project is capital intensive and usually accounts for over 50% of the total GSHP system cost. Once installed, and well field has a estimated equipment service life of over 50 years.

Heating/Cooling Distribution System

The heating/cooling distribution system consists of the ductwork used to supply conditioned air the building. As previously stated, larger facilities often require multiple heat pumps connected to a common building loop. Buildings equipped with GSHP's may also require make-up air units to provide fresh air to the spaces, as well as an auxiliary heat source (such as a boiler or steam heat exchanger) to supplement heating during high heating degree days.

Renewable Energy Technologies: Geothermal

The project economics and GSHP pro's and cons are presented in the following tables:

GSHP Economics*

	GSHP	DX Roof Top
Gross Installation Cost Estimate	$154,000	$77,000
NJJ SSB Rebate	$8,140	$1,738
Net Installation Cost Estimate	$145,860	$75,262
Annual Energy Cost	$28,590	$35,803
Annual Electric Use, kWh	204,214	216,600
Annual Natural Gas Use, Therms	0	3,468
Annual CO2 Emmisions, Therms	71	96

*Based upon Galloway Township - Police Station HVAC Systems & Energy Profile

Simple Payback on Net Install Cost GSHP

Net Installation Cost Estimate	$145,860
Annual Energy Savings	$7,213
Simple Payback	20.2

0

Simple Payback on Incremental Cost of GSHP

Net Installation Cost Estimate	
Annual Energy Savings	$7,213
Simple Payback	9.8

GSHP Pros & Cons

Pros	Cons
➢Annual HVAC energy reduction of over 30% and energy spend by over $45,000. ➢Well fields installations typically last over 50 years. ➢Reduction of annual greenhouse gas emissions by 185 tons per year. ➢Potential for removal of boiler and chiller / low efficiency DX refrigeration system. ➢Potential for reduced maintenance costs if the GSHP system replaces a cooling tower or other equipment.	➢Payback period is longer than expected life of heat pump equipment (exclusive of well field). ➢Ground conditions are not always conducive to a well field installation. Conditions unknown until drilling is complete. ➢The well field requires a significant amount of real estate. In this case, well over an acre of land may be required depending on depth of well field.

A GSHP installation is not recommended as an immediate retrofit project. However, a detailed life cycle analysis of a GSHP system versus a traditional HVAC system is recommended once the existing equipment exceeds the estimated equipment service life.

Renewable Energy Technologies: Wind

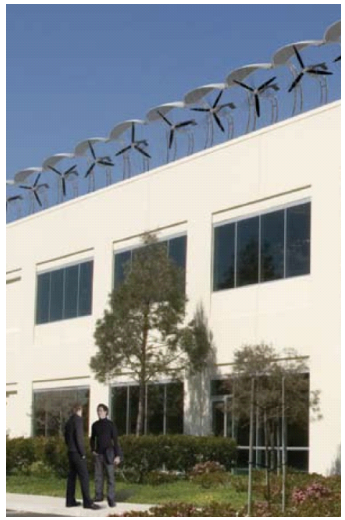
Wind turbines generate electricity by harnessing a wind stream's kinetic energy as it spins the turbine airfoils. As with most renewable energy sources, wind energy is subject to intermittent performance due to the unpredictability of wind resources.

Galloway's Wind Speed

As previously stated, wind speed is critical to the successful wind turbine installation. According to average wind data from NASA's Surface Meteorology and Solar Energy records, the average annual wind speed for the Galloway area is 4.6 meters per second. Ideal wind speeds for a successful project should average over 6 meters per second.

For Galloway Township, Dome-Tech considered three (3) types of wind turbine technologies; building integrated wind turbines (1 kW each) and traditional ground mounted wind turbines (5 kW & 50 kW).

Building Integrated Wind Turbines
Model: AeroVironment AVX1000
Height: 8.5'
Rotor Diameter: 6'
Weight: 130 lbs.
Cut-In Wind Speed: 2.2 m/s
Maximum Generating Capacity: 1 kW



5 kW Ground Mount
Model: WES5 Tulipo
Height: 40'
Rotor Diameter: 16'
Weight: 1,900 lbs.
Cut-In Wind Speed: 3.0 m/s
Maximum Generating Capacity: 5.2 kW

50 kW Ground Mount
Model: Entegrity EW50
Height: 102'
Rotor Diameter: 50'
Weight: 21,000 lbs.
Cut-In Wind Speed: 4.0 m/s
Maximum Generating Capacity: 50 kW

Renewable Energy Technologies: Wind

The project economics and wind turbine pros and cons are presented in the following tables:

Wind Turbine Economics

	Building Integrated	Ground Mount 5 kW	Ground Mount 50 kW
Gross Installation Cost Estimate	$130,000	$62,400	$500,000
NJJ SSB Rebate	$52,622	$44,910	$180,981
Net Installation Cost Estimate	$77,378	$17,490	$319,019
Annual Energy Savings	$2,977	$2,217	$43,539
Simple Payback	26.0 yrs.	7.9 yrs.	7.3 yrs.
System Capacity	20 kW	10 kW	100 kW
Annual Avoided Energy Use	18,844 kWh	14,034 kWh	275,561 kWh
Annual CO2 Emmisions, Therms	7	5	96
% of Annual Electric Use*	2.6%	1.9%	37.5%
Galloway Township: 734198 kWh/Year.			

Wind Turbine Pros & Cons

Pros	Cons
➢Annual reduction in energy spend and use can be potentially reduced by almost $14,000 (10% reduction). ➢Typical equipment life span is 15-30 years. ➢Reduction of annual greenhouse gas emissions by 4-28 tons per year. ➢A wind turbine project could be incorporated into science and other curriculums to raise student awareness of energy alternatives. ➢High visible “green” project.	➢Payback period is significant (over 10 years). ➢Average area wind speed is not ideal and impacts performance. ➢Prone to lighting strikes. ➢Bird collisions are likely, but may be reduced with avian guard (building integrate only). ➢Zoning may be an issue. Check with local zoning regulations. ➢Wind turbines do create noise, although below 50 dB (a typical car ride is over 80 dB).

Due to attractive payback and high potential for energy reduction, the 50 kilowatt ground mounted wind turbine project appears to be the most attractive option. Should Galloway Township decide to pursue a wind turbine project, Dome-Tech recommends commissioning a more detailed study.

Solar Photovoltaic

- Sunlight can be converted into electricity using photovoltaics (PV).
- A solar cell or photovoltaic cell is a device that converts sunlight directly into electricity.
- Photons in sunlight hit the solar panel and are absorbed by semiconducting materials, such as silicon. Electrons are knocked loose from their atoms, allowing them to flow through the material to produce electricity.
- Solar cells are often electrically connected and encapsulated as a module, in series, creating an additive voltage. The modules are connected in an array. The power output of an array is measured in watts or kilowatts, and typical energy needs are measured in kilowatt-hours.

Renewable Energy Technologies: Solar Photovoltaic (Continued)

	Municipal Complex	***Veterans Park***	***American Legion***	***Tartaglio Park***
System Capacity, kw-dc (maximum utilization of roof space)	72 kw dc	5 kw dc	390 kw dc	390 kw dc
Annual Electric Generation, kwhrs of AC electricity produced	80,205 kwh	5,385 kwh	435,067 kwh	435,067 kwh
Total Annual Facility Electric Use, kwhrs	734,198 kwh	77,097 kwh	63,411 kwh	52,720 kwh
% of Total Annual Usage	11%	7%	686%	825%
All-In Cost of Electric Year 1	$0.139 / kwh	$0.139 / kwh	$0.139 / kwh	$0.139 / kwh
Annual Electric Cost Savings	$11,148	$749	$60,474	$60,474
Estimated SREC Value (Year 1):	$519 / SREC	$519 / SREC	$519 / SREC	$519 / SREC
Estimated Year 1 SREC Revenue:	$41,625	$2,795	$225,791	$225,791
Equivalent Annual CO2 Emission Reduction (tons per year)[1]	44 tons/yr	3 tons/yr	238 tons/yr	238 tons/yr
Equivalent Cars Removed From Road Annually[2]	8	1	41	41
Equivalent Acres of Trees Planted Annually[3]	12	1	65	65
System Installed Cost (does not include value of tax credits)	$431,528	$28,810	$2,731,365	$2,926,463
Simple Payback (includes tax incentives)	9.2	9.2	11	11.8
IRR (25 Years)	7%	7%	5%	5%

1. Estimated CO2 Emissions Rate: 1.096 lbs/kWh

2. EPA Estimate: 11,560 lbs CO2 per car

3. EPA Estimate: 7,333 lbs CO2 per acre of trees planted

Renewable Energy Technologies: Solar Photovoltaic (Continued)

Non-Financial Benefits of Solar PV

The implementation of solar PV projects at Galloway Township places the township at the forefront of renewable energy utilization. This allows the township the opportunity to not only gain experience with this energy technology, but also to win recognition as an environmentally sensitive, socially conscience entity.

Renewable Energy Technologies: CHP/Cogeneration

- CHP (combined heat and power) or cogeneration is the use of a heat engine to simultaneously generate both electricity and useful heat.

- Fuel Cells are electrochemical conversion devices that operate by catalysis, separation the protons and the electrons of the reactant fuel, and forcing the electrons to travel through a circuit to produce electricity. The catalyst is typically a platinum group metal or alloy. Another catalytic process takes the electrons back in, combining them with the protons and oxidant, producing waste products (usually water and carbon dioxide).

- Microturbines are rotary engines that extract energy from a flow of combustion gas. They can be used with absorption chillers to provide cooling through waste heat rather than electricity. Microturbines are best suited for facilities with year-round thermal and/or cooling loads.

- Not recommended for Galloway Township due to the lack of thermal requirements in the summertime.

Utility Tariff and Rate Review: Electricity

- **Accounts and Rate Class:** Each of the Township's eight facilities is served by a single electric account behind Atlantic City Electric Company (ACE) under rate classes Monthly General Service (MGS) or Annual General Service (AGS).

- **Electric Consumption and Cost:** Based on the one-year period studied, the total annual electric expenditure for the Township is about $134,000 and the total annual consumption is about 927,000 kilowatt-hours (kWh).

- **Average/Effective Rate per kWh:** For the one year period studied, the Township's average monthly cost per kilowatt-hour ranged from 12.62 ¢/kWh to 16.95 ¢/kWh, inclusive of utility delivery charges. The Township's overall, average cost per kilowatt-hour during this period was 15.00 ¢/kWh.

  - Note that these average electric rates are "all–inclusive"; that is, they include all supply service (generation and commodity-related) charges, as well as all delivery service charges. The supply service charges typically represent the majority (60-80%) of the total monthly bill. It is the supply portion of your bill that is deregulated, which is discussed on subsequent slides in this section.

Utility Tariff and Rate Review: Natural Gas

- **Accounts and Rate Class:** The Township's Municipal Complex is served by five natural gas accounts and Veteran's Park is served by one natural gas account behind Public Service Electric and Gas Company under rate class Basic Gas Supply Service-General Service (BGSS-GSG). The Township's other facilities do not have natural gas service.

- **Natural Gas Consumption and Cost:** Based on the one-year period studied, the total annual natural gas expenditure for the Township is about $22,000 and the total annual consumption is about 14,000 therms (th). Natural gas is used predominantly throughout the winter period for heating purposes.

- **Average/Effective Rate per Therm:** For the one year period studied, the Township's average cost per therm ranged from $1.10 to $2.00 per therm, inclusive of utility delivery charges. The Township's overall, average cost per therm during this period was $1.55 per therm.

  - Note that these average natural gas rates are "all–inclusive"; that is, they include all supply service (interstate transportation and commodity-related) charges, as well as all delivery service charges. The supply service charges typically represent the majority (60-80%) of the total monthly bill. It is the supply portion of your bill that is deregulated, which is discussed on subsequent slides in this section.

Utility Deregulation in New Jersey: Background and Retail Energy Purchasing

- In August 2003, per the Electric Discount and Energy Competition Act [N.J.S.A 48:3-49], the State of New Jersey deregulated its electric marketplace thus making it possible for customers to shop for a third-party (someone other than the utility) supplier of retail electricity.
- Per this process, every single electric account for every customer in New Jersey was placed into one of two categories: BGS-FP or BGS-CIEP. BGS-FP stands for Basic Generation Service-Fixed Price; BGS-CIEP stands for Basic Generation Service-Commercial and Industrial Energy Pricing.
- At its first pass, this categorization of accounts was based on rate class. The largest electric accounts in the State (those served under a Primary or a Transmission-level rate class) were moved into BGS-CIEP pricing. All other accounts (the vast majority of accounts in the State of New Jersey, including residential) were placed in the BGS-FP category, receiving default electric supply service from the utility.
- The New Jersey Board of Public Utilities (NJBPU) has continued to move new large energy users from the BGS-FP category into the BGS-CIEP category by lowering the demand (kW) threshold for electric accounts receiving Secondary service. Several years ago, this threshold started at 1,500kW; now, it has come down to 1,000 kW. So, if an account's "peak load share" (as assigned by the utility) is less than 1,000 kW, then that facility/account is in the BGS-FP category. If you are unsure, you may contact Dome-tech for assistance.

Utility Deregulation in New Jersey: Background and Retail Energy Purchasing (cont.)

- There are at least 3 important differentiating factors to note about each rate category:
  1. The rate structure for BGS-FP accounts and for BGS-CIEP accounts varies.
  2. The "do-nothing" option (ie, what happens when you don't shop for retail energy) varies.
  3. The decision about whether, and why, to shop for a retail provider varies.

- Secondary (small to medium) Electric Accounts:
  - BGS-FP rate schedules for all utilities are set, and re-set, each year. Per the results of our State's BGS Auction process, held each February, new utility default rates go into effect every year on June 1st. The BGS-FP rates become each customer's default rates, and they dictate a customer's "Price to Compare" (benchmark) for shopping purposes. To learn more about the BGS Auction process, please go to www.bgs-auction.com.
  - A customer's decision about whether to buy energy from a retail energy supplier is, therefore, dependent upon whether a supplier can offer rates that are lower than the utility's (default) Price to Compare. In 2009, and for the first time in several years, many BGS-FP customers have "switched" from the utility to a retail energy supplier because there have been savings.

