

**Report of the Energy Subcommittee  
of the  
Columbia County Environmental Management Council  
April 27, 2009**

Of the 6.7 billion people on the earth, the United States makes up about 4.6 percent of the total. Despite this small proportion, the average American uses eight times the energy of a resident of China and 12 times the energy consumption of a resident of India. Estimates suggest that the approximate annual world wide consumption of oil is 31 billion barrels, of coal is six billion tons, and of natural gas is 100 trillion cubic feet. The worldwide yearly increase in demand approximates two percent. One can debate the amount of fossil fuels remaining and or accessible but we must acknowledge the enormous rate of use of these energy sources. Arguably such continued use of these sources is not sustainable in the long term.

The environmental effects of burning of fossil fuels with the concurrent generation of carbon dioxide has been studied world wide with rather ominous predictions. Additionally, the planet's ability to continue to supply large quantities of inexpensive carbon containing fuels, is in question. The escalating, almost exponential, increase in financial cost for these fuels provides an added incentive for both conservation and search for alternative energy sources. The financial status of our nation is presently in flux. Governmental agencies, citizens, and the business community will be, and/or should be, examining the efficacy and impact of every dollar spent. Employing the following recommendations will lead to fewer dollars expended for energy, a protection of the environment, and an improvement of our quality of life.

The following is an abstract of the more detailed recommendations which follow. This represents the initial phase of recommendations with more to be presented at a later date. We make these recommendations to fulfill, in part, the EMC's "responsibility to review and advise local and state government on present and proposed methods of using, protecting and conserving the environment for the benefit of all the people."

## Recommendations

### Phase I (Spring 2009)

#### **I. Community Initiatives**

1. All County, town, city and village governments within Columbia County are encouraged to conduct an energy audit for their structures, including all energy consuming devices. A standardized set of data should then be forwarded to the County Planning Department for collation within a specified time frame. Data would include but not be limited to each building size, location, style, age, annual fuel volume use, electric use, etc.
2. Communities in Columbia County (towns/villages and the City of Hudson) are encouraged to revise their local codes or building specifications to include efficient lighting regulations for the construction of new commercial, multifamily, municipal structures, including parking areas and roadways. Such standards would require full cutoff, lower fixture height, reduced intensity and efficient light sources.
3. Each community is encouraged to revise its local Code or building specifications to include the most energy efficient requirements for siting, locating, and construction of new commercial, multifamily, and municipal structures. This would include, but not be limited to, heat loss reduction (insulation, heat recovery ventilators, access vestibules), public transportation, etc. The goal is to build highly efficient "green" buildings.

#### **II. Planning and Zoning Leadership**

1. Encourage the construction of bike paths, shared roadways, sidewalks, bike stands, and the furtherance of pedestrian friendly communities.

#### **III. County Initiatives**

1. Congratulating the Columbia County Board of Supervisors on its passage of a resolution that urges the State Legislature to expand the bottle deposit to other drink containers, thereby recycling a greater proportion of plastics and glass.
2. Recommend that the County and all local municipalities consider using recycled asphalt pavement or RAP for road repair/surfacing which will reduce the demand for asphalt.

Our communities, homes, businesses, recreation areas, health facilities, educational institutions, governmental agencies, and transportation systems are shared to varying degrees by all residents of Columbia County. Our quality of life, our ability to function within this system is affected by the environment created by each of these entities. The availability of cheap energy containing fossil fuels has, for the last century, been intricately intertwined in our life styles. A move to conservation and the tapping of renewable energy sources can move us away from this dependence. The recommendations cited above each have an economy of dollars and cents. Some require an initial investment while others are policy and habit changes which lead to a reduction in energy use and financial savings. These are win-win-win suggestions. A win for the County, a win for residents/taxpayers, and a win for the environment.

**References:**

Energy conservation/generation NYSERDA Population  
Energy Star  
NYS Energy Code  
Windmaps of New York State, [www.windexplorer.com](http://www.windexplorer.com)  
Compact development "Greenway Connections"

**Phase I  
Community Initiatives**

**Energy and Cost Savings  
Energy Audits**

**Issue/Items:**

- Controlling Government Costs and Spending
- Increasing comfort for government workers and citizens in government owned buildings.
- Maximizing energy efficiency

**EMC Recommendation:**

The EMC recommends that the City of Hudson and town and village boards in Columbia County consider conducting an energy audit on all of their municipally-owned buildings. Columbia County is currently conducting an energy audit of County-owned buildings.

