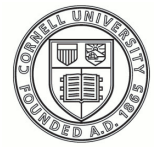

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Home Energy Conservation: Affordable Housing and the Environment

Katie Woodruff

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Abstract

For low-income homeowners and renters, paying the utility bills every month can become a struggle. Even with assistance from programs such as Erie County Social Services HEAP program, many find paying those bills takes up a large portion of one's income, decreasing funds available for other necessities. Finding inexpensive ways to decrease utility bills can save money that could be better used elsewhere. One way to reduce utility bills is to conserve energy. Not only does conserving energy lower the costs of utility bills, but it is also beneficial for the environment. This paper will discuss the need for home energy conservation within the City of Buffalo and how a home energy conservation program can be implemented. Specifically, the following topics will be covered: the plight of low-income citizens in Buffalo, an introduction to energy conservation, numerous methods of home energy conservation, and a suggested home energy conservation program that the City should adopt.

Keywords

Buffalo, Housing/Neighborhoods, Green Housing, Environment, Buildings and Housing, Report, Other, PDF

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Katie Woodruff

University at Buffalo Law School

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Introduction

For low-income homeowners and renters, paying the utility bills every month can become a struggle. Even with assistance from programs such as Erie County Social Services HEAP program, many find paying those bills takes up a large portion of one's income, decreasing funds available for other necessities. Finding inexpensive ways to decrease utility bills can save money that could be better used elsewhere. One way to reduce utility bills is to conserve energy. Not only does conserving energy lower the costs of utility bills, but it is also beneficial for the environment.

This paper will discuss the need for home energy conservation within the City of Buffalo and how a home energy conservation program can be implemented. Specifically, the following topics will be covered: the plight of low-income citizens in Buffalo, an introduction to energy conservation, numerous methods of home energy conservation, and a suggested home energy conservation program that the City should adopt.

Need for Home Energy Conservation in Buffalo

According to the 2005 census, there were approximately 256,492 people living in Buffalo. U.S. Census Bureau, "Fact Sheet: Buffalo, New York." 2005 American Community Survey. There were an estimated 140,701 housing units, with a homeownership rate of 41.8 percent. *Id*. The vacancy rate for Buffalo was 16.8 percent. *Id*. Of homeowners, 50.9 percent were white and 36.1 percent were African American. DataPlace by Knowledgeplex, "Buffalo, NY." The percent of the population living below poverty was 26.9 percent, almost double the rate for all of New York State (14.6 percent). U.S. Census Bureau. The median household income in 2005 was $27,311. *Id*. The unemployment rate was recorded at 15.4 percent. *Id*.

Considering these statistics, some of the problems that face Buffalo become apparent. In 2000, the national rental vacancy rate was 7.975 percent and the homeowner vacancy rate was 1.575 percent. U.S. Department of Commerce News, "Census Bureau Reports on Residential Vacancies and Homeownership." October 27, 2006. With a vacancy rate twice that of the national rental vacancy rate and over ten times that of the national homeowner vacancy rate, Buffalo has a serious problem. Looking at poverty and unemployment rates, it seems that one answer may be that Buffalo residents cannot afford housing, leading to increased vacancies in properties. The second statistic that stands out is Buffalo's poverty rate of 26.9%. Needless to say, having nearly one-third of residents living in poverty is a staggering problem. Lowering the cost of living may enable more residents to afford housing in the City, and afford a living in general.

The current situation for Buffalo's residents makes it a prime place for implementing a home energy conservation program. Teaching renters and homeowners how to conserve energy and consequently lower utility bills can help relieve poverty and preserve housing. Conserving energy is a surprisingly easy and cheap process that can be done by the individual without any other assistance from governmental agencies other than informing residents of the necessary steps.

Introduction to Home Energy Conservation

Energy efficiency requires a greater investment in new technologies, such as EnergyStar appliances, that use energy more efficiently. Alliance to Save Energy, "Power Smart" booklet. Energy efficiency focuses on getting more productivity from each unit of energy, using energy wisely, and cutting out energy waste. Alliance to Save Energy, "Energy Conservation vs.

Energy Efficiency: What's the Difference?" Energy conservation, on the other hand, involves behavioral changes and other low-cost and no-cost changes. Alliance to Save Energy, "Power Smart" booklet. If one can afford to invest in energy-efficient technology, it's a wonderful way to save energy. However, for lower income individuals, energy conservation is the best option.

In order to achieve the maximum benefit from energy conservation efforts, the amount of energy used in various areas must be assessed. The average household uses the greatest amount of energy for heating, 38 percent. L. Walker, "Energy Conservation in the Home." Colorado State University Cooperative Extension, June 22, 2006. Major appliances comprise 21 percent of energy use, followed by hot water at 19 percent, other appliances at 15 percent, and lighting at 7 percent. *Id*. Accordingly, changing energy usage in heating and major appliances will reap the greatest rewards.