- Primary (large) Electric Accounts:
  - The BGS-CIEP category is quite different. There are two main features to note about BGS-CIEP accounts that do not switch to a retail supplier for service. The first is that they pay an hourly market rate for energy; the second is that these accounts also pay a "retail margin adder" of $0.0053/kWh. For these large accounts, this retail adder can amount to tens of thousands of dollars. The adder is eliminated when a customer switches to a retail supplier for service.
  - For BGS-CIEP accounts, the retail adder makes a customer's decision about *whether* to switch relatively simple. However, the process of setting forth a buying strategy can be complex, which is why many public entities seek professional assistance when shopping for energy.
  - For more information concerning hourly electric market prices for our region, please refer to www.pjm.com.

Utility Deregulation in New Jersey: Background and Retail Energy Purchasing (cont.)

- Natural Gas Accounts:
  - The natural gas market in New Jersey is also deregulated. Unlike the electric market, there are no "penalties", or "adders", for not shopping for natural gas. Most customers that remain with the utility for natural gas service pay rates that are market-based and that fluctuate on a monthly basis. While natural gas is a commodity that is exceptionally volatile and that is traded minute-by-minute during open trading sessions, market rates are "settled" each month, 3 business days prior to the subsequent month (this is called the "prompt month"). Customers that do not shop for a natural gas supplier will typically pay this monthly settlement rate to the utility, plus other costs that are necessary to bring gas from Louisiana up to New Jersey and ultimately to your facility.
  - For additional information about natural gas trading and current market futures rates for various commodities, you can refer to www.nymex.com.
  - A customer's decision about whether to buy natural gas from a retail supplier is typically dependent upon whether a customer seeks budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by enlisting a retail natural gas supplier. Many larger natural gas customers also seek the assistance of a professional consultant to assist in their procurement process.

Retail Energy Purchasing: Recommendations and Resources

- Electric
  - Based on current and recent market conditions, and actual bid processes run by Dome-Tech for various clients during the summer of 2009, we have seen customers with BGS-FP accounts save approximately 10-20% in projected energy costs by switching to retail energy supplier. If the Township were able to secure this type of agreement, this would represent an annual savings of approximately $13,000 - $26,000. It is important to note that actual rates and potential savings will be dependent on several factors, including market conditions, account usage characteristics/load profile (load factor), volume, and contract term.
- Natural Gas
  - Based on current and recent market conditions, and actual bid processes run by Dome-Tech for various clients during the summer of 2009, we have seen many customers entering into longer-term contracts for fixed natural gas rates. These rates vary substantially based on load type, volume, and term.
- Energy Purchasing Co-Operatives
  - Many public entities participate in various energy aggregation buying groups. Sometimes, an entity will have multiple options to choose from. These might include purchasing through a County co-operative, or purchasing through a trade-type association (for instance, many schools participate in NJASBO's ACES program). Co-operative purchasing may not necessarily get you the lowest rates; however, there is often substantial volume, and it can represent a good alternative for entities with limited energy consumption who can have a difficult time getting energy suppliers to respond to them on a direct, singular basis.
- To determine whether a savings opportunity currently exists for your entity, or for guidance on how to get started, you may contact Dome-Tech to discuss. There is also additional information provided below.

Retail Energy Purchasing: Recommendations and Resources (cont.)

- To learn more about energy deregulation, visit the New Jersey Board of Public Utilities website: www.bpu.state.nj.us
- For more information about the retail energy supply companies that are licensed and registered to serve customers in New Jersey, visit the following website for more information: http://www.bpu.state.nj.us/bpu/commercial/shopping.html
- Provided below is a list of NJ BPU-licensed retail energy suppliers:

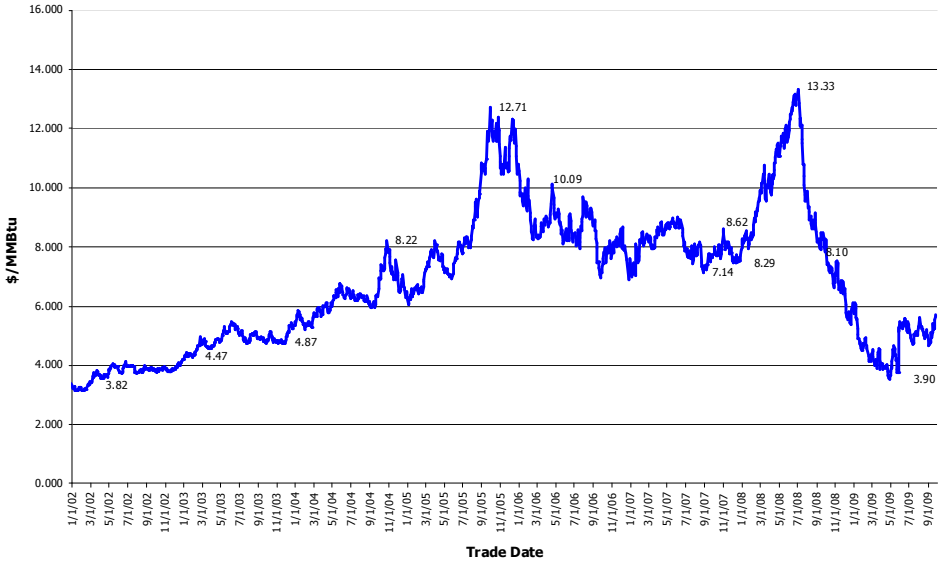
Company	Electricity	Natural Gas	Website
Pepco	X	X	www.pepcoenergy.com
Hess	X	X	www.hess.com
Sprague	X	X	www.spragueenergy.com
UGI	X	X	www.gasmark.com
South Jersey Energy	X	X	www.sjindutries.com
Direct	X	X	www.directenergy.com
Global	X	X	www.globalp.com
Liberty	X		www.libertypowercorp.com
ConEd Solutions	X		www.conedsolutions.com
Constellation	X		www.constellation.com
Glacial	X		www.glacialenergy.com
Integrys	X		www.intergryenergy.com
Suez	X		www.suezenergyna.com
Sempra	X		www.semprasolutions.com
Woodruff		X	www.woodruffenergy.com
Mx Energy		X	www.mxenergy.com
Hudson		X	www.hudsonenergy.net
Great Eastern		X	www.greateasterngas.com

**Note: Not every Supplier serves customers in all utility territories within New Jersey*

Historical Energy Futures Settlement Prices

- Below please find graphs that show the last several years' worth of market settlement prices for both natural gas and electricity. Each of these graphs shows the average closing prices of a rolling 12-month period of energy futures prices. The graphs are representative of the commodity, alone; they do not include any of the additional components (capacity, transmission, ancillary services, etc.) that comprise a retail energy price. They are meant to provide an indication of the level of pricing that a particular customer might expect to see, but the graphs do not account for the specific load profile of any individual energy user.

Henry Hub 12 month strip



PJM West 12 month strip

Operations & Maintenance

Water Distribution Savings

- Dome-Tech audited the various plumbing fixtures throughout the facilities. None of the fixtures appear to be of the low-flow variety.
- Low-flow toilets use approximately 1.6 gallons vs. traditional 3.5 gallon fixtures, and low-flow urinals use approximately .125 gallons vs. traditional 1.5 gallon fixtures.
- New spray aerators can reduce faucet flow to 0.5 gpm vs. standard faucets with aerators that use 2.5 GPM. This reduced flow can save hot/cold water consumption, and therefore the energy used to heat the water.
- While the economic savings cannot justify the first costs of replacing all of the fixtures, doing so could save approximately 288 gallons of water per year. Dome-Tech recommends that the fixtures be upgraded as they near the end of their useful lives.

2.5 GPM Traditional Aerator

VS

0.5 GPM Needle Spray Aerator

Next Steps

- **The following projects should be considered for further study and implementation:**
  - Vending Machine Power Management
  - Demand Control Ventilation
  - Programmable Thermostats
  - Tie-in of courtroom RTUs with lights
  - Optimization of Time of Day in Police Station restrooms and locker rooms
  - Lighting upgrades
  - Energy Procurement
  - Replace older A/C units
  - Install weather-stripping on exterior doors
  - Replace plumbing fixtures with low-flow varieties when they have surpassed their useful life.

Summary Energy Performance Report

Facilities included: Campus: Galloway Township Municipal Complex Group
Located in:
Date Generated: 8/7/09

Number of facilities: 7

	Year ending 2/2009
Total Floorspace (sq. ft.)	41,610
Average Rating	100
Number of Facilities with a Rating	1
Number of Non-ratable Facilities*	6
Total Site Energy Use (kBtu)	3,475,478
Total Weather Normalized Source Energy Use (kBtu)	10,340,640
Average Weather Normalized Source Energy Intensity (kBtu/Sq. Ft.)	248.5
Average Site Energy Intensity (kBtu/Sq. Ft.)	83.5
Total Site Electric Use (kWh)	874,034
Total Site Natural Gas Use (Therms)	4,933
Average Actual Annual Source Energy Intensity (kBtu/Sq. Ft.)	251.8

*Non-ratable buildings are defined as buildings that currently are ineligible to receive the ENERGY STAR rating due to its operating characterisitcs and/or building type.

Summary Energy Performance Report

Facilities included: Campus: Galloway Township Municipal Complex Group
Located in:
Date Generated: 8/7/09

Facility Name	Facility Address	Year ending 2/2009 Facility Floorspace	Year ending 2/2009 Rating	Year ending 2/2009 Average Site Energy Intensity (kBtu/Sq. Ft.)	Year ending 2/2009 Average Weather Normalized Source Energy Intensity (kBtu/Sq. Ft.)	Year ending 2/2009 Site Electric Use (kWh)	Year ending 2/2009 Site Natural Gas Use (Therms)
American Legion - Senior Services	621 W. White Horse Pike Collogne, NJ 08213	7090	N/A	30.5	94.7	63,429	0
Building#1 Complex Main Building - Galloway	300 East Jimmie Leeds Road Galloway, NJ 08205	17085	100	33.9	51.6	65,127	3,569
Building#2 Complex Police Building - Galloway	300 East Jimmie Leeds Road Galloway, NJ 08205	8715	N/A	161	493.3	411,321	0
Building#3 Complex Senior Services Building - Galloway	300 East Jimmie Leeds Road Galloway, NJ 08205	2000	N/A	390.2	1,178.1	228,721	0
Building#4 Multipurpose Building - Galloway	300 East Jimmie Leeds Road Galloway, NJ 08205	2590	N/A	42.8	115.6	32,463	0
Tartaglio Recreational Park	305 Duerer St Galloway, NJ 08205	0	N/A	0	0	0	0
Veteran's Park at Glen by the Bay - Galloway	628 S. New York Road Galloway, NJ 08205	4130	N/A	93.3	214.4	72,973	1,364

Facility Name MAIN BLDG #1
Company GALLOWAY TWP
Account# 0698-0459-9962
Meter# 23677237
Tariff/Rate MGS

Energy Type	Energy Unit	Start Date	End Date	Demand KW	KWH	Cost	$/kWh or Therms
Electric	kWh	2/25/2009	3/26/2009	6.33	1977	$ 394.56	$ 0.20
Electric	kWh	1/26/2009	2/25/2009	6.77	2915	$ 422.59	$ 0.14
Electric	kWh	12/26/2008	1/26/2009	9.03	2487	$ 277.85	$ 0.11
Electric	kWh	11/24/2008	12/26/2008	9.03	2464	$ 275.00	$ 0.11
Electric	kWh	10/27/2008	11/24/2008	9.03	1358	$ 219.54	$ 0.16
Electric	kWh	9/24/2008	10/27/2008	9.03	4000	$ 499.43	$ 0.17
Electric	kWh	8/25/2008	9/24/2008	9.03	5000	$ 660.24	$ 0.17
Electric	kWh	7/25/2008	8/25/2008	9.03	8000	$ 830.82	$ 0.16
Electric	kWh	6/25/2008	7/25/2008	9.03	10000	$ 1,270.77	$ 0.15
Electric	kWh	5/27/2008	6/25/2008	9.03	10000	$ 1,522.38	$ 0.15
Electric	kWh	4/25/2008	5/27/2008	9.03	7000	$ 739.70	$ 0.11
Electric	kWh	3/27/2008	4/25/2008	9.03	7000	$ 739.70	$ 0.11
			TOTALS	**103.4**	**62201**	**7852.58**	**$ 0.14**

Facility Name MULTI PURPOSE BLDG
Company GALLOWAY TWP
Account# 1028-9099-9810
Meter# 83995755
Tariff/Rate MGS

Energy Type	Energy Unit	Start Date	End Date	Demand KW	KWH	Cost	$/kWh or Therms
Electric	kWh	3/26/2009	4/27/2009	12.08	2416	$ 398.16	$ 0.16
Electric	kWh	2/25/2009	3/26/2009	7.21	2240	$ 334.08	$ 0.15
Electric	kWh	1/26/2009	2/25/2009	6.65	1959	$ 294.96	$ 0.15
Electric	kWh	12/26/2008	1/26/2009	8.82	1954	$ 310.70	$ 0.16
Electric	kWh	11/24/2008	12/26/2008	8.82	2205	$ 344.38	$ 0.16
Electric	kWh	10/27/2008	11/24/2008	8.82	1964	$ 305.91	$ 0.16
Electric	kWh	9/24/2008	10/27/2008	12.37	2605	$ 440.92	$ 0.17
Electric	kWh	8/25/2008	9/24/2008	13.98	3456	$ 655.17	$ 0.19
Electric	kWh	7/25/2008	8/25/2008	13.98	3837	$ 719.48	$ 0.19
Electric	kWh	6/25/2008	7/25/2008	13.15	3818	$ 706.53	$ 0.19
Electric	kWh	5/27/2008	6/25/2008	12.4	3345	$ 606.66	$ 0.18
Electric	kWh	4/25/2008	5/27/2008	11.92	2617	$ 422.51	$ 0.16
Electric	kWh	3/27/2008	4/25/2008	8.43	2231	$ 340.94	$ 0.15
Electric	kWh	2/26/2008	3/27/2008	7.46	2347	$ 348.04	$ 0.15
Electric	kWh	1/26/2008	2/26/2008	7.46	2378	$ 351.82	$ 0.15
			TOTALS	**127.61**	**32757**	**5553.06**	**$ 0.17**

Facility Name Veteran Park at Glen by the Bay
Company Galloway Twp
Account# 10139254816
Meter# 205206
Tariff/Rate GSG

