THE CITY OF NEWARK CONSERVATION ADVISORY COMMISSION
ANNUAL REPORT FOR THE YEAR 2004

Overview

This report summarizes the activities of the City of Newark's Conservation Advisory Commission (CAC) during the 2004 calendar year. Some of these overlap with 2003 activities as described that year's report, and some materials are repeated to provide a "stand-alone" document. The direction of anticipated CAC work in 2005 is also described briefly.

Background

The CAC was created in November, 1977 by Ordinance 77-56,

> "to advise in the development, management, and protection of its natural resources with appropriate consideration of Newark's human and economic resources. The Commission shall concern itself with conservation in its broadest sense and may, among its activities:
> (a) Recommend to City Council a program for ecologically suitable utilization of all wet lands, valley streams, and flood plains and other land areas, the condition and use of which will affect the environmental quality of life in the City of Newark;
> (b) Shall file an annual report;
> (c) Maintain informal liaison with the Planning Commission, the Parks and Recreation Department, the City Manager, and the City Council, and cooperate with other public and private bodies organized for similar purposes:
> (d) In addition to the foregoing, carry out any other duties, tasks, or responsibilities, consistent with the objectives of this Commission assigned to it by resolution of City Council."

Ordinance 77-56 gave examples of programs that may be considered by the Commission, such as street tree replacement; improved recycling; beautification plans for volunteer groups; guidelines for multiple use of open space and public areas; community gardens; energy conservation; and review of Zoning Code amendments to encourage conservation, and also stated that "the above list shall not, however, limit the program which the Commission may undertake or be requested to undertake."

The CAC's year 2004 activities are organized in this report into three groups:
-activities in response to City Council Requests
-activities initiated by the CAC
-activities conducted on a regular basis

CAC Membership

The CAC has 9 members when all positions are filled. Several seats on the Commission had new appointments during 2004 as indicated below. District 5 was vacant for much of the year after the resignation of Bruce Diehl.

Mayor's Appointment:	Steven K. Dentel (Chair)
Mayor's Appointment:	Doug Janiec January - March,

	Steven E. Hastings April-December
Mayor's Appointment:	Katherine Sheedy
District 1	Jane L. Dilley
District 2	Mike Harmer January - March,
	Priscilla Onizuk April-May,
	Christopher N. Bohniski June-December
District 3	Robert B. Bennett (Vice Chair)
District 4	Kurt R. Philipp
District 5	Bruce Diehl January – May,
	Vacant June – December (term expires 3/06)
District 6	Kevin Vonck January - March,
	Jennifer Byrne April – December
Parks Director (ex officio)	Charlie Emerson

2004 Activities in Response to City Council Requests

Municipal Storm Water Utility

This possibility was initially referred to the CAC by Council member David Athey in 2003. Please see the 2003 Annual Report for previous activities in response.

Newark's Storm Water Program Coordinator, Kelly Dinsmore, described for CAC the need, value, and what is involved in establishing a Storm Water Utility. The National Pollutant Discharge Elimination System (NPDES) program will be requiring municipalities' compliance with certain standards for storm water management Failure to comply could incur expensive penalties. To aid in assessing the feasibility of establishing a storm water utility, Rich Lapointe from Public Works presented information on the current storm water management system with estimates on the financial investment needed to establish a utility. He listed various categories of expense for services in storm water management currently, most or all of which would be transferred to the utility were it to be established. He referred to a similar size city, Griffin, Georgia, whose storm water utility fees generated $1.2million a year, all costs being covered by the utility.

Mr. Lapointe reported that in conversations with Frank Piorko of DNREC, Mr. Piorko recommended Newark not undertake this yet since the state is working toward getting a state-wide study for storm water utilities. He predicted mid- to late 2005 for this to move forward at the state level. The University of Delaware works closely with the City on storm water management. Mr. Tom Taylor, Landscape engineer presented visual examples of swales, water basins and dry basins being created to filter pollutants before they run into streams.

Student Representation on the CAC

City Council member Kevin Vonck requested that the CAC consider the inclusion of a representative from the University of Delaware, even if they were ex-officio members and could not vote. He asked members if they supported recommending this change to Council.

Members agreed that anyone, including students, is welcome to attend their meetings and voice their opinions although they are not allowed to vote. Appointing a non-voting student member would not provide an extra benefit in terms of representation. It was noted that students might not be able to attend meetings during the summer months.