**Background:**

Energy audits are quick and inexpensive software-based analyses that pinpoint simple, economical energy improvements.

**Rationale for Recommendation:**

Buildings are big energy users. As the cost of energy rises government budgets and ultimately taxpayers pay the price. There is an immediate cost savings opportunity with simple measures, retrofits and renovations of old government buildings.

**Sample Savings: (Source: <http://www.nyserda.org/programs/energyaudit.asp>)**

Description	Cost	Savings	Payback (years)
Upgrade the Lighting	\$2,861	\$683	4.2
Improve Programmable Thermostat	\$230	\$722	0.3
Install High Efficiency Motors	\$8,738	\$1,378	6.3
Install LED Exit Signs	\$400	\$103	3.9
<b>Totals</b>	<b>\$12,229</b>	<b>\$2,886</b>	<b>4.2</b>

**Cost:**

Audit costs vary between \$100.00 and \$400.00, depending on the customer's annual electrical bills. This program promotes individual customer energy efficiency, provide technical justification to help customers obtain reduced interest rates through **New York Energy \$mart<sup>SM</sup>** (reduces interest rates by four percent). Loans and assistance with the application process are available through NYSERDA.

**Resources:**

Registration is on-line at: [www.nyserda.org/programs/energyAuditForm.asp](http://www.nyserda.org/programs/energyAuditForm.asp)

For more information please contact Mark Mayhew at NYSERDA at (518) 862-1090 ext. 3319 or e-mail [msm@nyserda.org](mailto:msm@nyserda.org)

**Phase I  
Community Initiatives**

**Energy and Cost Savings  
Lighting**

**Issue/Item:**

The lighting of roadways, and parking areas, within our communities represents an ever growing cost. Secondly the present design and placement of commercial and municipal lighting is typically both offensive and wasteful of energy.

Numerous states and communities have been wrestling with the issue of artificial lighting and how to make it more efficient, safe, and less onerous. The desire expressed at the state level is to effect a large reduction in electric use throughout the State. Present lighting of roadways and commercial sites consumes large amounts of electricity, is inefficient, obtrusive, and costly. Using light fixtures which directs light to where it is desired will greatly reduce the waste, thereby reducing cost, and, as a bonus, lessen both the offensiveness/polluting nature of the lighting.

**EMC Recommendation:**

The EMC recommends that all municipalities and governmental agencies within Columbia County consider adopting outdoor lighting regulations that reduce energy use, provide less light pollution, and improve safety. Typical regulations require artificial lighting to be fully shielded, limited in height to 20 feet, and the light source be clear white light which does not shine or be visible off site. Additionally there should be no up lighting of structures, the average light intensity be regulated, and only minimal lighting be permitted after closing. These standards should apply to all commercial, multifamily, and governmental buildings. Sample legislation may be found in Sections 81-36 and 81-47 C(2)k of the Kinderhook Town Code (see attached).

**Background:**

Traveling through the more densely populated and commercial areas within Columbia County at night is illuminating. Typically, the sources of light shine in our eyes makes it very difficult to view signs, vehicles and pedestrians. Light is everywhere, including above the fixture and adjacent regions not wishing to be lit by those paying for the electricity. Some communities within the county, notably the Town of Kinderhook, have recognized this problem and have implemented lighting regulations which greatly enhance lighting efficiency. Some of the more recent commercial buildings in Kinderhook have followed these regulations. Utilizing better designed and properly placed light fixtures reduces the energy requirements and eliminates off site glare thereby improving safety and reducing collateral light pollution.

**Resources:**

National Geographic, November 2008. "Greenway Connections", March 2000.  
See also [www.darksky.org](http://www.darksky.org)

## **Kinderhook Town Code**

### **Section 81-36; Lighting**

- A. Applicability and purpose. The town of Kinderhook encourages the use of non-intrusive lighting on commercial sites.
- B. Standards (1) light shall not shine off site (2) light shall not shine on public roadways. (3) Light sources shall not be visible from off site. (4) Light fixtures shall be fully shielded to eliminate glare and off site light. (Amended 8/24/05, by L.L. 14-2005)

### **Section 81-47 C(2)**

(k) Lighting Light fixtures should be fully shielded to eliminate glare and off site light. Light intensity shall not exceed an average of 2 foot candles and the light sources shall produce clear white light. Lighting fixtures should be traditional in design. There shall be no uplighting. Parking lot lights shall not exceed 20 feet in total height. Only minimal lighting shall be allowed 1 1/2 hours after closing (Amended on 8/24/05 by L.L. 14-2005)

**Phase I  
Community Initiatives**

**Energy and Cost Savings  
Building Design**

**Issue/Item:**

Present reliance on fossil fuels as a primary energy source is polluting the atmosphere and endangering the environment. Fossil fuels are non-renewable and increasingly more costly.