Energy Type	Energy Unit	Start Date	End Date	Demand KW	Therms	Cost	$/kWh or Therms
Natural Gas	Therms	2/25/2009	3/26/2009	NA	182.66	$ 290.59	$ 1.59
Natural Gas	Therms	1/26/2009	2/25/2009	NA	282.83	$ 440.66	$ 1.56
Natural Gas	Therms	12/24/2008	1/26/2009	NA	331.12	$ 515.48	$ 1.56
Natural Gas	Therms	11/21/2008	12/24/2008	NA	282.83	$ 446.76	$ 1.58
Natural Gas	Therms	10/24/2008	11/21/2008	NA	118.68	$ 180.08	$ 1.52
Natural Gas	Therms	9/24/2008	10/24/2008	NA	46.62	$ 82.16	$ 1.76
Natural Gas	Therms	8/25/2008	9/24/2008	NA	5.14	$ 25.73	$ 5.01
Natural Gas	Therms	7/24/2008	8/25/2008	NA	11.35	$ 36.48	$ 3.21
Natural Gas	Therms	6/24/2008	7/24/2008	NA	10.37	$ 33.75	$ 3.25
Natural Gas	Therms	5/23/2008	6/24/2008	NA	8.32	$ 32.00	$ 3.85
Natural Gas	Therms	4/24/2008	5/23/2008	NA	50.52	$ 93.80	$ 1.86
Natural Gas	Therms	3/26/2008	4/24/2008	NA	103.1	$ 171.43	$ 1.66
			TOTALS	**0**	**1433.54**	**2348.92**	**$ 2.37**

Facility Name Galloway Township Munipical Complex - SAW 12
Company Galloway Twp
Account# 10338279606
Meter# 270885
Tariff/Rate Firm Transportation

Energy Type	Energy Unit	Start Date	End Date	Demand KW	Therms	Cost	$/kWh or Therms
Natural Gas	Therms	2/24/2009	3/25/2009	NA	80.5	$ 831.48	$ 30.99
Natural Gas	Therms	1/23/2009	2/24/2009	NA	168.87	$ 1,265.24	$ 22.48
Natural Gas	Therms	12/24/2008	1/23/2009	NA	172.31	$ 1,228.91	$ 21.40
Natural Gas	Therms	11/21/2008	12/24/2008	NA	144	$ 607.96	$ 16.89
Natural Gas	Therms	10/24/2008	11/21/2008	NA	41.28	$ 204.70	$ 19.84
Natural Gas	Therms	9/24/2008	10/24/2008	NA	9.32	$ 68.96	$ 22.20
Natural Gas	Therms	8/25/2008	9/24/2008	NA	6.17	$ 10.60	$ 5.15
Natural Gas	Therms	7/25/2008	8/25/2008	NA	6.19	$ 11.45	$ 5.55
Natural Gas	Therms	6/25/2008	7/25/2008	NA	5.19	$ 32.26	$ 6.22
Natural Gas	Therms	5/27/2008	6/25/2008	NA	6.24	$ 36.15	$ 5.79
Natural Gas	Therms	4/25/2008	5/27/2008	NA	14.43	$ 196.03	$ 13.58
Natural Gas	Therms	3/27/2008	4/25/2008	NA	37.12	$ 793.35	$ 21.37
			TOTALS	**0**	**691.62**	**5287.0917**	**$ 15.95**

Facility Name Galloway Township Munipical Complex - SAW 12
Company Galloway Twp
Account# 10338279606
Meter# 517049
Tariff/Rate

Energy Type	Energy Unit	Start Date	End Date	Demand KW	Therms	Cost	$/kWh or Therms
Natural Gas	Therms	2/24/2009	3/25/2009	NA	567.6		
Natural Gas	Therms	1/23/2009	2/24/2009	NA	843.3		
Natural Gas	Therms	12/24/2008	1/23/2009	NA	803.41		
Natural Gas	Therms	11/21/2008	12/24/2008	NA	659.93		
Natural Gas	Therms	10/24/2008	11/21/2008	NA	197.11		
Natural Gas	Therms	9/24/2008	10/24/2008	NA	48.69		
Natural Gas	Therms	8/25/2008	9/24/2008	NA	3.08		
Natural Gas	Therms	7/25/2008	8/25/2008	NA	4.13		
Natural Gas	Therms	6/25/2008	7/25/2008	NA	4.15		
Natural Gas	Therms	5/27/2008	6/25/2008	NA	5.2		
Natural Gas	Therms	4/25/2008	5/27/2008	NA	42.27		
Natural Gas	Therms	3/27/2008	4/25/2008	NA	181.46		
			TOTALS	0	3360.33	0	$ -

Facility Name Galloway Township Munipical Complex - SAW 13
Company Galloway Twp
Account# 10338254906
Meter# 496876
Tariff/Rate BGSS

Energy Type	Energy Unit	Start Date	End Date	Demand KW	Therms	Cost	$/kWh or Therms
Natural Gas	Therms	2/24/2009	3/25/2009	NA	550.06	$ 838.69	$ 1.52
Natural Gas	Therms	1/23/2009	2/24/2009	NA	1041.18	$ 1,573.20	$ 1.51
Natural Gas	Therms	12/24/2008	1/23/2009	NA	734.9	$ 1,117.27	$ 1.52
Natural Gas	Therms	11/21/2008	12/24/2008	NA	731.42	$ 1,122.72	$ 1.53
Natural Gas	Therms	10/24/2008	11/21/2008	NA	245.62	$ 354.02	$ 1.44
Natural Gas	Therms	9/24/2008	10/24/2008	NA	70.45	$ 114.57	$ 1.63
Natural Gas	Therms	8/25/2008	9/24/2008	NA	18.5	$ 43.90	$ 2.37
Natural Gas	Therms	7/25/2008	8/25/2008	NA	17.54	$ 45.94	$ 2.62
Natural Gas	Therms	6/25/2008	7/25/2008	NA	16.59	$ 43.86	$ 2.64
Natural Gas	Therms	5/27/2008	6/25/2008	NA	18.72	$ 46.25	$ 2.47
Natural Gas	Therms	4/25/2008	5/27/2008	NA	119.6	$ 198.39	$ 1.66
Natural Gas	Therms	3/27/2008	4/25/2008	NA	260.84	$ 406.47	$ 1.56
			TOTALS	0	3825.42	5905.28	$ 1.87

Facility Name VETERAN'S PARK
Company GALLOWAY TWP
Account# 0273-4109-9979
Meter# 86423004
Tariff/Rate MGS

Energy Type	Energy Unit	Start Date	End Date	Demand KW	KWH	Cost	$/kWh or Therms
Electric	kWh	2/25/2009	3/26/2009	11.5	5826	$ 834.89	$ 0.14
Electric	kWh	1/26/2009	2/25/2009	11.5	6264	$ 894.86	$ 0.14
Electric	kWh	12/26/2008	1/26/2009	10.79	6911	$ 742.45	$ 0.11
Electric	kWh	11/24/2008	12/26/2008	11.49	9111	$ 971.20	$ 0.11
Electric	kWh	10/27/2008	11/24/2008	11.02	2464	$ 385.73	$ 0.16
Electric	kWh	9/28/2008	10/27/2008	11.02	4500	$ 671.76	$ 0.15
Electric	kWh	8/29/2008	9/28/2008	11.02	5600	$ 854.90	$ 0.15
Electric	kWh	7/30/2008	8/29/2008	11.02	5600	$ 854.90	$ 0.15
Electric	kWh	6/31/2008	7/30/2008	11.02	9080	$ 1,106.41	$ 0.12
Electric	kWh	5/30/2008	6/31/2008	11.02	7000	$ 906.43	$ 0.13
Electric	kWh	4/29/2008	5/30/2008	11.02	5000	$ 802.89	$ 0.16
			TOTALS	**122.42**	**67356**	**9026.42**	**$ 0.13**

Facility Name VETERAN'S PARK 2 Flag Wall
Company GALLOWAY TWP
Account# 1028-9099-9794
Meter# 105727125
Tariff/Rate MGS

Energy Type	Energy Unit	Start Date	End Date	Demand KW	KWH	Cost	$/kWh or Therms
Electric	kWh	2/25/2009	3/26/2009	1.68	658	$ 97.46	$ 0.15
Electric	kWh	1/26/2009	2/25/2009	1.48	708	$ 104.40	$ 0.15
Electric	kWh	12/26/2008	1/26/2009	1.7	955	$ 137.21	$ 0.14
Electric	kWh	11/24/2008	12/26/2008	1.72	1020	$ 145.95	$ 0.14
Electric	kWh	10/27/2008	11/24/2008	1.72	830	$ 119.51	$ 0.14
Electric	kWh	9/28/2008	10/27/2008	1.72	800	$ 115.96	$ 0.14
Electric	kWh	8/29/2008	9/28/2008	1.72	1800	$ 245.44	$ 0.14
Electric	kWh	7/30/2008	8/29/2008	1.72	830	$ 118.81	$ 0.14
Electric	kWh	6/31/2008	7/30/2008	1.72	650	$ 97.47	$ 0.15
Electric	kWh	5/30/2008	6/31/2008	1.72	740	$ 110.41	$ 0.15
Electric	kWh	4/29/2008	5/30/2008	1.72	750	$ 102.28	$ 0.14
			TOTALS	**18.62**	**9741**	**1394.9**	**$ 0.32**

EQUIPMENT LIST

Equipment	Location	Area Serving	Qty	Manufacturer	Model #	Tag #	Efficiency EER / SEER	EESL	Capacity	Age	Notes
Packaged Unit	American Legion	American Legion	1	Carrier	48GS-0360-60-311	100 4G 51325	10	15	3 ton	n/a	34,400 BTU
Packaged Unit	American Legion	American Legion	1	Carrier	50GS-036-60-311	240 4G 51836	10	15	3 ton	n/a	34,400 BTU
Packaged Unit	American Legion	American Legion	1	Carrier	48GS-0360-60-311	100 4G51326	10	15	3 ton	n/a	34,400 BTU
Packaged Unit	American Legion	American Legion	1	Bryant	555ANX036 000 ABAF	02000G40650	12	15	3 ton	n/a	36,000 BTU
Packaged Unit	American Legion	American Legion	1	Bryant	555ANX036 000 ABAF	02000G40650	12	15	3 ton	n/a	36,000 BTU
Natural Gas Boiler	American Legion	American Legion	1	Weil McLain	PFG-6-PIN	Series 6	81	25	305,000 BTU	n/a	244MBTUH input rating
Toaster Oven	American Legion	American Legion	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Freezer	American Legion	American Legion	1	Frigidaire	n/a	n/a	n/a	n/a	n/a	n/a	Top loading
Ice Machine	American Legion	American Legion	1	Manitowoc	C700	880123487	n/a	n/a	n/a	n/a	Series 400
Stove	American Legion	American Legion	1	Garland Gas Burners	n/a	n/a	n/a	n/a	n/a	n/a	16 burners
Range Hood	American Legion	American Legion	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Unit Heater	American Legion	American Legion	1	Modine	n/a	n/a	n/a	n/a	n/a	n/a	
Electric Space Heater	American Legion	American Legion	1	Markel	n/a	n/a	n/a	10	n/a	n/a	
Dishwasher	American Legion	American Legion	1	Vulcan Auto San	3020T	2025C	n/a	n/a	n/a	n/a	230V 1HP 20,000BTU Natural Gas
Booster Pump	American Legion	American Legion	1	Hatco	n/a	n/a	n/a	20	n/a	n/a	
Electric Wall Heaters	Municipal Building Complex	Police Department	1	A O Smith	DSE65-30	SG9558254 Y3	n/a	10	n/a	n/a	3Ph 50/60 Hz 84 Amps 208V; 2-1500 Watts Working Pressure = 150 Test P=150
Electric Wall Heaters	Municipal Building Complex	Police Department	1	A O Smith	DSE65-30	SG9558253 Y3	n/a	10		n/a	3Ph 50/60 Hz 84 Amps 208V; 2-1500 Watts Working Pressure = 150 Test P=150
Refrigerator	Municipal Building Complex	Senior Center	1	GE Hotpoint	CTX18GRBR	LG597967	n/a	n/a	n/a	n/a	R12
Ice Machine	Municipal Building Complex	DPW	1	Manitowoc	S970	990821732	n/a	n/a	n/a	9	
Refrigerator	Municipal Building Complex	DPW	1	GE	TR16BBSELWW	MH799582	n/a	n/a	n/a	n/a	R-134A
Microwave	Municipal Building Complex	DPW	1	Sharp Carousel	n/a	n/a	n/a	n/a	n/a	n/a	
Coffee Pot	Municipal Building Complex	DPW	1	Mr. Coffee	n/a	n/a	n/a	n/a	n/a	n/a	
Vending Machine	Municipal Building Complex	Police Department	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	

Equipment	Location	Area Serving	Qty	Manufacturer	Model #	Tag #	Efficiency	EESL	Capacity	Age	Notes
Coffee Pot	Municipal Building Complex	Police Department	1	BUNN Pour-o-Matic	n/a	n/a	n/a	n/a	n/a	n/a	Two burner
Toaster Oven	Municipal Building Complex	Police Department	1	Kenmore	n/a	n/a	n/a	n/a	n/a	n/a	
Electric Heaters	Municipal Building Complex	Police Department	2	Marley Electric	C2502-6B	n/a	n/a	10		n/a	208 volts 0.4Amps 500 Watts (not sure if still in service)
Pump	Municipal Building Complex	Police Department	1	Bell & Gossett	2VA184TTDR7001DHL	1912067	88.5	20			7 1/2 HP; 60Hz; 208V; Marathon Electric; 75GPM; 3600 RPM
Pump	Municipal Building Complex	Police Department	1	Bell & Gossett	2VA184TTDR7001DHL	1912066	88.5	20			7 1/2 HP; 60Hz; 208V; Marathon Electric; 75GPM; 3600 RPM
Electric Stove/ Microwave Combo	Municipal Building Complex	Senior Center	1	GE Hotpoint	n/a	n/a	n/a	n/a	n/a	n/a	
Toaster Oven	Municipal Building Complex	Senior Center	1	Black & Decker	n/a	n/a	n/a	n/a	n/a	n/a	
Coffee Pot	Municipal Building Complex	Senior Center	1	BUNN	n/a	n/a	n/a	n/a	n/a	n/a	One burner
AHU	Municipal Building Complex - main attic	Main Building	1	Goodman	GMPN100-4	509021959	n/a	n/a	n/a	n/a	
Dehumidifier	Municipal Building Complex - main basement	Main Building	1	Thermastor	HI-E Dry 100	H0623566	n/a	n/a	n/a	n/a	
Refrigerator	Municipal Building Complex - Main Building	Main Building	1	GE	STS16ABSERWW	AL788600	n/a	n/a	n/a	n/a	6.5 Amp; R134A;100Vac 50Hz,
Microwave	Municipal Building Complex - Main Building	Main Building	1	Sharp Carousel	R-310DW	26429	n/a	n/a	n/a	9	120Vac 60Hz 14A
Toaster Oven	Municipal Building Complex - Main Building	Main Building	1	Sunbeam	C120138041100663	n/a	n/a	n/a	n/a	n/a	
Coffee Pot	Municipal Building Complex - Main Building	Main building - Manager's Kitchenette	1	Mr. Coffee	n/a	n/a	n/a	n/a	n/a	n/a	
Microwave	Municipal Building Complex - Main Building	Main building - Manager's Kitchenette	1	Daewoo	KOR-6115	DJ00812570	n/a	n/a	n/a	9	120V 60Hz
Vending Machine	Municipal Building Complex - Main Building	Hall	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Microwave	Municipal Building Complex - Multipurpose bldg	Multi-purpose building	1	Sunbeam	n/a	n/a	n/a	n/a	n/a	n/a	
Refrigerator	Municipal Building Complex - Multipurpose bldg	Multi-purpose building	1	Sanyo	n/a	n/a	n/a	n/a	n/a	n/a	
Refrigerator	Municipal Building Complex - Multipurpose bldg	Multi-purpose building	1	GE	TDX9SNXAWH	GT071385	n/a	n/a	n/a	11	
Microwave	Municipal Building Complex - Multipurpose bldg	Multi-purpose building	1	Emerson	n/a	n/a	n/a	n/a	n/a	n/a	