The CAC therefore responded to Mr. Vonck that, rather than appointing an ex-officio member, Council should consider appointing a UD student whenever a position is vacant.

Fluoridation of Newark Water

This work was in response to a citizen request referred through City Council to the CAC. The question concerned fluoridation of drinking water, which is practiced by the city's water treatment facility. CAC members were provided with a number of internet references indicating that the use of fluoride is harmful and unethical. Several residents appeared at the meeting and expressed these types of concerns.

Examination of a number of the charges made on the internet sites found them to be unsupported, although the number of these web sites was very high. In some cases the charges were contrary to basic scientific principles. Agencies such as the CDC (U.S. Centers for Disease Control and Prevention) and the ADA (American Dental Association) appear to offer well documented support for fluoridation. The CAC found no clear evidence that fluoridation is a significant concern. It was also recognized that the question of fluoridation relates to public health rather than conservation or the environment, and thus does not fall within the purview of the CAC's charter.

2004 Activities Initiated by the CAC

Green Energy

In early 2003, a CAC initiative led to a City Council decision to purchase a small portion of its electricity as renewable energy. The city followed through on this and purchased 480 MWh of electricity from a hydropower source. The price was significantly lower than had been anticipated, but the amount of electricity purchased was an extremely small percentage of the overall amount (0.11% of 420,000 MWh). The CAC thus made further study of the availability of greater amounts of renewable energy that would be likely in future years.

Appended to this report is the resulting proposal, which was passed by the CAC in December 2004. In January 2005, a letter and draft resolution were also provided, and a modified version of this proposal was passed unanimously by City Council. The major modification was that the directive will be based on dollar amounts of renewable energy to be purchased (as presented in the CAC proposal) rather than on the electrical percentages.

Recycling

A visit to the CAC from the Mayor reaffirmed the value of promoting recycling and the continual need for education. Institution of the Delaware Solid Waste Authority's curbside program and state level discussions seem to have taken action on this issue out of the hands of the CAC or the City of Newark except for the education component. The CAC sees its role to educate and encourage, using whatever forum it can--the main focus of the CAC at Community Day 2004 was participation in curbside recycling, along with other recycling information. According to the Mayor, 675 households are paying for curbside recycling with 1500 being the goal for this voluntary program. The picture would change, of course, if a state mandate is passed.

CAC Activities Conducted on a Regular Basis

Adopt-A-Park/Stream

The CAC conducted a community stewardship program from 1991 to 1993. A similar program was re-initiated in 2001 by the CAC allowing groups or organizations to take care of either City parks or stream sections. This program primarily encourages litter and trash clean-up and, optimistically, serves to discourage further littering to some extent. Street or block areas were dropped from the program in consideration of vehicular traffic volunteer safety. Participants are provided with plastic bags and are expected to clean their areas once a month. For their service, they are recognized in the City Newsletter and in the CAC Annual Report. The CAC favors additional recognition for volunteers in this program.

A description of the program is included in each issue of the City of Newark Newsletter. The program continues to grow with five new participants this year and lots of inquiries.

Current Participants:	
Boy Scout Cub Pack 56	Lumbrook Park
Newark High School	Christina Creek (from Arbour Park to Elkton Road)
Boy Scout Troop 250	Christina Creek (from Barksdale to Church Road)
(New participants in 2004)	
Cavanagh Family	Kells Park
McBride Family	Stafford Park
Bauerschmidt Family	Fairfield Park
Fontenelle Family	Christina Creek (from Elkton Road to Barksdale Road)
Menzer Family	Handloff Park (from Barksdale Road to Elkton Road)
Other Participants during 2004:	
Mt. Aviat Academy	George Reed Park (through October 2004)

Community Cleanup

The CAC participated in Newark's 2004 Community Cleanup held on Saturday, April 24th, from 9:00 am to 11:00 am.

Approximately 200 volunteers participated in the cleanup. The areas that were cleaned included sections of Elkton Road, the Christina Parkway, Route 72, Wyoming Road and several city parks. The event ran smoothly and was very successful. A barbeque welcomed the volunteers as they arrived back after cleaning their assigned areas.

