2008 Energy Advisory Board Recommendations

1. **MONTHLY UTILITIES USAGE/COSTS REVIEWS**
Record on spreadsheets all monthly utilities i.e. electricity, gas, water usage and cost i.e. kwh, peak demand, therms, gallons for all County buildings.. Any major changes in usage or costs should be investigated for billing errors, equipment failures, changes in occupancy, new equipment or due to outside temperatures. Monthly utilities reports to be forwarded to Deputy Commissioner for Building and Grounds.

2. **ENERGY AUDITS**
Perform energy audits on all Broome County buildings and develop an Energy Master Plan that provides all energy upgrades/projects including preliminary energy savings and installation costs. Energy Master Plan will assist the County in justifying energy projects. Check availability of energy audit funding i.e. NYSERDA, NYS grants etc.

3. **RETROFIT COMMISSIONING SERVICES**
Request funding for Retrofit Building Commissioning services. These services i.e. equipment performance testing, controls calibration, air/water balancing, maintenance training etc. will optimize all buildings' electrical and mechanical equipment operating efficiencies per original design and specifications. NYSERDA will provide 50/50 cost sharing with certified NYSERDA consultants.

4. **PURCHASE OF ENERGY STAR EQUIPMENT ONLY**
Purchase Energy Star or high efficiency products only i.e. lighting equipment, HVAC, motors, office equipment, ice machines, kitchen and laundry equipment, vending machines, water saving equipment etc. Rebates and incentives are available from NYSERDA, EnergyStar and equipment suppliers.

5. **ENERGY AWARENESS/EDUCATION/ AWARDS PROGRAMS**
Energy efficiency training for all employees i.e. shutoff lighting, computers, office equipment during lunch, weekends, evenings etc. Those employees who participate and obtain substantial savings should be recognized.

6**. ANNUAL ENERGY CONSERVATION GOALS**
To make all County Departments accountable for their energy usage establish energy goals % for each Department i.e. Area, Aviation, Motor Vehicle, Parks, Library, WPSH, etc. These % goals will be based on the previous years energy usage i.e. kwh, therms, gallons and will be normalized for the weather (degree days). Each Department Director will report monthly the projects, actions taken to save energy i.e. lighting, equipment, new energy efficient equipment, space reduction etc. Those Departments that achieve their goals should be recognized.

7. **NEW BUILDING / MAJOR RENOVATION DESIGN**
Broome County A/E consultants to include in the design of new buildings/renovations the use of "green practices" i.e. EPA EnergyStar Certifications and the USGBC's LEED standard. For energy-efficient design and equipment, rebates and incentives are available from NYSERDA and Energy Star programs.

8. **SPACE CONSOLIDATION TO REDUCE ENERGY**
Perform consolidation of office/ storage/ support areas and then shutoff all lighting, air conditioning, HVAC equipment and reduce space temperatures during the winter in the unoccupied areas.

9. **LEASED BUILDINGS ENERGY CONSERVATION**
Discuss with building owners various energy conservation ideas and potential energy projects to lower utilities costs. Consider cost sharing energy upgrades to lower owners utilities and to lower future lease costs.

10**. ANNUAL BUILDING INSPECTIONS / REPAIRS**
Perform annual maintenance inspections to repair air, steam, water leaks, repair and replace all piping and valves insulation and weatherstrip windows and doors as needed.

11. **LIGHTING LEVELS SURVEYS**
Take lighting levels (foot candles) in the all buildings including all exterior and parking areas. For those areas that exceed the IES lighting levels reduce lighting i.e. remove light fixture, remove lamps, replace with lower watt lamps, use task lighting etc.

12**. NEW LIGHTING SYSTEMS AND CONTROLS**
Survey all building interior and exterior lighting systems. Evaluate energy savings with new energy efficient light fixtures, energy saver lamps and electronic ballasts.
Replace all incandescent lighting with CFLs, LEDs. Install LED EnergyStar Exit signs. Install lighting occupancy sensors for offices, aisles, conference rooms, support areas, restrooms and for vending machines and office equipment. Install photosensors, dimmer controls on exterior lights, outside aisles, entrance//lobby areas to take advantage of daylight contributions to reduce lighting costs. Replacement of failed fluorescent lamps to be energy saver, long life, ecologic lamps to save energy and reduce mercury levels.

13. **BUILDING ELECTRICAL POWER CONDITIONERS**
Evaluate the installation of new electrical equipment to increase the efficiency of the electrical inductive loads (power factor) from transformers, electric motors, HID lighting, etc. improve surge protection, reduce electromagnetic noise and improve voltage regulation.

14**. ELECTRIC PEAK DEMAND ANALYSIS**
Consider shutdown of non-critical equipment i.e. HVAC equipment, lighting, office equipment etc. during peak load times. Evaluate the installation of absorption, gas/steam driven chillers, use of emergency generators to reduce electric peak demand. Review the requirements and the incentives of the NYSERDA Peak-Load Reduction Program.