Equipment	Location	Area Serving	Qty	Manufacturer	Model #	Tag #	Efficiency	EESL	Capacity	Age	Notes
Boiler	Municipal Building Complex - Multi-purpose building	Multi-purpose building	1	Utica	200AGB	22902	80	25	131,300 BTU/hr	22	natural gas; 30 psi; heating capacity 151,000
Hot Water Heater	Municipal Building Complex - Multi-purpose building	Multi-purpose building	1	Hot Point	HG40T01AVG01	HPLIV 1104A10088	n/a	18	40 gallon; 34,000 BTU/hr	n/a	natural gas;
Hot Water Heater	Municipal Building Complex - Police Department - men's locker room	Police Department	1	Premier 2	ATH057D300CRE	KL3742	n/a	18	n/a	15	geo thermal
Hot Water Heater	Municipal Building Complex - Police Department - over first desk in records dept.	Police Department	1	Premier 2	ATH0570300CRE	n/a	n/a	18	n/a	15	geo thermal
Refrigerator	Municipal Building Complex - Police Station	Police Department	1	GE	TBX18SAXGRWW	SM515373	n/a	n/a	n/a	n/a	
Microwave	Municipal Building Complex - Police Station	Police Department	1	GE	n/a	n/a	n/a	n/a	n/a	n/a	
A/C Unit	Municipal Building Complex - Police Station - outside	Police Department	1	Goodman	CK36-18	9702055767	10	15	n/a	n/a	
A/C Unit	Municipal Building Complex - Police Station - outside	Police Department	1	Fujitsu	AOU42RLX	DWN000112	8.7	15		n/a	
A/C Unit	Municipal Building Complex - Police Station - outside	Police Department	1	Tappan	FS3BC-042K	FS3001200963	13	15		n/a	
Hot Water Heater	Municipal Building Complex - Police Station- attic	Police Department	1	Premier 2	ATV070D31OCLT	KL3745	n/a	18	n/a	14	208-230V 60Hz 3Ph; Min Circ =41.1 Amp; blower 1HP; ext. pump 1/2 HP; int pump 1/4; R22; MBTUH htg 77 Clg 75 / geo thermal
Hot Water Heater	Municipal Building Complex - Police Station- attic	Police Department	1	Premier 2	ATH045D300CREX	KL3722	n/a	18	n/a	14	Blower pump 1 HP; ext. pump 1/2 HP; MBTUH Htg 53 Clg 49 / geo thermal
Hot Water Heater	Municipal Building Complex - Police Station- attic	Police Department	1	Premier 2	ATV057D300CRT	LA1115	n/a	18	n/a	14	geo thermal
Cooling Coil	Municipal Building Complex - Public Works - attic of court clerk	Main Building	1	RHEEM	RCBA-6089GG24XI	2794	n/a	15	125,000 BTU	6	
Gas Furnace	Municipal Building Complex - Public Works - attic over foyer - hallway by courtroom	Main Building	1	RUUD	UGPH-07EAUR	FD5D302F2802 13170	80	15	100,000 BTU	7	

Equipment	Location	Area Serving	Qty	Manufacturer	Model #	Tag #	Efficiency	EESL	Capacity	Age	Notes
Packaged Unit	Municipal Building Complex - Public Works Ambulance Building - Heater Room in Garage Bays	Senior Center	1	York	P3UCD16N07601A	EDAM148072	11	15	95,000 BTU	19	AC Model # G/UA048SA serial #ECAS101301
Gas Furnace	Municipal Building Complex - Public Works -cleaning supply room	Main Building	1	RUUD - 90 plus premium	UGRA-10EZAJS	FY5D707F230704217	78	15	105,000 BTU	2	Coil model #RCFL - AU3621AC/Serial #M160717662/ Condenser model # UARL-036JEZ/Serial #7231 M310714666; condenser located on west side of complex
Packaged Unit	Municipal Building Complex - Public Works Complex - attic of court clerk	Main Building	1	York	PUED20N11501	BN3D207F39862697	11	15	125,000 BTU	24	
Packaged Unit	Municipal Building Complex - Public Works Complex - roof over main foyer	Main Building	1	York	D2EG036N07925EBD	NDKM123140	11	15	100,000 BTU	8	
Fan Coil Unit	Municipal Building Complex -Multi-purpose building - attic	Multi-purpose building	1	International Comfort Products Corp.	NFCP3600D2/ABF3600D2/AFC3600D2	L023952693	n/a	15	n/a	7	HCFC-22; voltage 208/230; Motor FLA 3.1 HP 1/3
Fan Coil Unit	Municipal Building Complex -Multi-purpose building - basement	Multi-purpose building	1	International Comfort Products Corp.	NFCP3600D2/ABF3600D2/AFC3600D2	L021450768	n/a	15	n/a	7	HCFC-22; voltage 208/230; Motor FLA 3.1 HP 1/3
Hot Water Heater	Municipal Building Complex -patrol storage room in ceiling	Police Department	1	Premier 2	n/a	n/a	n/a	18	n/a		Inaccessible - geo thermal
Packaged Unit	Municipal Building Complex Public Works Complex - Ambulance Building - Heater Room in Garage Bays	Senior Center	1	York	P3UCD16N07601A	EDAM148129	11	15	95,000 BTU	19	
Packaged Unit	Municipal Building Complex Public Works Complex - courtroom attic	Main Building	1	York	P-UED20N11501	BN3D207F39862699	11	15	125,000 BTU	24	
Split System	Municipal Building Complex Public Works Complex - near ice machine	Main Building	1	Goodman	CAPF061D2A	510159743	14	15	115,000 BTU	4	Heater model # GMS91155PXA/serial # 0509021947/ Condenser model # CLQ48-1B/ serial # 0511750219; condenser located on west side of complex
Packaged Unit	Municipal Building Complex Public Works Complex - roof over Manager's Conf. Room	Main Building	1	York	D7CG060N09925A	NHMM094013	13	15	125,000 BTU	6	

Equipment	Location	Area Serving	Qty	Manufacturer	Model #	Tag #	Efficiency	EESL	Capacity	Age	Notes
Gas Furnace	Municipal Building ComplexPublic Works Complex - off Director's Office	Main Building	1	Bryant Plus 90	350MAV048100	4704A10260	95	15	100,000 BTU	5	Condenser model #FS3BA-036KA/Serial #FSA010502758; located on west side of complex
Packaged Unit	Municipal Building ComplexPublic Works Complex - roof	Main Building	1	York	D2EG036N07925BDD	NDKM035397	13	15	100,000 BTU	8	
Packaged Unit	Municipal Building ComplexPublic Works Complex - roof - finance office	Main Building	1	York	D7CG060N09925A	NFLM056404	13	15	125,000 BTU	7	
Packaged Unit	Municipal Building ComplexPublic Works Complex - roof - tax office	Main Building	1	York	DDUC-T090N205A	NGHM101846	13	15	204,000 BTU	9	
Packaged Unit	Municipal Building ComplexPublic Works Complex - roof over Historical Room	Main Building	1	York	DICG036N08225A	NET13641A4	8.5	15	100,000 BTU	22	
Dehumidifier	Municipal Complex - basement	Main Building	1	Thermastor	HI-E Dry 100	ED406247	n/a	10	n/a	n/a	
Dehumidifier	Municipal Complex - basement	Main Building	1	Thermastor	HI-Dry 100	K403295	n/a	10	n/a	n/a	
Dehumidifier	Municipal Complex - basement	Main Building	1	Thermastor	HI-Dry 100	K4032894	n/a	10	n/a	n/a	
Dehumidifier	Municipal Complex - basement	Main Building	1	Thermastor	HI-Dry 100	K4032893	n/a	10	n/a	n/a	
Dehumidifier	Municipal Complex - basement	Main Building	1	Thermastor	HI-E Dry 100	K4032890	n/a	10	n/a	n/a	
Portable HVAC unit & dehumidifier	Municipal Complex - server room	Server Room	1	Soleus Air	MAC-12K	MAC12K35890033	n/a	10	12,000 BTU	3	
Window A/C unit	Municipal Complex - upstairs over construction office	Room	1	Whirlpool	ACQ244XPO	QR1724549	8	10	24,000 BTU	n/a	
AHU	Veterans Park - attic	Veterans Park	1	Pappan	B3BM-024K-A	B3B010513724	10	15	n/a	n/a	
Freezer	Veterans Park - Garage	Veterans Park	1	GE	FUF20DPARWH	MF1748597-03	n/a	n/a	n/a	n/a	R-134A
Ice Machine	Veterans park - Garage	Veterans Park	1	Manitowoc	S420	30620834	n/a	n/a	n/a	n/a	
A/C Unit	Veteran's Park - Garage	Veterans Park	1	Frigidaire	n/a	n/a	n/a	15	n/a	5	
Microwave & Oven wall unit	Veterans park - kitchen	Veterans Park	1	GE	n/a	n/a	n/a	n/a	n/a	n/a	
Dishwasher	Veterans Park - kitchen	Veterans Park	1	GE	n/a	n/a	n/a	n/a	n/a	n/a	
Refrigerator/Freezer	Veterans Park - kitchen	Veterans Park	1	Sub-Zero	n/a	n/a	n/a	n/a	n/a	n/a	
Gas Stove	Veterans Park - kitchen	Veterans Park	1	Thermador	n/a	n/a	n/a	n/a	n/a	n/a	

Equipment	Location	Area Serving	Qty	Manufacturer	Model #	Tag #	Efficiency	EESL	Capacity	Age	Notes
Boiler (hot water)	Veterans Park - laundry room	Veterans Park	1	John Wood	JW5-401T	9115187	85	25	n/a	n/a	
Hot water heater	Veterans Park - laundry room	Veterans Park	1	Weil McLain	HE-6	CP10507640	82	18	137,000 BTU	7	
AHU	Veterans Park- crawlspace	Veterans Park	1	n/a	n/a	n/a	n/a	15	n/a	n/a	
Refrigerator/Freezer	Veterans Park- Garage	Veterans Park	1	GE	SSS25SGPASS	FF208865	n/a	n/a	n/a	5	R-134A
Microwave	Veterans Park - kitchen	Veterans Park	1	Kenmore	n/a	n/a	n/a	n/a	n/a	n/a	

Galloway Township - American Legion
LIGHTING INVENTORY
621 West White Horse

Prepared By Dome-Tech, Inc.

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
1	1	STORAGE	4L F34T12 34W	1		160	160	NEW 2X4 2LF32T8	30	1	55	55	3000	105	315	$ 47.25	
2	1	SENSOR SAVINGS					0	WS	0	1					49.5		$ 7.43
3	1	GREAT ROOM	2L F34T12 34W	28	10	160	4480	NEW 2X4 2LF32T8	280	28	55	1540	3000	2940	8820	$ 1,323.00	
4	1	SENSOR SAVINGS					0	CS1000	0	1					1386		$ 207.90
5	1	LOBBY	2L FB34T12 34W	1		72	72	NEW 2X2 2LF17T8	10	1	31	31	3000	41	123	$ 18.45	
6	1	STORAGE	4L F34T12 34W	1		160	160	NEW 2X4 2LF32T8	30	1	55	55	3000	105	315	$ 47.25	
7	1	SENSOR SAVINGS					0	WS	0	1					49.5		$ 7.43
8	1	STORAGE	2L F34T12 34W	3		160	480	NEW 2X4 2LF32T8	30	3	55	165	3000	315	945	$ 141.75	
9	1	SENSOR SAVINGS					0	WS	20	1					148.5		$ 22.28
10	1	BAR	4L F34T12 34W	2		160	320	NEW 2X4 2LF32T8	60	2	55	110	3000	210	630	$ 94.50	
11	1	BAR	1L 65W R	10		65	650	15W CFL R30	0	10	15	150	3000	500	1500	$ 225.00	
12	1	SENSOR SAVINGS					0	CS1000	0	1					135		$ 20.25
13	1	PREP KITCHEN	2L F96T12 75W	5	42	158	790	NEW 4LF32T8 8FT WRAP	100	5	95	475	3000	315	945	$ 141.75	
14	1	SENSOR SAVINGS					0	CS1000	35	1					427.5		$ 64.13
15	1	KITCHEN	2L F96T12 75W	2	22	158	316	NEW 4LF32T8 8FT WRAP	40	2	95	190	3000	126	378	$ 56.70	
16	1	SENSOR SAVINGS					0	CS1000	35	1					171		$ 25.65
17	1	MENS ROOM	2L 65W A	1		130	130	NEW 2LF32T8 VANITY	0	1	55	55	3000	75	225	$ 33.75	
18	1	SENSOR SAVINGS					0	CS1000	0	1					49.5		$ 7.43
19	1	WOMENS ROOM	8L 40W G	1		320	320	NEW 2LF32T8 VANITY	0	1	55	55	3000	265	795	$ 119.25	
20	1	SENSOR SAVINGS					0	CS1000	0	1					49.5		$ 7.43
21	1	HALL	1L 60W A	1		60	60	NEW 26W CFL DECORATIVE	20	1	26	26	3000	34	102	$ 15.30	
22	1	STORAGE	1L 60W A	2		60	120	NEW 26W CFL DECORATIVE	40	2	26	52	3000	68	204	$ 30.60	
23	1	SENSOR SAVINGS					0	WS	20	1					46.8		$ 7.02
24	1	BOILER ROOM	2L F34T12 34W	1	10	72	72	NEW 2LF32T8 4FT WRAP	10	1	55	55	3000	17	51	$ 7.65	
25	1	SENSOR SAVINGS					0	WS	0	1					49.5		$ 7.43
26	2	UPSTAIRS	1L 60W A	5		60	300	NEW 26W CFL DECORATIVE	100	5	26	130	3000	170	510	$ 76.50	
27	2	SENSOR SAVINGS					0	WS	20	1					117		$ 17.55
							8,430					**KW SAVED >>>>**		5.29	**18537.3**	**$ 2,378.70**	**$ 401.90**