Community Day

The weather was beautiful for Community Day on September 19, 2004. The CAC manned a small booth located ideally next to the Water Resources booth. Green Energy was a popular topic once again this year. The CAC booth offered literature on recycling, composting and the Better Newark Award. Displays included a poster of the Adopt a Park/Stream program and maps citing locations of city parks and recycling igloos. Community Day attendees made good use of the recycling container located at the CAC booth.

It was suggested by CAC members that for next year's booth, the CAC focus on one eye catching issue and display a prominent poll board.

Promoting Improvement through the Better Newark Award

Since 1986, the "Better Newark Award" has been awarded quarterly for environmental improvements as well as noteworthy aesthetic improvements. The award includes a proclamation signed by the Mayor, a photo is publicized in the Newark Post and a photo is presented to the property owner. Nominations are reviewed periodically by the CAC, and the winning properties are voted on.

The winning properties from April 2004 to December 2004 were:

725 Bent Lane	Homeowners: David and Donna Vickers
274 Beverly Road	Homeowners: Roland and Regina Roth
9 Plymouth Drive	Homeowners: Roy Himmelstein

The CAC is currently assessing the language of the award brochure so as to better define how aesthetic and environmental considerations figure into meriting the award.

Review of Planning Department Administrative Reports

The CAC regularly reviews these administrative reports for potential situations involving environmental effects of development within city limits. During 2004, the CAC was concerned primarily with developments pertaining to the Newark Country Club and the Wilson Property.

Intended CAC Initiatives for 2005

- Solar energy: means of encouraging its growth in Newark
- LEED program and energy rebate program as ways of encouraging conservation-based buildings
- Curbside recycling and its possible incorporation into automated solid waste pickup
- Addition of hybrid vehicles to the city fleet as replacements are needed

Appendix: Green Power Option - Proposal for City of Newark

Presented to City Council

Overview

This proposal is to revise Newark's electrical power purchases to phase in a greater amount of Renewable Energy, as defined by the State Energy Office. It is a follow-up to the CAC's previous recommendations on ways of increasing renewable energy in Newark. It was prepared by the CAC Chair, Dr. Steven Dentel, and approved by the CAC on December 14, 2004, for submission to the Mayor and City Council.

In 2004, Newark purchased **$2,040** of renewable energy out of **$23 million** total purchases, or 0.009%. In terms of electricity, this translated into 0.1% of its electricity coming from non-fossil fuel sources. The CAC proposes that the city purchase 0.5% of its power as renewable energy in 2005, and 2% in 2006, which will represent a very modest increase in utility bills for Newark's customers. The proposal is in response to a city survey supporting up to a 4% purchase of renewable energy.

Introduction

Newark supplies electrical power to almost 11,000 residential, commercial, and industrial customers. All of this power is generated by the combustion of fossil fuels, resulting in both air pollution (sulfur dioxide, nitrogen oxides, carbon dioxide, and particulates) and terrestrial pollution (e.g. strip mining and fly ash generation). Table 1 presents comparisons that demonstrate the surprising effect on environmental quality when a city the size of Newark obtains all of its electricity from fossil fuel.

Cleaner forms of energy are available. The most significant is **wind power**, generated by wind turbines, which have become highly efficient. The most productive of these are located where they can tap the winds of Appalachian mountain ridges, but they could be located off of the windy shores of Delaware as well.

Other renewable energy sources are less feasible at present. Passive solar power, from photovoltaic (solar) cells, is considerably more expensive than wind power, although it is very desirable in the longer term. Energy from the

motion of ocean waves, and geothermal energy, are not currently feasible in this area. The power produced by the combustion of landfill gas may be considered as an alternative to fossil fuels in some respects, but it is not defined as a "renewable" energy technology by the Office of Energy.

Because all of the above are still more expensive than energy from fossil fuels, it is not economically or politically feasible to shift immediately to these alternative sources. However, it is desirable to encourage the generation of electricity from solar and wind sources, to decrease pollution levels and foster the growth of these technologies.