15. **INDOOR AIR PRESSURE / VENTILATION RATES / IAQ**
Check air flow for exhaust systems (cfm), outdoor air ventilation levels to verify code requirements and meet ASHRAE indoor air quality. Where possible, reduce exhaust levels to save make-up air heating and cooling costs. Evaluate energy savings equipment i.e. CO monitors interlock with HVAC equipment, exhaust timers,weekend/night exhaust reductions, heat recovery ventilation units, air pressure sensors/controllers with fan VFD motors.

16**. WATER CONSERVATION PROGRAMS**
Purchase new water saver equipment water closets, urinals, faucets, shower heads, water treatment equipment, and install water saver devices i.e. aerators, flow restrictors, reduce water pressure, repair water leaks, use rain water etc.

17. **ENERGY MANAGEMENT SYSTEMS**
For those Buildings with EMS , verify that all HVAC equipment and lighting systems are operating per building occupancy schedule (on/off), proper temperatures control /set back temperatures at night/weekends etc. Update occupancy schedules and calibrate field devices.

18. **HVAC EQUIPMENT EFFICIENCY ANALYSIS**
Perform efficiency tests on chillers, cooling towers, boilers, air compressors, pumps etc. Based on the equipment performance, evaluate energy savings versus installation costs to install new high efficiency equipment. Justification shall include all life cycle costs i.e. age of existing equipment, annual repair costs, availability of spare parts, NYSERDA incentives, reliability of existing equipment.

19**. EQUIPMENT PREVENTIVE MAINTENANCE PROGRAMS**
Perform all preventive maintenance on all HVAC equipment and Electric Systems as recommended by the equipment manufacturers to maintain maximum efficiency and warranties. Records of PMs to reviewed on annual basis i.e. oil testing, coil cleaning, filter changes, infrared electrical testing, controls calibration, air/water balancing etc.

20**. BUILDINGS INFRARED TESTING / THERMOGRAPH ANALYSIS**
Perform annual infrared tests of buildings walls, windows, doors and roofs to locate high heat loss areas. From thermographs develop action plan to reduce heat loss i.e. new wall/roof insulation, weatherstrip, window and door replacements.

21. **SHORT RANGE / LONG RANGE ENERGY PROJECTS**
Using available funding and manpower, Broome County should implement low cost energy upgrades and maintenance items i.e. reduce lighting levels, CFLs, LED exit signs, repair leaks, weatherstripping, occupancy/photo sensors etc. Purchasing should begin to buy only Energy Star equipment. All equipment invoices for eligible for NYSERDA incentives should be forwarded to the Deputy Commissioner of Buildings and Grounds for NYSERDA incentive applications. Long Range energy projects with higher installation costs should be forwarded after completion of an audit/study to the Deputy Commissioner for Buildings and Grounds for approval and to be included in future budget requests.

22**. ENERGY EFFICIENT CONSTRUCTION/REHABILITATION FOR COUNTY OWNED BUILDINGS**
The County should consider creating a policy mandating that large-scale county government construction and rehabilitation projects should use “green” building standard, such as LEED, in order to reduce future energy costs.

23. **TAX BREAKS FOR GREEN BUILDING CONSTRUCTION/REHABILITATION**
The county should consider offering tax breaks for companies who incorporate green construction standards as a way to attract business development.

24. **MAKE VEHICLE FLEET MORE ENERGY EFFICIENT**
The county should continue to purchase energy efficient hybrid buses, and should also make a concerted effort to increase the gas mileage of its current fleet, by implementing fuel-efficient driving policies and buying more fuel-efficient vehicles whenever possible.

25. **DEVELOP MORE PARK AND RIDES**
The county should consider developing more park and ride locations to encourage the use of mass transit and carpooling.

26. **COUNTY ENERGY EFFICIENCY LOAN PROGRAM**
The county should consider instituting a energy efficiency loan program similar to the one in Berkeley, CA, to help homeowners make energy basic efficient improvements to their homes.

27. **WIND TURBINE FEASIBILITY STUDY FOR BCC/PUBLIC SAFETY FACILITY AREA**
The County should conduct a study to determine the wind availability and the cost-effectiveness of constructing a wind turbine to supply power to the Public Safety Facility and Broome Community College.

28. **ENERGY OUTREACH PROGRAMS**
The county should collaborate with Binghamton University, Broome Community Colleges, and other institutions whenever possible to offer energy outreach programs to the general public.

29. **WORKFORCE DEVELOPMENT**
The county should coordinate efforts with various workforce development agencies to help expand "green" job opportunities throughout the region.

30. **COORDINATED FEDERAL, STATE, AND PRIVATE GRANT ACQUISITION**
The county should develop a coordinated program of identifying and applying for the millions of dollars of energy grants that are made available via the Federal and State government.

31. **4 DAY WORK WEEK FOR COUNTY EMPLOYEES**
The county should investigate moving employees to a four day work week. Employees would save fuel, and the county would see savings in HVAC, lighting, and operational shut downs.

32. **MONITORING OF COUNTY VEHICLES**
The county should look at ways to track vehicle usage, such as incorporating GPS technology implementing a no-idle policy, and increasing fuel-efficient driver training and awareness programs, in order to reduce fuel costs.