To break it down into dollars, the average home spends around $1,500 a year on energy bills according to the U.S. Department of Energy. Alliance to Save Energy, "Power Smart" booklet. Due to volatile energy prices in 2005, that figure rose to around $1,900. *Id*. However, in Buffalo, the average home spends $2,267 a year on energy. Cornel University ILR School, "Easy Ways to Lower Your Utility Bills." January 2, 2007. This large difference can most likely be attributed to Buffalo's extreme seasons, with frigidly cold winters and humid summers. Regardless, if energy conservation efforts are made, as much as $816 could be saved on a yearly basis. *Id*. $816 is a considerable amount of money that can be saved by implementing low-cost or no-cost changes in one's household.

Some of the no-cost changes that can be implemented to conserve energy include: turning down the water heater thermostats to 120°F; turning lights off when leaving the room; setting thermostats to 68°F in the winter; using energy-saving settings on appliances; and, air-drying

laundry. Rocky Mountain Institute, "Energy Efficiency: First Things First." Some of the inexpensive things that can be done are: installing a water-saving showerhead; installing water-efficient faucet heads; installing a programmable thermostat; cleaning or changing air filters; and, using compact fluorescent light bulbs. *Id*. This list is neither inclusive nor exhaustive, but provides examples to illustrate the kind of simple changes that can be implemented for successful home energy conservation.

Implementing these changes has an equally important impact on the environment. Annually, the average American emits 43,000 pounds of carbon dioxide, and operating the average home emits 22,000 pounds. Alliance to Save Energy, "Power Smart" booklet. The 22,000 pounds of carbon dioxide emitted per household is almost twice as much as the average car's emission of 11,500 pounds. *Id*. The production and use of energy causes almost 80 percent of air pollution, in excess of 83 percent of greenhouse gas emissions, and more environmental damage than any other human activity. *Id*. It is now commonly accepted that carbon dioxide emissions are contributing to global climate change, commonly referred to as "global warming." *Id*. Although the above-mentioned changes may seem too small to make an impact on such a massive problem, it is the little things that can add up to great things. If every home in the country replaced four incandescent light bulbs with four fluorescent bulbs, the energy saved would equal the amount used by 38 million cars in one year. *Id*.

Implementation of a Home Energy Conservation Program in Buffalo

The combined financial and environmental benefits of energy conservation make implementing a home energy conservation program in Buffalo perfect sense. The question then becomes the best way to do so. This initiative needs to be government-led for two reasons. First, local government is best suited to address the needs of its citizens. Local government

officials know the needs of residents, as well as the social and economic situation of the region. As such, it is the local government that will be able to best create a plan to fit the needs of Buffalo's residents.

Second, the citizens can access the aid they need to conserve home energy more easily from their local government. A city-run program will enable citizens to access information close to their home, whether by pamphlets or signs in local offices, mailings, or workshops at their community centers. The initiative should be led by the Mayor, as he is highly visible to the residents of Buffalo. Furthermore, the Mayor is in a position of authority that can command respect, increasing the likelihood that residents will heed his advice. As an elected official, the Mayor will have greater success in obtaining the funds necessary to run the program.

According to Buffalo's Comprehensive Plan, one of the City's goals is to "protect and improve air quality." The Plan also calls for using green building techniques and codes. Finally, the Comprehensive Plan states that the City is "required to continue the provision of affordable housing." Based on these statements, implementing a home energy conservation plan would be an excellent way to provide a more affordable living and lessen residents' environmental impact. The implementation of the program would provide residents with the necessary information to lower their utility bills and become more environmentally friendly.

Campaign

The program should begin with a press release announcing the commencement of the program, so that residents will be aware of what to expect. The City should update its website to include a link that will contain all of the information that will be disseminated through other channels, such as an online version of the tip sheet and a calendar of events. Next, the City

should include a "Home Energy Conservation Tip Sheet" in mailings to provide residents with easy-to-follow and low-cost methods of conserving energy. A simplified version of the tip sheet should be created into a poster that can be hung in various governmental offices, community centers, Metro and bus stations, and non-profit agencies.

The City should also look into purchasing a few billboards throughout the city to inform the public of small, inexpensive changes they can make to lower their energy costs. The Mayor should record a public service announcement that informs residents of a few simple changes they can make to lower their energy consumption. Either the Mayor or someone else from his office should participate in a cable access television program that provides residents with detailed information on what they can do to lower their utility bills, how to implement the recommended changes, and where they can find any suggested items. The City should create inserts for residents' water bills that teach ways of conserving water and lowering their bills. All of this information should be translated into Spanish so that the information is accessible to Buffalo's Spanish speaking population.