Table 1. Facts about Newark's' fossil fuel energy consumption

Number of electrical customers	**9500 Residential 1250 Commercial 50 Industrial**
Annual electrical production and consumption (Megawatt-hours, 2001)	**88,500 Residential 65,500 Commercial 219,100 Industrial (126,100 UD) 373,100 Total**
Sulfur dioxide[1] emitted to atmosphere in generating this amount of energy	**5,243,000 lb (2,620 tons)**
Nitrogen oxides[2] emitted to atmosphere in generating this energy	**1,650,000 lb (830 tons)**
CO_2[3] emitted to atmosphere in generating this energy	**840,000,000 lb (420,000 tons)**
Fly ash produced in generating this energy	**22,700,000 lb (11,300 tons)**
Particulates emitted to atmosphere for this energy	**288,000 lb (144 tons)**
Pounds of coal mined to generate this power	**124,488,546 lb (62,000 tons)**
Environmental equivalent	**390,000,000 car miles driven, or 30,400,000 trees planted**

[1] Sulfur dioxide is a pungent, poisonous gas that can interfere with normal breathing functions even at low levels and aggravate respiratory diseases.

[2] Nitrogen oxides (NO_x) contribute to ground-level ozone pollution and also cause damage to lung tissue, aggravate asthma, and lower the body's resistance to infection.

[3] CO_2 is not toxic but its generation contributes to global warming and the vast problems that will result.

Pollutant quantities calculated according to Rubin (2001). Environmental equivalents from New Wind Energy (2001).

Of course, even though the purchase of renewable energy is the "right" thing to do environmentally, it means extra cost for the residents of the city. Thus Newark was extremely conservative in arranging for its first year of renewable energy. Only $2,040 was spent in 2004 for this purpose, which led to an average rate increase of 0.01% - approximately **1¢ per month** for the average residential consumer.

Most Newark residents be willing to increase their purchase of renewable energy to significantly higher levels than this. Newark's 2004 resident survey obtained the following results:

Table 2. 2004 Residential Survey Result

Would you be willing to pay more for green energy?	
1. No	40.0%
2. Yes, up to a 5% premium	33.8%
3. Yes, up to a 10% premium	16.5%
4. Yes, more than 10%	7.2%

Overall, 60% of the respondents would be willing to pay more for green or renewable energy. Assuming that "more than 10%" might be approximated by 15%, the average premium residents would be willing to pay is 4.53%. Based on an average residential electrical bill of $75, **the average green energy purchase preferred by Newark residents is $3.40 per month per household.**

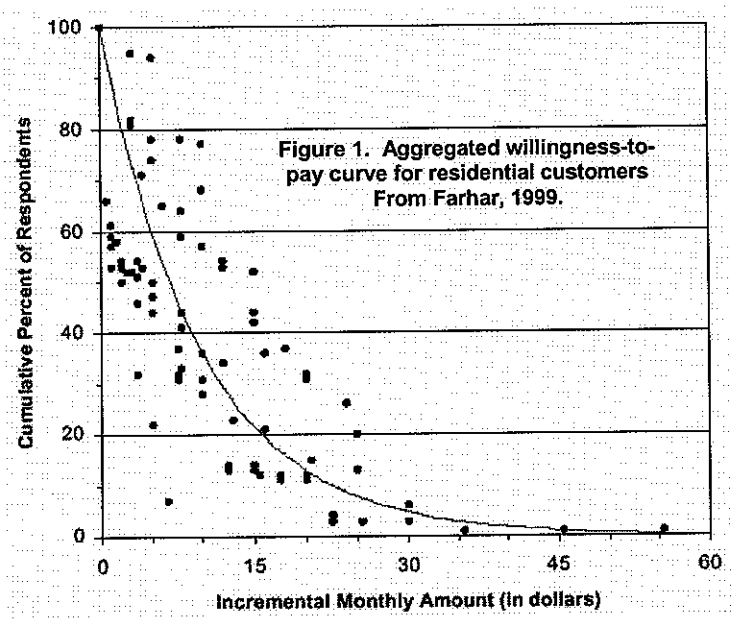


Figure 1. Aggregated willingness-to-pay curve for residential customers From Farhar, 1999.

This is consistent with surveys of consumers in many cities nationwide. Figure 1 shows results collected from numerous surveys indicating that an average majority of 70% are willing to pay at least $5 per month more for electricity from renewable sources, 38% are willing to pay at least $10 per month more, and 21% are willing to pay at least $15 per month more.

The CAC Proposal

The CAC therefore proposes that City Council respond to the resident survey by phasing in a meaningful increase in renewable energy purchases, which will decrease the amount of fossil fuel purchases. Our proposed phase-in is shown in Table 3 below. The result, by 2006, would be a 2% purchase of renewable energy by the city.