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
		Electric Rate:	**$0.15**														

Galloway Township - Municipal Complex
LIGHTING INVENTORY
300 E. Jimmie Leeds Road
Galloway, NJ 08205

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
1	1	DIRECTORS OFFICE	2L F34T12 34W	2		72	144	2LF32T8 RLRB	20	2	55	110	3000	34	102	$ 15.30	
2	1	DIRECTORS OFFICE	4L F34T12 34W	6		160	960	4LF32T8 RLRB	120	6	95	570	3000	390	1170	$ 175.50	
3	1	SENSOR SAVINGS					0	CS1000	35	1					513		$ 76.95
4	1	PUBLIC WORKS OFFICE	4L F34T12 34W	3	48	160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
5	1	PUBLIC WORKS OFFICE	2L F34T12 34W	1		72	72	2LF32T8 RLRB	10	1	55	55	3000	17	51	$ 7.65	
6	1	SENSOR SAVINGS					0	CS1000	35	1					49.5		$ 7.43
7	1	OPEN OFFICE	2L F34T12 34W	3		72	216	2LF32T8 RLRB	30	3	55	165	3000	51	153	$ 22.95	
8	1	OPEN OFFICE	4L F34T12 34W	7		160	1120	4LF32T8 RLRB	140	7	95	665	3000	455	1365	$ 204.75	
9	1	SENSOR SAVINGS					0	CS1000	35	1					598.5		$ 89.78
10	1	OFFICE	4L F34T12 34W	5	68	160	800	4LF32T8 RLRB	100	5	95	475	3000	325	975	$ 146.25	
11	1	SENSOR SAVINGS					0	WS	20	1					427.5		$ 64.13
12	1	OFFICE	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
13	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
14	1	OFFICE	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
15	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
16	1	OFFICE	4L F34T12 34W	3	51	160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
17	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
18	1	HALLWAY	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
19	1	MENS ROOM	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
20	1	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
21	1	WOMENS ROOM	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
22	1	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
23	1	MECHANICAL ROOM	2L F34T12 34W	1		72	72	2LF32T8 RLRB	10	1	55	55	3000	17	51	$ 7.65	
24	1	SENSOR SAVINGS					0	WS	20	1					49.5		$ 7.43
25	1	OFFICE	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
26	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
27	1	OFFICE	4L F34T12 34W	2	43	160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
28	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
29	1	OFFICE	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
30	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
31	1	OFFICE	4L F34T12 34W	4		160	640	4LF32T8 RLRB	80	4	95	380	3000	260	780	$ 117.00	
32	1	SENSOR SAVINGS					0	WS	20	1					342		$ 51.30
33	1	OFFICE	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
34	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
35	1	OFFICE	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
36	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
37	2	OFFICE	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
38	1	SENSOR SAVINGS					0	CS1000	35	1					256.5		$ 38.48
39	1	HALLWAY	1L 65W R30	7		65	455	15W CFL R30	0	7	15	105	3000	350	1050	$ 157.50	
40	1	LOBBY	1L 60W A	8		60	480	13W CFL A	0	8	13	104	3000	376	1128	$ 169.20	
41	1	HALLWAY	2L FB34T12 34W	4	20	72	288	3LF17T8 REFL KIT	80	4	47	188	3000	100	300	$ 45.00	
42	1	HALLWAY	2L F34T12 34W	10		72	720	2LF32T8 RLRB	100	10	55	550	3000	170	510	$ 76.50	
43	1	CONFERENCE ROOM	1L 14W CFL	8		14	112	LEAVE AS IS	0	8	14	112	3000	0	0	$ -	
44	1	SENSOR SAVINGS					0	WS	20	1					100.8		$ 15.12
45	1	KITCHEN	2L FB34T12 34W	1		72	72	3LF17T8 REFL KIT	20	1	47	47	3000	25	75	$ 11.25	
46	1	SENSOR SAVINGS					0	WS	20	1					42.3		$ 6.35
47	1	OFFICE	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
48	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
49	1	OFFICE	4L F34T12 34W	3	42	160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
50	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
51	1	OPEN OFFICE	4L F34T12 34W	4		160	640	4LF32T8 RLRB	80	4	95	380	3000	260	780	$ 117.00	
52	1	SENSOR SAVINGS					0	WS	20	1					342		$ 51.30
53	1	OFFICE	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
54	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
55	1	OFFICE	4L F34T12 34W	9	44	160	1440	4LF32T8 RLRB	180	9	95	855	3000	585	1755	$ 263.25	
56	1	SENSOR SAVINGS					0	WS	20	1					769.5		$ 115.43
57	1	OFFICE	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
58	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
59	1	HISTORICAL ROOM	1L 65W R30	14	11	65	910	15W CFL R30	0	14	15	210	3000	700	2100	$ 315.00	
60	1	SENSOR SAVINGS					0	CS1000	35	1					189		$ 28.35
61	1	CLOSET	1L 60W A	1		60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
62	1	SENSOR SAVINGS					0	WS	20	1					11.7		$ 1.76
63	1	CLOSET	1L 60W A	1		60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
64	1	SENSOR SAVINGS					0	WS	20	1					11.7		$ 1.76
65	1	KITCHEN	4L F34T12 34W	4		160	640	4LF32T8 RLRB	80	4	95	380	3000	260	780	$ 117.00	
66	1	SENSOR SAVINGS					0	WS	20	1					342		$ 51.30
67	1	STAIR	2L FB34T12 34W	2		72	144	3LF17T8 REFL KIT	40	2	47	94	3000	50	150	$ 22.50	
68	1	ASSESSOR OFFICE	4L F34T12 34W	6	34	160	960	4LF32T8 RLRB	120	6	95	570	3000	390	1170	$ 175.50	
69	1	SENSOR SAVINGS					0	WS	20	1					513		$ 76.95
70	1	CLOSET	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
71	1	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
72	1	CLOSET	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
73	1	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
74	1	TAX COLLECTOR	4L F34T12 34W	9		160	1440	4LF32T8 RLRB	180	9	95	855	3000	585	1755	$ 263.25	
75	1	TAX COLLECTOR	2L FB34T12 34W	4		72	288	3LF17T8 REFL KIT	80	4	47	188	3000	100	300	$ 45.00	
76	1	SENSOR SAVINGS					0	CS1000	35	1					169.2		$ 25.38
77	1	OFFICE	4L F34T12 34W	3	44	160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
78	1	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
79	1	OFFICE	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
80	1	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
81	1	OFFICE	4L F34T12 34W	2	40	160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
82	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
83	1	LOBBY	1L 65W R30	9		65	585	15W CFL R30	0	9	15	135	3000	450	1350	$ 202.50	
84	1	MENS ROOM	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
85	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
86	1	WOMENS ROOM	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
87	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
88	1	COURT OFFICE	4L F34T12 34W	8	56	160	1280	4LF32T8 RLRB	160	8	95	760	3000	520	1560	$ 234.00	
89	1	SENSOR SAVINGS					0	CS1000	35	1					684		$ 102.60
90	1	CLOSET	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
91	1	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
92	1	PHONE CLOSET	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
93	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
94	1	PHONE CLOSET	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
95	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
							24,118						KW SAVED >>>>	10.52	41214	$ 4,734.90	$ 1,447.20

Electric Rate:	$0.15

Galloway Township - Police Department

300 E. Jimmie Leeds Rd.
Galloway, NJ 08205

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
1	1	RECORDS ROOM	2L F34T12 34W	9	44	72	648	2LF32T8 RLRB	90	9	55	495	8760	153	1340.28	$ 201.04	
2	1	RECORDS ROOM	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	8760	130	1138.8	$ 170.82	
3	1	SENSOR SAVINGS					0	CS1000	35	1					499.32		$ 74.90
4	1	COMMUNICATIONS	4L F34T12 34W	7		160	1120	4LF32T8 RLRB	140	7	95	665	8760	455	3985.8	$ 597.87	
5	1	SENSOR SAVINGS					0	CS1000	35	1					1747.62		$ 262.14
6	1	RESTROOM	2L F34T12 34W	1		72	72	2LF32T8 RLRB	10	1	55	55	8760	17	148.92	$ 22.34	
7	1	SENSOR SAVINGS					0	WS	20	1					144.54		$ -
8	1	MULTIPURPOSE ROOM	4L F34T12 34W	5		160	800	4LF32T8 RLRB	100	5	95	475	8760	325	2847	$ 427.05	
9	1	SENSOR SAVINGS					0	CS1000	35	1					1248.3		$ 187.25
10	1	EXECUTIVE SUITE	2L F34T12 34W	4	30	72	288	2LF32T8 RLRB	40	4	55	220	8760	68	595.68	$ 89.35	
11	1	SENSOR SAVINGS					0	CS1000	35	1					578.16		$ 86.72
12	1	LT. OFFICE	2L F34T12 34W	3		72	216	2LF32T8 RLRB	30	3	55	165	8760	51	446.76	$ 67.01	
13	1	SENSOR SAVINGS					0	WS	20	1					433.62		$ 65.04
14	1	LT. OFFICE	2L F34T12 34W	3		72	216	2LF32T8 RLRB	30	3	55	165	8760	51	446.76	$ 67.01	
15	1	SENSOR SAVINGS					0	WS	20	1					433.62		$ 65.04
16	1	LT. OFFICE	2L F34T12 34W	3		72	216	2LF32T8 RLRB	30	3	55	165	8760	51	446.76	$ 67.01	
17	1	SENSOR SAVINGS					0	WS	20	1					433.62		$ 65.04
18	1	CHIEFS OFFICE	2L F34T12 34W	6	54	72	432	2LF32T8 RLRB	60	6	55	330	8760	102	893.52	$ 134.03	
19	1	SENSOR SAVINGS					0	CS1000	35	1					867.24		$ 130.09
20	1	INTERVIEW ROOM	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	8760	65	569.4	$ 85.41	
21	1	SENSOR SAVINGS					0	WS	20	1					249.66		$ 37.45
22	1	INTERVIEW ROOM	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	8760	65	569.4	$ 85.41	
23	1	SENSOR SAVINGS					0	WS	20	1					249.66		$ 37.45
24	1	INTERVIEW ROOM	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	8760	65	569.4	$ 85.41	
25	1	SENSOR SAVINGS					0	WS	20	1					249.66		$ 37.45
26	1	DET. COMMAND	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	8760	130	1138.8	$ 170.82	

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
27	1	SENSOR SAVINGS					0	WS	20	1					499.32		$ 74.90
28	1	DETECTIVE BUREAU	2L F34T12 34W	12	44	72	864	2LF32T8 RLRB	120	12	55	660	8760	204	1787.04	$ 268.06	
29	1	SENSOR SAVINGS					0	CS1000	35	1					1734.48		$ 260.17
30	1	ELECTRICAL ROOM	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	8760	65	569.4	$ 85.41	
31	1	SENSOR SAVINGS					0	WS	20	1					249.66		$ 37.45
32	1	PATROL STORAGE	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	8760	65	569.4	$ 85.41	
33	1	SENSOR SAVINGS					0	WS	20	1					249.66		$ 37.45
34	1	SHIFT #1	4L F34T12 34W	2	47	160	320	4LF32T8 RLRB	40	2	95	190	8760	130	1138.8	$ 170.82	
35	1	SENSOR SAVINGS					0	WS	20	1					499.32		$ 74.90
36	1	SHIFT #2	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	8760	130	1138.8	$ 170.82	
37	1	SENSOR SAVINGS					0	WS	20	1					499.32		$ 74.90
38	1	SHIFT #3	4L F34T12 34W	2		160	320	4LF32T8 RLRB	40	2	95	190	8760	130	1138.8	$ 170.82	
39	1	SENSOR SAVINGS					0	WS	20	1					499.32		$ 74.90
40	1	MENS LOCKER ROOM	4L F34T12 34W	6		160	960	4LF32T8 RLRB	120	6	95	570	8760	390	3416.4	$ 512.46	
41	1	MENS LOCKER ROOM	1L 60W A	1	47	60	60	13W CFL A	0	1	13	13	8760	47	411.72	$ 61.76	
42	1	SENSOR SAVINGS					0	CS1000	35	1					34.164		$ 5.12
43	1	WOMENS LOCKER ROOM	4L F34T12 34W	4		160	640	4LF32T8 RLRB	80	4	95	380	8760	260	2277.6	$ 341.64	
44	1	WOMENS LOCKER ROOM	1L 60W A	1		60	60	13W CFL A	0	1	13	13	8760	47	411.72	$ 61.76	
45	1	SENSOR SAVINGS					0	CS1000	35	1					34.164		$ 5.12
46	1	EVIDENCE PROCESSING	4L F34T12 34W	6	45	160	960	4LF32T8 RLRB	120	6	95	570	8760	390	3416.4	$ 512.46	
47	1	SENSOR SAVINGS					0	WS	20	1					1497.96		$ 224.69
48	1	CLOSET	2L F34T12 34W	1		72	72	2LF32T8 RLRB	10	1	55	55	8760	17	148.92	$ 22.34	
49	1	SENSOR SAVINGS					0	WS	20	1					144.54		$ 21.68
50	1	COMPUTER ROOM	4L F34T12 34W	3		160	480	4LF32T8 RLRB	60	3	95	285	8760	195	1708.2	$ 256.23	
51	1	SENSOR SAVINGS					0	WS	20	1					748.98		$ 112.35
52	1	SQUAD ROOM	4L F34T12 34W	10	88	160	1600	4LF32T8 RLRB	200	10	95	950	8760	650	5694	$ 854.10	
53	1	SENSOR SAVINGS					0	CS1000	35	1					2496.6		$ 374.49
54	1	HOLDING CELL 1	3L F34T12 34W	2		130	260	3LF32T8 RLRB	40	2	73	146	8760	114	998.64	$ 149.80	