**EMC Recommendation:**

The EMC encourages each community to revise its local Code or building specifications to include the most energy efficient requirements for siting, locating, and construction of new commercial, multifamily, and municipal structures. This would include, but not be limited to, heat loss reduction, insulation, heat recovery ventilators, access vestibules, orientation, site cross-access, etc. The goal is to build highly efficient “green” buildings.

**Background:**

There are several agencies and programs that can assist communities when considering green building initiatives. These include: The Energy Star program, a partnership between the U.S. Environmental Protection Agency and the U.S. Department of Energy; Leadership in Energy & Environmental Design (LEED) Green Building Rating System, developed by the US Green Building Council; the U.S. Department of Energy Builder’s Challenge; and the National Green Building Program, offered by the National Association of Home Builders. In the Hudson Valley, many towns have partnered with NYSERDA’s “Smart Communities” program, including: Ulster, Kingston, Esopus, Woodstock, New Rochelle and the Town of Greenburgh.

**Data:**

Most of the carbon abatement needed between now and 2030 can be achieved using existing technology, such as better insulation and weatherization, use of more efficient appliances, such as those endorsed by the energy Star program, and automated heating/cooling systems which provide power as needed. A typical structure can generate two times the greenhouse emissions as an automobile. An energy efficient building can keep greenhouse gases from entering the atmosphere. In the Town of Greenburgh, NY, it is estimated that the new photovoltaic system installed at the Town Hall will reduce emissions of greenhouse gases by 7,460 lbs/year. (NYSERDA)

**Rationale for Recommendation:**

Implementation of these recommendations will reduce energy use by municipal, multifamily, and commercial buildings will permit them to operate more efficiently save money, ease budget constraints and reduce pollution.

**References:**

Energy conservation/generation NYSERDA Energy Star  
NYS Energy Code  
Northeast Energy Efficiency Partnership; US Green Building Council

**Phase I  
Planning and Zoning Leadership**

**Energy Conservation  
Pedestrian/Bicycle Travel**

**Issue/Item:**

Many communities within the county today do not provide for safe non-motor driven travel. Typically, even in more densely populated areas, there are no sidewalks, bike paths, or designated/constructed shared roadways. We cannot safely walk to school, to church, to stores, or push a baby stroller adjacent to a roadway without safety concerns. Additionally, bicycling and walking require no gasoline, diesel, or alternate fuels. Use of sidewalks and pedestrian paths also promotes a more healthy lifestyle.

**EMC Recommendation:**

The EMC encourages the planning and implementation of pedestrian and bicycle travel within communities. This would include bike paths, shared roadways, and sidewalks. For example, all new commercial projects and multi-family dwellings should be required to provide sidewalks both within and in close proximity to their establishment. Another example is to require new residential developments with a density of one dwelling unit/acre or more be constructed with sidewalks. In planning parking areas, the safety of pedestrians should be the primary consideration. Bike storage apparatus/provisions should be constructed near each building.

**Background:**

Increasingly many county residents are looking for safe means of pedestrian or bike travel in their communities. This includes parents with children in strollers, joggers, walkers, or bicyclists.

Typically the roadways that pass our homes are dangerous for the above activities. The construction of bike paths, shared roadways, and sidewalks, particularly in more densely populated areas, would dramatically improve the safety of non-motor driven travel. Additionally this leads to more economical, less energy dependant, and healthier living. Provisions for such alternate forms of transport should be encouraged in some areas and required in others.

**Phase I  
County Initiatives**

**Environmental Conservation  
Expanded “Bottle Bill”**

**Issue/Item:**

Currently, the nickel deposit on bottles is only applied to carbonated beverage (sodas and beer) containers. Proposals to expand this deposit have been promoted at various times, most recently by Governor David Paterson.

**EMC Recommendation:**

The EMC congratulates the Columbia County Board of Supervisors for passing a resolution (Resolution No. 96-2009) at its March 11, 2009 meeting, urging the New York State Legislature to update New York’s Bottle Bill to include bottled water, iced teas, sports drinks, and other non-carbonated beverages. *(Note: The bottle bill expansion proposal was included in the final budget package which was passed by the State Legislature and signed by the Governor.)*

**Background:**

The Governor’s proposed FY 2009-2010 Executive Budget acknowledges the significant growth in the sales of bottled water, juices and sports drinks, and the associated impact on the state’s waste stream, non-carbonated beverage containers. The Governor recommends that non-carbonated beverage containers be made subject to a nickel deposit by expanding the existing “Bottle Bill” law to include these containers. Unclaimed deposits will be directed to the Environmental Protection Fund (EPF), where they will provide a stable, reliable and environmentally focused revenue stream for the state’s most important environmental programs.