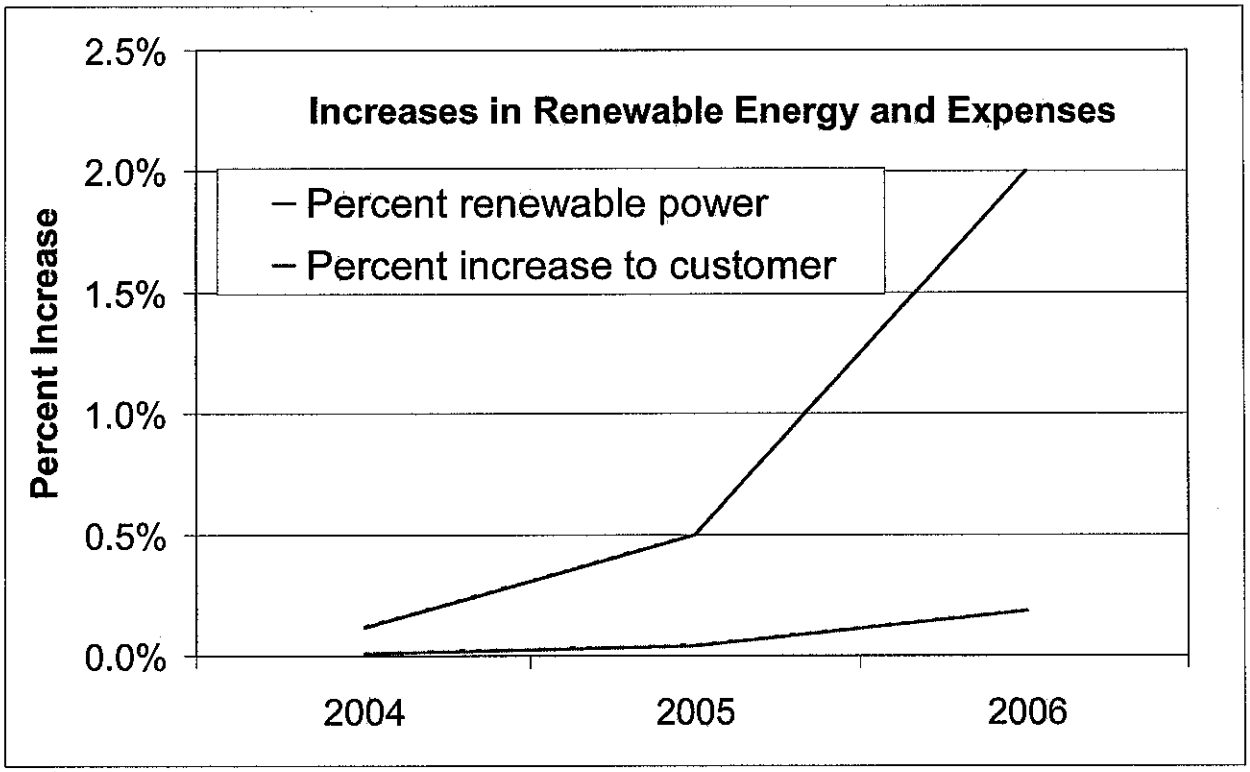
Even the 2% amount is very modest by many standards. For example, last year's S.B. 161 in Delaware's 142nd General Assembly proposed that renewable electrical power should be "on and after July 1, 2005, not less than 6% of its total output." This bill proposed a phase-in up to 10% by the year 2014. The Delaware Municipal Electric Corporation (DEMEC) has recently stated that it intends to obtain "up to 10 percent" of its capacity from renewable resources by 2015. Thus the Newark action is in concert with other activities being contemplated in the State, and—just as its earlier symbolic purchase of renewable energy—provide encouragement for these other initiatives.