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
55	1	HOLDING CELL 2	3L F34T12 34W	2		130	260	3LF32T8 RLRB	40	2	73	146	8760	114	998.64	$ 149.80	
56	1	PROCESSING	4L F34T12 34W	5	44	160	800	4LF32T8 RLRB	100	5	95	475	8760	325	2847	$ 427.05	
57	1	SENSOR SAVINGS					0	WS	20	1					1248.3		$ 187.25
58	1	PROCESSING HALL	4L F34T12 34W	6		160	960	4LF32T8 RLRB	120	6	95	570	8760	390	3416.4	$ 512.46	
59	1	SENSOR SAVINGS					0	WS	20	1					1497.96		$ 224.69
60	1	RESTROOM	1L 60W A	1		60	60	13W CFL A	0	1	13	13	8760	47	411.72	$ 61.76	
61	1	SENSOR SAVINGS					0	WS	20	1					34.164		$ 5.12
62	1	PROPERTY STORAGE	4L F34T12 34W	6		160	960	4LF32T8 RLRB	120	6	95	570	8760	390	3416.4	$ 512.46	
63	1	SENSOR SAVINGS					0	WS	20	1					1497.96		$ 224.69
64	1	SALLYPORT	3L F34T12 34W	6		130	780	3LF32T8 RLRB	120	6	73	438	8760	342	2995.92	$ 449.39	
65	1	SENSOR SAVINGS					0	CS1000	35	1					1151.064		$ 172.66
66	1	KITCHEN	4L F34T12 34W	2	45	160	320	4LF32T8 RLRB	40	2	95	190	8760	130	1138.8	$ 170.82	
67	1	SENSOR SAVINGS					0	WS	20	1					499.32		$ 74.90
68	1	HALLWAY	4L F34T12 34W	6		160	960	4LF32T8 RLRB	120	6	95	570	8760	390	3416.4	$ 512.46	
							17,464					**KW SAVED >>>>**		6.69	**80855.676**	**$ 8,790.66**	**$ 3,316.01**

Electric Rate:	**$0.15**

Galloway Township - Post Office

300 E. Jimmie Leeds Rd.
Galloway, NJ 08205

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
1	B	BASEMENT	2L F34T12 34W	4		72	288	2LF32T8 RLRB	40	4	55	220	3000	68	204	$ 30.60	
2	B	BASEMENT	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
3	B	SENSOR SAVINGS					0	CS1000	35	1					23.4		$ 3.51
4	1	LOBBY/COUNTER	4L F34T12 34W	4	48	160	640	4LF32T8 RLRB	80	4	95	380	3000	260	780	$ 117.00	
5	1	LOBBY/COUNTER	2L F34T12 34W	1		72	72	2LF32T8 RLRB	10	1	55	55	3000	17	51	$ 7.65	
6	1	OFFICE	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
7	1	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
8	1	BATHROOM	1L 60W A	1		60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
9	1	SENSOR SAVINGS					0	WS	20	1					11.7		$ 1.76
10	1	BATHROOM	1L 60W A	1	9	60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
11	1	SENSOR SAVINGS					0	WS	20	1					11.7		$ 1.76
12	1	HALLWAY	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
13	1	OPEN OFFICE	4L F34T12 34W	5	37	160	800	4LF32T8 RLRB	100	5	95	475	3000	325	975	$ 146.25	
14	1	SENSOR SAVINGS					0	WS	20	1					427.5		$ 64.13
15	1	CLOSET	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
16	1	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
17	2	OFFICE	4L F34T12 34W	3	32	160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	
18	2	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
19	2	BATHROOM	1L 60W A	1		60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
20	2	SENSOR SAVINGS					0	WS	20	1					11.7		$ 1.76
21	2	STORAGE	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
22	2	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
23	2	HALLWAY	2L F34T12 34W	2		72	144	2LF32T8 RLRB	20	2	55	110	3000	34	102	$ 15.30	
24	2	COPY ROOM	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
25	2	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
26	2	OFFICE	4L F34T12 34W	3	36	160	480	4LF32T8 RLRB	60	3	95	285	3000	195	585	$ 87.75	

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
27	2	SENSOR SAVINGS					0	WS	20	1					256.5		$ 38.48
28	2	CLOSET	2L F34T12 34W	1		72	72	2LF32T8 RLRB	10	1	55	55	3000	17	51	$ 7.65	
29	2	SENSOR SAVINGS					0	WS	20	1					49.5		$ 7.43
30	2	COPY ROOM	4L F34T12 34W	1		160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
31	2	SENSOR SAVINGS					0	WS	20	1					85.5		$ 12.83
32	2	OFFICE	4L F34T12 34W	2	33	160	320	4LF32T8 RLRB	40	2	95	190	3000	130	390	$ 58.50	
33	2	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
							4,476					**KW SAVED >>>>**		**1.92**	**7356.9**	**$ 865.80**	**$ 237.74**

Electric Rate:	**$0.15**

Galloway Township - Senior Center

Prepared by Dome-Tech, Inc.

LIGHTING INVENTORY

300 E. Jimmie Leeds Rd.
Galloway, NJ 08205

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
1	1	OFFICE	4L F34T12 34W	2	55	160	320	4LF32T8 RLRB	0	2	95	190	3000	130	390	$ 58.50	
2	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
3	1	FD - OFFICE	4L F34T12 34W	2		160	320	4LF32T8 RLRB	0	2	95	190	3000	130	390	$ 58.50	
4	1	SENSOR SAVINGS					0	WS	20	1					171		$ -
5	1	OFFICE	4L F34T12 34W	2	60	160	320	4LF32T8 RLRB	0	2	95	190	3000	130	390	$ 58.50	
6	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
7	1	OFFICE	4L F34T12 34W	2		160	320	4LF32T8 RLRB	0	2	95	190	3000	130	390	$ 58.50	
8	1	SENSOR SAVINGS					0	WS	20	1					171		$ 25.65
9	1	CLOSET	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
10	1	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
11	1	HALLWAY	2L FB34T12 34W	6	47	72	432	3LF17T8 REFL KIT	0	6	47	282	3000	150	450	$ 67.50	
12	1	REC ROOM	4L F34T12 34W	4		160	640	4LF32T8 RLRB	0	4	95	380	3000	260	780	$ 117.00	
13	1	SENSOR SAVINGS					0	WS	20	1					342		$ 51.30
14	1	KITCHEN	1L 65W R30	3		65	195	15W CFL R30	0	3	15	45	3000	150	450	$ 67.50	
15	1	SENSOR SAVINGS					0	WS	20	1					40.5		$ 6.08
16	1	MENS ROOM	1L 60W A	4	12	60	240	13W CFL A	0	4	13	52	3000	188	564	$ 84.60	
17	1	SENSOR SAVINGS					0	WS	20	1					46.8		$ 7.02
18	1	JANITORS CLOSET	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
19	1	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
20	1	WOMENS ROOM	1L 60W A	4	14	60	240	13W CFL A	0	4	13	52	3000	188	564	$ 84.60	
21	1	SENSOR SAVINGS					0	WS	20	1					46.8		$ 7.02
							3,267					**KW SAVED >>>>**		1.64	**6138.9**	**$ 739.80**	**$ 155.39**

Electric Rate:	$0.15

Galloway Township - Veterans Park

628 South New York Rd.
Galloway, NJ 08205

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
1	2	OFFICE	4L 40W A	1	48	160	160	13W CFL A	0	4	13	52	3000	108	324	$ 48.60	
2	2	SENSOR SAVINGS					0	WS	20	1					46.8		$ 7.02
3	2	OFFICE	4L 40W A	1		160	160	13W CFL A	0	4	13	52	3000	108	324	$ 48.60	
4	2	SENSOR SAVINGS					0	WS	20	1					46.8		$ 7.02
5	2	OFFICE	4L 40W A	1		160	160	13W CFL A	0	4	13	52	3000	108	324	$ 48.60	
6	2	SENSOR SAVINGS					0	WS	20	1					46.8		$ 7.02
7	2	STORAGE	4L 40W A	1		160	160	13W CFL A	0	4	13	52	3000	108	324	$ 48.60	
8	2	SENSOR SAVINGS					0	WS	20	1					46.8		$ 7.02
9	2	SUPPLY	1L 60W A	1	18	60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
10	2	SENSOR SAVINGS					0	WS	20	1					11.7		$ 1.76
11	2	RESTROOM	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
12	2	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
13	2	RESTROOM	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
14	2	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
15	1	LOBBY	1L 60W A	1	8	60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
16	1	SENSOR SAVINGS					0	CS1000	35	1					11.7		$ 1.76
17	1	KITCHEN	4L F34T12 34W	1	32	160	160	4LF32T8 RLRB	20	1	95	95	3000	65	195	$ 29.25	
18	1	KITCHEN	1L 75W R30	2		75	150	15W CFL R30	0	2	15	30	3000	120	360	$ 54.00	
19	1	SENSOR SAVINGS					0	WS	20	1					27		$ 4.05
20	1	OFFICE	4L 26W CFL	1		104	104	LEAVE AS IS	0	1	104	104	3000	0	0	$ -	
21	1	SENSOR SAVINGS					0	WS	20	1					93.6		$ 14.04
22	1	RESTROOM	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
23	1	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51
24	1	RESTROOM	1L 60W A	2		60	120	13W CFL A	0	2	13	26	3000	94	282	$ 42.30	
25	1	SENSOR SAVINGS					0	WS	20	1					23.4		$ 3.51

LN #	FL. #	Room Description	Existing Fixture Description	Exist. Qty.	Foot Candle	Exist. Fix Wts	Total Fix Wts	Replacement Fixture Description	NJ Rebate Code	Repl. Qty.	Repl. Fix Wts	Total Fix Wts	Hours	Fix Wts Saved	kWh Saved	Annual Elec. Savings	Annual Sens. Savings
26	1	CLOSET	1L 60W A	1		60	60	13W CFL A	0	1	13	13	3000	47	141	$ 21.15	
27	1	SENSOR SAVINGS					0	WS	20	1					11.7		$ 1.76
28	1	ART ROOM	4L 13W CFL	2		52	104	LEAVE AS IS	0	2	52	104	3000	0	0	$ -	
29	1	SENSOR SAVINGS					0	WS	20	1					93.6		$ 14.04
30	1	HALL	6L 40W CAND	1		240	240	5W CCFL A	0	6	5	30	3000	210	630	$ 94.50	
31	2	SUMMER CAMP (BARN)	2L F96T12 75W	3	29	158	474	NEW 4LF32T8 8	60	3	95	285	3000	189	567	$ 85.05	
32	2	SENSOR SAVINGS					0	CS1000	35	1					256.5		$ 38.48
33	1	SUMMER CAMP (BARN)	2L F96T12 75W	8	46	158	1264	NEW 4LF32T8 8	160	8	95	760	3000	504	1512	$ 226.80	
34	1	SUMMER CAMP (BARN)	2L F34T12 34W	3		72	216	2LF32T8 RLRB	30	3	55	165	3000	51	153	$ 22.95	
35	1	SENSOR SAVINGS					0	CS1000	35	1					148.5		$ 22.28
							4,012					**KW SAVED >>>>**		2.09	**7199.1**	**$ 939.60**	**$ 140.27**

Electric Rate:	**$0.15**

Galloway Township
ECO/ECM Summary

	Energy Conservation Measures (ECM)	Energy Savings			Gross Installation Costs*	Rebates/ Incentives	Avoided Cost	Net Implementation Costs	Annual Energy Cost Savings*	Total Annual Cost Savings*	Simple Pay Back*	Annual Avoided CO2 Emissions	Return on Investment (ROI)	Lifecycle Cost Savings*
		kWh	kW	Therms										
1	Install Programmable Thermostats in the Muni Complex Tax Office	32,630	0	1,680	$ 700	$ -	$ -	$ 700	$ 7,830	$ 7,830	0.1	21	n/a	n/a
2	Vending Machine Power Management	4,490	0	0	$ 540	$ -	$ -	$ 540	$ 560	$ 560	1.0	1	n/a	n/a
3	Tie-in Courtroom RTUs 11 & 13 with lights	7,110	0	365	$ 4,000	$ -	$ -	$ 4,000	$ 1,710	$ 1,710	2.3	4	n/a	n/a
4	Lighting Upgrade	161,300	8	0	$ 64,830	$ 9,260		$ 55,380	$ 18,230	$ 18,230	3.0	53	n/a	n/a
5	Optimize TOD by tying in lights and fans in Police Station Restrooms and Locker Rooms	6,320	0	0	$ 4,000	$ 40	$ -	$ 3,960	$ 1,000	$ 1,000	4.0	2	n/a	n/a
6	Replace Existing Boiler with a High Efficiency Boiler	0	0	280	$ 10,370	$ 1,750	$ 6,620	$ 2,000	$ 450	$ 450	4.5	2	82%	$ 11,250
7	Replace A/C Units	470	0	0	$ 400	$ 25		$ 375	$ 90	$ 90	4.1	0	58%	$ 900
8	Demand Control Ventilation	9,840	0	970	$ 13,850	$ -	$ -	$ 13,850	$ 2,160	$ 2,160	6.4	9	n/a	n/a
9	RTU Replacement	24,670	11	1,720	$116,800	$ 3,200	$70,440	$ 43,160	$ 5,520	$ 5,520	7.8	18	48%	$ 82,800
10	Weather-stripping	159	0	18	$ 1,050	$ -	$ -	$ 1,050	$ 50	$ 50	19.8	0	n/a	n/a
Totals		246,830	19	5,015	$215,490	$ 14,275	$77,060	$ 123,965	$ 37,600	$ 37,600	3.3	111	-31%	$ 94,950

cars	28.8333
trees	73.9803

VENDING MACHINE POWER MANAGEMENT SYSTEM

UTILITY PRICES	Galloway TWP
1. Price of #2 Fuel Oil, $/gal	-
2. Price of City Water, $/1000 gallons	$ 5.38
3. Price of Electricity, $/kWh (blended rate)	$ 0.16
4. Price of the Demand of Electricity, $/kW/montl	-
5. Price of Natural Gas, $/therm	$ 1.60