In addition, adoption of this expanded bottle bill would provide a disincentive for people to “throw away” their bottles in the garbage and would likely reduce roadside trash.

**Data:**

Adopting this proposal would allow real estate transfer tax revenues currently deposited into the EPF to be moved back to the General Fund to support statewide activities. Additionally, in light of the state’s daunting fiscal challenges, appropriations for the EPF would be reduced from \$255 million to \$205 million. With these actions, total EPF funding will be 37 percent higher than 2005-06 levels. See Deficit Reduction Plan for further information. *(2009-10 Savings: \$207 million; 2010-11 Savings: \$207 million)*

**Resources:**

Governor Paterson’s Proposed Executive Budget for FY 2009-2010

**Phase I  
County Initiatives**

**Resource, Energy & Cost Saving  
Asphalt**

**Issue/Item:**

Asphalt pavement utilizes a petroleum product to bind the ingredients. Recycling this pavement reduces transportation costs and the amount of ever more costly petroleum additive needed.

**EMC Recommendation:**

The EMC recommends that Columbia County and local municipalities in the County consider using reclaimed asphalt pavement (RAP) as an admixture, when available, in the production of “new” pavement.

**Background:**

The County, Town, and Village highway departments routinely use asphalt paving mixtures to patch, resurface, and or construct road surfaces throughout Columbia County. Additionally this material is widely used for the construction of residential driveways and commercial parking areas. This material is sometimes referred to as asphalt concrete and typically consists of asphalt(a viscous petroleum product), and aggregate(sand and stone). This mixture is heated to produce a plastic flowable product which is conducive to placement

Frequently old roadways and or asphalt paved areas are scoured/milled by grinders or removed in large chunks to prepare surfaces for new pavement. The scoured material is generally referred to as millings and contains both aggregate and asphalt. Both require energy to produce and the asphalt, though old, can behave to act as a binder in the new mix. If the millings are used in the production of "new" paving material it may be called recycled asphalt pavement or RAP.

At present there is only one asphalt pavement plant in Columbia County. To date they are not incorporating or otherwise using RAP in the production of pavement. Local highway departments do utilize RAP for numerous purposes. Other out-of-county pavement plants are anxious to obtain and utilize RAP for paving purposes. Some municipalities within New York require a minimum proportion of RAP in the production of “new” asphalt pavement.

**Data:**

The local production of asphalt paving approximates 100,000 tons. Other out-of-county plants also produce paving materials for use in this county. For reference purposes, one mile of asphalt paving two inches thick and 20-foot wide requires 1,290 tons of material.

**Resources:**

United States Department of Transportation, Federal Highway Administration  
[www.tfhr.gov/hnr20/recycle/waste/rap132.htm](http://www.tfhr.gov/hnr20/recycle/waste/rap132.htm)

## **Phase II (Summer/Fall 2009)**

### **I. Community Initiatives**

1. A system of incentives should be established for modifications of existing structures to make them more energy efficient. County municipalities should seek grants for energy use reduction.
2. Town/Village/City Codes should be judiciously revised, where necessary, to permit and encourage the construction of wind turbines, photo-voltaic arrays, geothermal heat pumps, water turbines, etc.

### **II. Planning and Zoning Leadership**

1. Support public transportation including bus systems, and rail service. Enlarge parking areas for Amtrak/Metro North where necessary.
2. Commercial and residential development should be clustered around existing business centers to discourage the use of the automobile.

### **III. County Initiatives**

1. Conduct a survey of traffic patterns and identify population centers to determine best locations for park-n-ride facilities. County and State should pursue construction.
2. Introduce a County wide plastic/paper bag tax thereby reducing waste stream and use of fossil fuels for production.
3. County should provide home owners with information concerning composting house waste also reducing waste stream. More County sites should accept yard waste (leaves and branches) which in turn is converted to compost.
4. Revise County website to promote, inform public regarding energy conservation strategies.
5. Columbia County should create a template for use by towns, city, school districts, and villages by which /energy audits would be performed. (see number 1 in “Local Government Initiatives”