Table 3. Proposal to Increase Newark's Renewable Energy Purchases

Yearly basis	2004	2005	2006
Total electrical purchases, $	$22,700,000	$22,700,000	$22,700,000
Total electrical sales, $	$31,200,000	$31,200,000	$31,200,000
Total electrical power, MWH	420,000	420,000	420,000
Renewable electrical power purchased (MWH)	480	2,100	8,400
Green percent of electrical power (MWH/WMH)	**0.11%**	**0.50%**	**2.00%**
Cost increment for green power ($/MWH)	$4.25	$4.25	$5.00
Additional cost to city	$2,040	$8,925	$42,000
Increase in electrical expenses (%)	0.009%	0.039%	0.185%
Increase in avg. residential electrical billing/yr	$0.081	$0.354	$1.665
Increase in avg. residential electrical billing/month	**$0.01**	**$0.03**	**$0.14**

Our proposal is intended to be compatible with other, more widespread programs for renewable energy, when and if they are implemented. If, for example, DEMEC's energy portfolio provides renewable sources as a percentage of Newark's supply, then the percentage amount recommended in Table 3 above should include this amount. If DEMEC provides renewable electricity as a greater percentage than required by the Newark phase-in, then Newark's separate program would no longer be needed. However, **we also propose that Newark's CAC and the Finance Department both evaluate the renewable energy purchase amount annually, and issue recommendations to City Council to provide for ongoing renewable energy purchases, preferably on a gradually increasing basis.**

As a leader in Delaware on environmental and conservation issues, Newark has an important role to play in setting this type of precedent. The CAC thus asks City Council to approve this proposal, and direct that it be implemented by the City Finance Department.



Addendum: Responses to Potential Concerns with the CAC Proposal

1. Why is the proposal for a uniform increase rather than allowing purchasers to choose the amount of renewable energy to purchase?

The CAC proposed such a "choice" program for green energy in 2002. After considering this proposal, the city management suggested the current program for uniform purchase and rate determination. The current proposal is to continue this program since it has already been instituted, and changing the amount of renewable energy involved will be straightforward.

In general, the uniform purchase and billing has the following advantages:

- This is a far simpler option in terms of billing. Allowing purchasers to periodically change the amount of renewable energy desired is likely to be a complex process. The city anticipated increased clerical work by city employees, with a potentially significant cost impact.
- Planning by the city for future purchases of renewable energy will be facilitated if the amounts are known well in advance.
- If DEMEC or the Delaware Energy Office mandate renewable energy purchases, these are likely to be as fixed percentages. If Newark also works on this basis, it will simplify future interactions.
- The environmental benefits from use of renewable energy will be enjoyed by all Newark residents, so the costs should be accordingly distributed. In a sense, those who would choose not to participate in an optional program would be causing greater pollution than others, and being rewarded economically.

2. Should commercial customers or the University be exempted?

For the same reasons presented above, all customers should be treated equally. This facilitates future planning of renewable energy purchases and apportions costs commensurate with the accorded benefits. The University purchases almost a third of the city electrical power and would face a particularly large increase in its bill, but as a percentage, it would be no different than that of other consumers. Currently, UD does not participate in any renewable energy purchase or credit program; many comparable institutions in this region do, and at levels of 5% or higher. It is likely that UD's students would support the purchase of 2% renewable energy, consistent with general surveys such as in Figure 1. Both UD and commercial participants will be able to tout their use of Green Energy in customer relations.

3. Should Newark wait for DEMEC or the State Energy Office to initiate a broader program?

Both of the broader initiatives are tentative at this time. Given that Newark residents clearly favor a green energy program, it thus seems appropriate to institute a reasonably simple one at the city level. This may also indicate to the larger agencies that renewable energy programs are feasible throughout the State.

Should DEMEC or Delaware establish renewable energy purchasing programs, Newark's program should be fully compatible. The CAC proposal anticipates this in three respects:

- Newark renewable energy will continue to be purchased on a percentage basis, to be consistent with likely arrangements through DEMEC or Delaware.
- Newark will re-evaluate its percentage renewable energy to be purchased on an annual basis. This will allow compatibility with DEMEC or other regulatory requirements.
- Should renewable energy purchases be available with, or included in, DEMEC electrical supplies, the CAC proposal is to include this amount in Newark's mandated percentage. For example, if DEMEC decides to purchase 1% renewable energy, and automatically include this in all supplied amounts, Newark would include this in their total, so the city would only request an additional 1% if our overall target is to be 2%.

Thus, the Newark program is intended to be compatible with, and encourage, larger initiatives which may emerge. However, the proposal will insure that our residents do not have to wait for tentative programs when Newark has already shown it can make these purchases itself.