	High School			TOTAL		
	Existing Condition	Proposed System	Savings	Annual Savings	VendingMiser Cost	Simple Payback
Soda Machine Power Consumption	100%	54%	-	-		
Annual Op Cost	$1,220	$659	-	-		
Run Hours	8,760	8,760	-	-		
Annual Energy Consumption (kWh)	7,709	3,224	4,485	-		
Annual Cost and Savings, $	$1,220	$659	$561	$561	$537	0.96

1. Run hours based on fan motors being run 8760 hrs/yr

VENDINGMISERS

N/N	DESCRIPTION OF WORK	UNIT	QTY	MATERIAL		LABOR		TOTAL
				PER UNIT	TOTAL	PER UNIT	TOTAL	
1	VendingMisers	EA	3	179	537	-	-	537
TOTAL								$ 537

Demand Control Ventilation

UTILITY PRICES	Galloway TWP
1. Price of #2 Fuel Oil, $/gal	-
2. Price of City Water, $/1000 gallons	$ 5.38
3. Price of Electricity, $/kWh (blended rate)	$ 0.16
4. Price of the Demand of Electricity, $/kW/month	-
5. Price of Natural Gas, $/therm	$ 1.60

	Galloway TWP		
	Existing Condition	Proposed System	
RTU with Natural Gas Heat Total $/CFM	$2.629	$2.224	
Run Hours	3,120	3,120	

Annual Cost and Savings, $	$2,164
Installation Cost	$13,848
Payback	6.40

1. Assumes conditioning cost per cfm based on bin hours calculation using 20% OA for current operating schedule.
2 Assumes conditioning cost per cfm based on bin hours calculation using 5% OA for DCV operating schedule.
3. Run hours based on bin data and time of day factor.
4. Must be done in conjunction with RTU replacement

Replace aging AHU with a higher efficiency model

UTILITY PRICES	Galloway TWP
1. Price of #2 Fuel Oil, $/gal	-
2. Price of City Water, $/1000 gallons	$ 5.38
3. Price of Electricity, $/kWh (blended rate)	$ 0.16
4. Price of the Demand of Electricity, $/kW/month	-
5. Price of Natural Gas, $/therm	$ 1.60

	Existing Condition	Proposed System	Savings
Total Tons	4	4	
Average EER	12.0	18.0	
Annual Run Hours	2,503	2,730	
Annual Savings, $			$ 4,887

1. Existing EER approximated based on age and condition of unit.
2. New EER based on typical EER from various manufacturers.
3. Run hours based on building BMS schedule.

AHU SEER Upgrade

N/N	DESCRIPTION OF WORK	UNIT	QTY	MATERIAL		LABOR		TOTAL
				PER UNIT	TOTAL	PER UNIT	TOTAL	
1	3.75 ton	ea	1	4195	4,195	745	745	4,940
2	4 ton	ea	3	4,475	13,425	795	2,385	15,810
3	4.5 ton	ea	4	5,034	20,136	894	3,576	23,712
4	5 ton	ea	2	9,175	18,350	994	1,988	20,338
5	5.5 ton	ea	1	14,400	14,400	1,093	1,093	15,493
								80,293
	Other Estimated Implementation Costs							36,513
	TOTAL INCREMENTAL COST							$ 116,806
	New Jersey Smart Start Rebate							3,201

Replace Boilers with High Efficiency Condensing Boilers

Galloway TWP Multi Purpose Bldg

1. Price of #2 Fuel Oil, $/gal	-
2. Price of City Water, $/1000 gallons	$5.38
3. Price of Electricity, $/kWh (blended rate)	$0.16
4. Price of the Demand of Electricity, $/kW/mo	-
5. Price of Natural Gas, $/therm	$1.60

	Existing System	Proposed System	Savings
Boiler Efficiency	70%	92%	
Boiler Capacity	187,571	142,717	
Annual Natural Gas Use (therms)	1,170	891	**280**
Annual Cost and Savings, $	**$1,873**	**$1,425**	**$ 448**

1. Cost per kWh and therm prices taken from "# Constants" sheet.
2. Run hours based on bin data and time of day factor.

Boiler Replacement

N/N	DESCRIPTION OF WORK	UNIT	QTY	MATERIAL		LABOR		TOTAL
				PER UNIT	TOTAL	PER UNIT	TOTAL	
1	High Efficiency Boiler	EA	1	4,000	4,000	3,000	3,000	7,000
2					-		-	-
3					-		-	-
4					-		-	-
5					-		-	-
6					-		-	-
	Other Estimated Implementation Costs							3,371
	NJ Smart Start Rebate							1,750
	TOTAL							$ 10,371

SAVINGS FROM REPLACING WINDOW AC UNITS

1. Price of #2 Fuel Oil, $/gal		
2. Price of City Water, $/1000 gallons	$	5.38
3. Price of Electricity, $/kWh (blended rate)	$	0.16
4. Price of the Demand of Electricity, $/kW/month	$	-
5. Price of Natural Gas, $/therm	$	1.60

	Existing Condition	Proposed System	Savings
Number of Units	1	1	
Capacity per Unit, Tons	1.5	1.5	
Total Capacity, Tons	2	2	
Assumed Efficiency, SEER	8.0	10.8	
Total Hours of Normal Operation, hrs	1,668	1,668	
Cooling Load Factor	60%	60%	
Annual Cooling Production, ton-hours	1,501	1,501	
Annual Cooling Load, kBTU	18,013	18,013	
Annual Electrical Consumption, kWh	2,252	1,668	584
Annual Cost and Savings, $	$ 356	$ 264	**$ 92**

1. Assume existing systems runs all year when outside air temperature (OAT) is above 65F from Monday through Friday.

2. Both conditions are simulated with non-programmable thermostats.

3. Load factor calculation represents the percentage of time when the unit operates at full load.

4. It is assumed that the old systems have a 10% derated efficiency of 8 SEER.

5. Assume the new units have an efficiecy of 10.8 EER.

REPLACING WINDOW AC UNITS

N/N	DESCRIPTION OF WORK	UNIT	QTY	MATERIAL		LABOR		TOTAL
				PER UNIT	TOTAL	PER UNIT	TOTAL	
1	Window AC Unit	Unit	1	200	200	50	50	250
2					-		-	-
3								
4								
5					-		-	-
6					-		-	-
	Other Estimated Implementation Costs							-
	TOTAL							**$ 402**

SAVINGS FROM WEATHERSTRIPPING DOORS

1. Price of #2 Fuel Oil, $/gal	$0.000
2. Price of City Water, $/1000 gallons	$5.383
3. Price of Electricity, $/kWh (blended rate)	$0.158
4. Price of the Demand of Electricity, $/kW/month	$0.000
5. Price of Natural Gas, $/therm	$1.600

	Existing Condition	Proposed System	Savings
Number of Doors	3	3	
Estimated Infiltration Rate per Door, CFM	24	5	
Annual Cooling Infiltration Hours, OAT > 80F	800	800	
Annual Heating Infiltration Hours, OAT < 55F	500	500	
Annual Cooling Load, kBTU	1,586	317	
Annual Cooling Electrical Consumption, kWh	198	40	159
Annual Heating Load, kBTU	1,715	313	
Annual Heating Natural Gas Consumption, therms	21.44	3.91	18
Annual Cost and Savings, $	$ 66	$ 13	**$ 53**

1. Infiltration rate was calculated according to ASHRAE Fundamentals 2005 Door Leakage Rate Equation F27.12
2. Estimated hours of infiltration was based on all hours below 55F and above 80F for the region.
3. It is assumed that each door has a leakage area of 12 square inches (2 linear feet by 1/2 in). Vestibule doors are not included.
4. A 60% load factor was used when calculating the existing leakage rate.
5. Assume all AHUs have an supply air temperature of 55F in the summer and 80F in the winter.
6. The average outside air temperature above 80F during the year is 86F. The average outside air temperature below 55F is 39F.
7. Assume the cooling plant has an efficiency of 1.5 kw/ton and the natural gas fired heating units have an efficiency of 80%.
8. New weatherstripping is assumed to reduce infiltration by 80%.

Weatherstripping

N/N	DESCRIPTION OF WORK	UNIT	QTY	MATERIAL		LABOR		TOTAL
				PER UNIT	TOTAL	PER UNIT	TOTAL	
1	Replace weatherstripping around doors	ea	3	200	600	150	450	1,050
2			-		-		-	-
	SUB-TOTAL							1,050

Replace existing plumbing fixtures with new low flow fixtures

UTILITY PRICES	Galloway TWP
1. Price of #2 Fuel Oil, $/gal	-
2. Price of City Water, $/1000 gallons	**5.3825**
3. Price of Electricity, $/kWh (blended rate)	**0.158248491**
4. Price of the Demand of Electricity, $/kW/month	-
5. Price of Natural Gas, $/therm	**1.6**

# of Staff
66

	# Men (estimated)		
	44	Existing Flow	New Flow
# of Toiler Uses Per Day	1	3.5	1.6
# of Urinal Uses Per Day	2	1.5	0.125
# Of sink Uses Per Day	3	4	2.5
# Of shower Uses Per Day	0.25	5	2.5
	# Women (estimated)		
	22	Existing Flow	New Flow
# of Toiler Uses Per Day	0	3.5	1.6
# of Urinal Uses Per Day	3	1.5	0.125
# Of sink Uses Per Day	3	4	2.5
# Of shower Uses Per Day	0.25	5	2.5

Men Total	555	276
Women Total	15	5
Total	570	282
Gallons Saved	288	
$ per gallon	0.0053	
Dollars Saved	$ 1.53	

Time of Day Schedule Savings

TOD SAVINGS

UNIT	RTU 9 (Tax Office)	RTU 8 (Tax Office)	RTU 11 (Courtroom)	RTU 13 (Courtroom)
Current Mon thru Fri Occ. Schedule	24/7	24/8	0600-0430	0600-0431
Current Mon thru Fri Occ. Hours	24.0	24.0	10.5	10.5
Current Saturday Hours Occupied	24	24	0	0
Current Sunday Hours Occupied	24	24	0	0
Current Hours Occupied Per Year	8,736	8,736	2,730	2,730
Revised Mon thru Fri Occ.Schedule w/ holidays	08:30-16:30	08:30-16:31	20 Hrs per week (tues and thurs only)	20 Hrs per week (tues and thurs only)
Revised Mon thru Fri Occ. Hours	8.0	8.0	4.0	4.0
Revised Saturday Hours Occupied	0	0	0	0
Revised Sunday Hours Occupied	0	0	0	0
Revised Hours Occupied Per Year	2,080	2,080	1,040	1,040
Scheduled Hours Saved per Year	6,656.00	6,656.00	1,690.00	1,690.00
Unoccupied Run Time (maintain set	665.60	665.60	169.00	169.00
Actual Hours Saved per Year	5,990.40	5,990.40	1,521.00	1,521.00
Supply Fan HP	0.5	0.5	0.5	0.5
Return Fan HP	0	0	0	0
Supply Fan KW	0.37	0.37	0.37	0.37
Return Fan KW	0.00	0.00	0.00	0.00
Supply Fan Motor Load Factor	0.90	0.90	0.90	0.90
Return Fan Motor Load Factor	0.90	0.90	0.90	0.90
Fan Savings	$ 321.76	$ 321.76	$ 81.70	$ 81.70
CFM of Unit	2,000	2,000	2,000	2,000
VFD Load Factor	1.00	1.00	1.00	1.00
Cost per CFM	$2.63	$2.63	$2.22	$2.22
Conditioning Savings	$ 3,595.12	$ 3,595.12	$ 772.19	$ 772.19
Total Savings	$ 3,916.87	$ 3,916.87	$ 853.89	$ 853.89
TOD FACTOR	0.237	0.237	0.119	0.119

Tax ofice Savings	$ 7,833.75
Cost	700

urtroom Savin	$ 1,707.78
Cost	4,000

***NJCEP $20 per control rebate - NJCEP Smart Start Lighting Control Prescriptive Incentives (approx $2000 per Ahu for sensors and wiring)

1. Courtroom RTU tie in Occupied Schedule with Lights and add DCV when upgrading Units. Only go into OCC mode on
2. replace tax office untis with programmable tstat

Tie Fans and Lights in Restrooms Into Occ Sensor - Time of Day Schedule Savings

TOD SAVINGS				
UNIT	Poilce Department Restroom 1mens	Poilce Department Restroom 2 ladies	Poilce Department Locker Room 1 mens	Poilce Department Locker Room 2 ladies
Current Mon thru Fri Occ. Schedule	24/7	24/8	24/9	24/10
Current Mon thru Fri Occ. Hours (Hours per day)	24.0	24.0	24.0	24.0
Current Saturday Hours Occupied	24	24	24	24
Current Sunday Hours Occupied	24	24	24	24
Current Hours Occupied Per Year	8,736	8,736	8,736	8,736
Revised Mon thru Fri Occ.Schedule w/ holidays	08:30-16:30	08:30-16:31	08:30-16:32	08:30-16:33
Revised Mon thru Fri Occ. Hours (Hours per day)	8.0	8.0	8.0	8.0
Revised Saturday Hours Occupied	0	0	0	0
Revised Sunday Hours Occupied	0	0	0	0
Revised Hours Occupied Per Year	2,080	2,080	2,080	2,080
Scheduled Hours Saved per Year	6,656.00	6,656.00	6,656.00	6,656.00
Unoccupied Run Time (maintain set backs)	665.60	665.60	665.60	665.60
Actual Hours Saved per Year	5,990.40	5,990.40	5,990.40	5,990.40
Supply Fan HP	0.3	0.3	0.3	0.3
Return Fan HP	0	0	0	0
Supply Fan KW	0.19	0.19	0.19	0.19
Return Fan KW	0.00	0.00	0.00	0.00
Supply Fan Motor Load Factor	0.90	0.90	0.90	0.90
Return Fan Motor Load Factor	0.90	0.90	0.90	0.90
Fan Savings	$ 160.88	$ 160.88	$ 160.88	$ 160.88
# of Fixtures	2	2	4	4
kw per fixture	0.03	0.03	0.03	0.03
Lighting savings	$61.34	$61.34	$122.68	$122.68
Total Savings	$222.22	$222.22	$283.56	$283.56
TOD FACTOR	0.237	0.237	0.237	0.237

Total TOD Savings	$1,011.56
kWh Reduction	6,322

1. Estimated Lighting Fixtures
2. Estimated HP of fan motors
3. Estimate $1000 per restroom for snesor and wiring

Wind Analysis

Performed By Dome-Tech Energy Advisors

Average Wind Speed	5.0	5.0	6.3
Annual Electric Use, kwh	734,198	734,198	734,198
Electric Cost	$0.16/kWh	$0.16/kWh	$0.16/kWh

Name	Galloway Township
Annual Electric Use, kwh	734,198
Electric Cost, kwh	$ 0.158

	Micro	Traditional 5.2 kw	Traditional 50 kw
Number of Units	20	2	2
kW Capacity, per Unit	1 Kw	5.2 Kw	50.0 Kw
kW Capacity, Total	20 Kw	10 Kw	100 Kw
Annual Production Per Unit	942 Kwh	7,017 Kwh	137,781 Kwh
Annual Production Total	18,844 Kwh	14,034 Kwh	275,561 Kwh
Annual Savings	$2,977	$2,217	$43,539
Installed Cost per Unit	$6,500		
Installed Cost per Kw		$6,000	$5,000
Gross Installed Cost	$130,000	$62,400	$500,000
NJ Incentive	$52,622	$44,910	$180,981
Net Installed Cost	$77,378	$17,490	$319,019
Simple PayBack	26.0	7.9	7.3
% Energy Use	2.6%	1.9%	37.5%

Monthly Averaged Wind Speed At 10 m Above The Surface Of The Earth For Terrain Similar To Airports (m/s)

Latitude	Longitude	January	February	March	April	May	June	July	August	September	October	November	December
39.27	-74.29	5.74	5.8	5.5	5.4	4.73	4.39	3.99	3.87	4.22	4.7	5.44	5.74

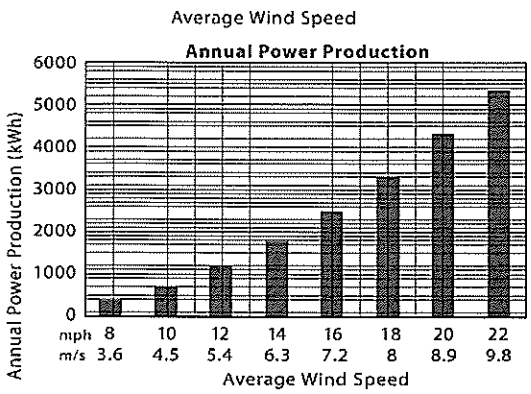
Monthly Averaged Wind Speed At 50 m Above The Surface Of The Earth (m/s)

Latitude	Longitude	January	February	March	April	May	June	July	August	September	October	November	December
39.27	-74.29	7.20	7.34	7.34	6.83	5.99	5.56	5.05	4.9	5.34	5.95	6.88	7.27

Latitude 39.27N
Longitude 74.29 W
NASA Surface meteorology and Solar Energy: Data Subset
http://eosweb.larc.nasa.gov/cgi-bin/sse/subset.cgi?email=
UN k_mccarthy@dome-tech.com
PW dometech

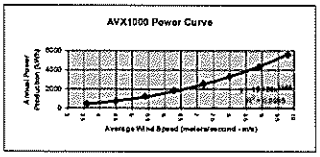
http://www.awea.org/smallwind/toolbox/TOOLS/fs_safety.asp

AVX1000 Power Curve



m/s	annual kwh
3.6	390
4.5	710
5.4	1200
6.3	1800
7.2	2500
8	3300
8.9	4300
9.8	5550

y = 13.436x^2.6458
R2 = 0.9995

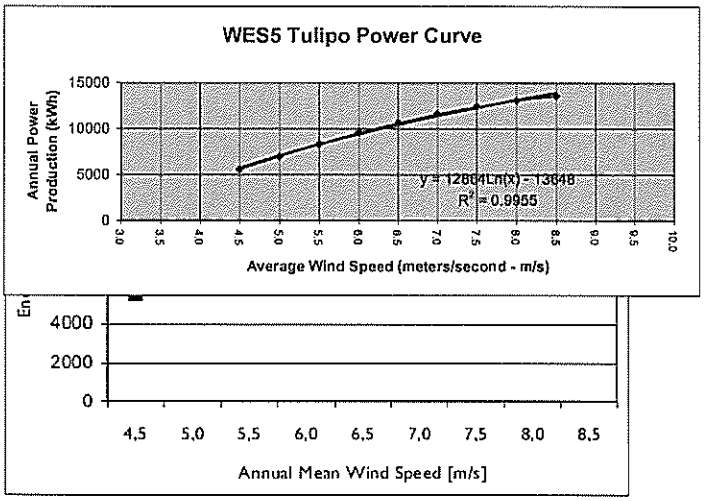


Average Wind Speed 5.0 * Has to be greater than 2.2 m/s
Annual Power Production 942.2204

http://www.prevailingwindpower.com/1000AVX.pdf

WES5 Tulipo

Wind speed [m/s]	Energy [kWh]
4,5	5541
5,0	6947
5,5	8294
6,0	9534
6,5	10638
7,0	11593
7,5	12391
8,0	13036
8,5	13534



m/s	annual kwh
4.5	5541
5.0	6947
5.5	8294
6.0	9534
6.5	10638
7.0	11593
7.5	12391
8.0	13036
8.5	13534

y = 12864Ln(x) - 13648
R2 = 0.9955

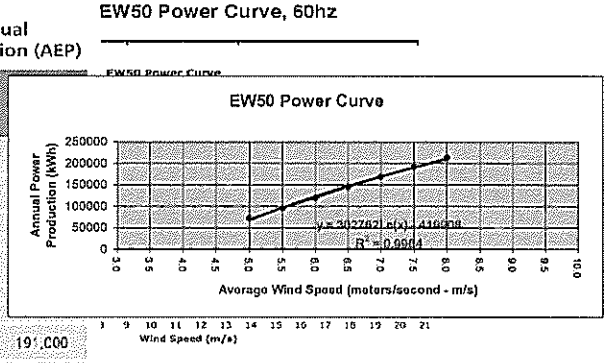
Average Wind Speed 5.0
Annual Power Production 7017.159

http://www.windenergysolutions.nl/fileadmin/user_upload/Technical_Specifications_WES5_Tulipo.pdf

EW50

Expected Annual Net Energy Production (AEP)

Average Annual Wind Speed (m/s)	Average Annual Wind Speed (mph)	
5	11.2	
5.5	12.3	
6	13.4	
6.5	14.5	
7	15.6	
7.5	16.8	191,000
8	17.9	213,000



	38.0	65.0
	40.2	64.0
19	42.5	63.0
20	44.7	62.0
21	46.9	61.9

m/s	annual kwh
5.0	72000
5.5	95000
6.0	119000
6.5	144000
7.0	168000
7.5	191000
8.0	213000

y = 302762Ln(x) - 419908
R2 = 0.9964

Average Wind Speed 6.3
Annual Power Production 137780.7

http://www.ontegrilywind.com/pdfs/EW50-Specs.pdf

Geothermal Analysis

Performed By Dome-Tech Energy Advisors

Facility:	Galloway Township - Police Station

Annual HVAC Energy Use

Annual Electric Use, kwh	408,680
Electric Cost	$0.14/kWh

Natural Gas Use, therms	3,853
Natural Gas Cost	$1.58/therm

Electric*	%	kWh	Cost
Lighting	17%	69,476	
HVAC	53%	216,600	$30,324
Office Equipment	20%	81,736	
Miscellaneous	10%	40,868	

*Distribution as per EPA typical office building (http://www.facilitiesnet.com/energyefficiency/article/Managers-Need-to-Address-Buildin%)

Natural Gas**	%	Therms	Cost
Lighting	0%	0	
HVAC	90%	3,468	$5,479
Office Equipment	0%	0	
Miscellaneous	0%	0	

**HVAC estimate by Dome-Tech

Total HVAC Cost	$35,803

Geothermal Savings

Cooling	*Existing*	*GSHP*
Energy Efficiency Ratio, EER	15.0	18.0
Cooling Mode, Electric Use, kWh	216,600	180,500
Annual Electric Costs	$30,324	$25,270

Cooling Savings
$5,054

Heating	*Existing*	*GSHP*
Gas Fired Heating Efficiency	77%	-
Coefficient of Performance, COP	-	3.3
Heating Mode, Natural Gas Use, t	3,468	-
Annual Heat Load, therms	2,670	-
Annual Heat Load, kWh	-	78,254
Heating Mode, Electric Use, kWh	-	23,713
Annual Energy Costs	$5,479	$3,320

Heating Savings
$2,159

Annual Heating Savings	$5,054
Annual Cooling Savings	$2,159
Total Annual Savings	**$7,213**

Installation Cost Estimate

Total Square Feet	8,715
Air Flow (CFM) Per Square Foot	1
Air Flow (CFM) Per Ton Refrigera	400
Connected Cooling Load	22

Cost Per Ton	$5,000	*$7,000*	
Gross Installation Cost Estimate	$110,000	$154,000	
Investment Tax Credit	$0	$0	*(10% if facility pays federal taxes)*
NJ SSB Equipment Incentives	$8,140	$8,140	*($370 per ton)*
Net Installation Cost Estimate	$101,860	$145,860	

Return on Investment

Annual Savings	$7,213	
Installation Cost	$101,860	$145,860
Payback	14	20

Well Field Dimension

System Size, Tons	22
Well Capacity, ft/ton	250

	250 ft wells	*500 ft wells*
Well Spacing, feet on center	15	15
Number of wells	22	11
Dimension Well Field Foot Print, S	7,286	4,192
Dimension Well Field Foot Print, A	0.2	0.1

	Municipal Complex	Veterans Park	American Legion	Tartaglio Park
System Capacity, kw-dc (maximum utilization of roof space)	72 kw dc	5 kw dc	390 kw dc	390 kw dc
Annual Electric Generation, kwhrs of AC electricity produced	80,205 kwh	5,385 kwh	435,067 kwh	435,067 kwh
Total Annual Facility Electric Use, kwhrs	734,198 kwh	77,097 kwh	63,411 kwh	52,720 kwh
% of Total Annual Usage	11%	7%	686%	825%
All-In Cost of Electric Year 1	$0.139 / kwh	$0.139 / kwh	$0.139 / kwh	$0.139 / kwh
Annual Electric Cost Savings	$11,148	$749	$60,474	$60,474
Estimated SREC Value (Year 1):	$519 / SREC	$519 / SREC	$519 / SREC	$519 / SREC
Estimated Year 1 SREC Revenue:	$41,625	$2,795	$225,791	$225,791
Equivalent Annual CO2 Emission Reduction (tons per year)[1]	44 tons/yr	3 tons/yr	238 tons/yr	238 tons/yr
Equivalent Cars Removed From Road Annually[2]	8	1	41	41
Equivalent Acres of Trees Planted Annually[3]	12	1	65	65
System Installed Cost (does not include value of tax credits)	$431,528	$28,810	$2,731,365	$2,926,463
Simple Payback (includes tax incentives)	9.2	9.2	11	11.8
IRR (25 Years)	7%	7%	5%	5%

1. Estimated CO2 Emissions Rate: 1.096 lbs/kWh
2. EPA Estimate: 11,560 lbs CO2 per car
3. EPA Estimate: 7,333 lbs CO2 per acre of trees

Solar PV System AMERICAN LEGION

Performed By Dome-Tech Energy Advisors

	Section 1	
	N/S	
Gross Length, feet	100	←
Panel Count (calculated)	29.1	
Panel Count (actual)	29	

	E/W	
Gross Length, feet	400	←
Panel Count (calculated)	78.2	
Panel Count (actual)	78	

Gross Panel Qty	2262	
Panel Reduction %	75%	←
Net Panel Qty	1697	1,697
		Total

System Capacity, kw	390	390

Choose Closest City	Atlantic City	←
Capacity Factor (kwh/kw)	1,115	

First Year Expected Production (kWh)	435,067	435,067

Solar PV System - TARTAGLIO PARK

Performed By Dome-Tech Energy Advisors

	Section 1 N/S	
Gross Length, feet	100	←
Panel Count (calculated)	29.1	
Panel Count (actual)	29	

	E/W	
Gross Length, feet	400	←
Panel Count (calculated)	78.2	
Panel Count (actual)	78	

Gross Panel Qty	2262	
Panel Reduction %	75%	←
Net Panel Qty	1697	1,697
		Total

System Capacity, kw	390	390

Choose Closest City	Atlantic City	←
Capacity Factor (kwh/kw)	1,115	

First Year Expected Production (kWh)	435,067	435,067

Solar PV System - MUNICIPAL COMPLEX

Performed By Dome-Tech Energy Advisors

	Police Station	Adj to Police	Main	Senior	Garage	
	N/S	N/S	N/S	N/S	N/S	
Gross Length, feet	40	20	100	40	50	←
Panel Count (calculated)	11.7	5.8	29.1	11.7	14.6	
Panel Count (actual)	11	5	29	11	14	
	E/W	E/W	E/W	E/W	E/W	
Gross Length, feet	100	80	12	20	20	←
Panel Count (calculated)	19.5	15.6	2.3	3.9	3.9	
Panel Count (actual)	19	15	2	3	3	
Gross Panel Qty	209	75	58	33	42	
Panel Reduction %	75%	75%	75%	75%	75%	←
Net Panel Qty	157	56	44	25	32	313
						Total
System Capacity, kw	36	13	10	6	7	72
Choose Closest City	Atlantic City	Atlantic City	Atlantic City	Atlantic City	Atlantic City	←
Capacity Factor (kwh/kw)	1,115	1,115	1,115	1,115	1,115	
First Year Expected Production (kWh)	40,199	14,425	11,156	6,347	8,078	80,205

Solar PV System - VETERANS PARK ROOF

Performed By Dome-Tech Energy Advisors

	Section 1 N/S	
Gross Length, feet	15	←
Panel Count (calculated)	4.4	
Panel Count (actual)	4	

	E/W	
Gross Length, feet	40	←
Panel Count (calculated)	7.8	
Panel Count (actual)	7	

Gross Panel Qty	28	
Panel Reduction %	75%	←
Net Panel Qty	21	21
		Total

System Capacity, kw	5	5

Choose Closest City	Atlantic City	←
Capacity Factor (kwh/kw)	1,115	

First Year Expected Production (kWh)	5,385	5,385