Finally, the City should hold an "Energy Conservation Day." The day would begin with the Mayor implementing the recommendations in his own home and perhaps assisting a low-income resident with making changes in his or her own home. A workshop should be held that would use the tips that have been given and show residents how to use them. For instance, diagrams could be used to show residents how to install water heater blankets or how to adjust their water heater thermostat. The workshop could also provide contact information on where various products can be purchased. Perhaps the City could partner with local businesses to offer on-site products at a discounted price.

Conclusion

The implementation of a home energy conservation program by the City of Buffalo would provide residents with the information necessary to lower their utility bills and help protect their environment. City officials, the Mayor in particular, are in positions that could make this program a huge success. The City can execute this program with relative ease and affordability. Any minor burdens that might be experienced are outweighed by the beneficial results of this proposed program.

Sample Press Release

FOR IMMEDIATE RELEASE

Contact:
Name
Title
Address
Phone Number
Email Address

City of Buffalo Implements a Home Energy Conservation Campaign

Buffalo, NY – date – Mayor Byron Brown's office has announced that the City plans on implementing a home energy conservation campaign within the next month. The campaign will begin with including a "Home Energy Conservation Tip Sheet" in mailings to Buffalo residents. Additional tip sheets will be posted in various governmental buildings, such as the Department of Motor Vehicles and Department of Social Services, as well as community centers enabling additional access for residents.

The Mayor has also recorded a Public Service Announcement that will be playing on local radio stations mentioning a few of the suggested tips and encouraging residents to use them. A link on the City's website will allow residents to obtain the information online. Additionally, the City has purchased several billboards to run advertisements on and personnel from the Mayor's office will be participating in a cable access television program about home energy conservation in the coming months.

The administration is also planning on holding an "Energy Conservation Day." This day will begin with the Mayor helping Buffalo resident (name) implement the tips given on the tip sheet in her/his own home. The day will also bring a "Home Energy Conservation Workshop" where residents can learn additional details about money-saving methods and learn where they can purchase products such as water heater blankets.

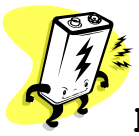
This initiative is important for the City of Buffalo as it will allow home-owners and renters alike to save money on their utility bills while encouraging citizens to live greener. Although the campaign does focus on the financial aspects, the environmental impact is equally important. Lowering energy use can reduce carbon dioxide emissions, a greenhouse gas that is contributing to global warming.

Sample Public Service Announcement

Mayor Byron Brown: Hi, this is your Mayor, Byron Brown. I would like to tell you about some of the ways you can lower your utility bills and save money. There are a lot of simple things you can do in your home that won't cost you a cent.

- Turn down water heater thermostat to 120°F.
- Turn off lights when leaving the room.
- Set thermostats to 68°F in the winter when you are home, and lower to 55°F when you are gone.
- Move any obstructing furniture and draperies away from radiators, baseboard units, and air registers.
- Keep lids on pots when you cook.
- Do not pre-heat your oven.
- Use energy-saving settings on appliances.
- Maintain refrigerator at 40°F and freezer section at 0°F.
- Clean your dryer's lint trap after every use.
- Wash clothes in cold water – there is detergent for cold water washing that gets clothes just as clean.

Make a few of these changes and you will see the difference in your utility bills. Remember Buffalo, conserve energy and save money. Thanks for listening.



Home Energy Conservation Tip Sheet

- Call for Help
  - Many electric utility companies offer free or discounted water heater blankets, new showerheads, or compact fluorescent lamps.
  - Some electric utility companies offer financial incentives for the purchase of more efficient appliances or heat pumps.
  - For help paying your utility bills, call Erie County Social Services HEAP program at 858 – 8000, press 7. HEAP may also pay for furnace repairs or replacement where needed.
  - You may qualify for free weatherization assistance, which can include adding insulation, testing and repairing heating systems, minor home repairs, etc. Call Neighborhood Housing Services of South Buffalo at 837-0071 for more information.
  - You may also qualify for EmPower New York, a free program that includes free compact fluorescent light bulbs, and, in some cases, free refrigerator replacement. For more information, call Honeywell DMC at (800) 263-0960.
  - If your income is not low enough to qualify for free weatherization service, you may still qualify for help with up to 50% of your project's cost, up to a total of $5,000 in assistance, through the Assisted Home Performance program. For more information, call 842-1522.
- Little Changes that Save Money
  - Turn down water heater thermostat to 120°F.
  - Turn off lights when leaving the room.
  - During hot months, keep window coverings closed on the south, east, and west windows. In winter, let the sun in.
  - Set thermostats to 68°F in the winter when you are home, and lower to 55°F when you are gone.
  - Move any furniture and draperies away from radiators, baseboard units, and air registers.

    - Check furnace or air conditioner filters each month, and clean or replace it as needed.
    - Wrap pre-cut insulation around the exposed pipes leading to your hot water heater.
    - Keep lids on pots when you cook.
    - Do not pre-heat your oven.
    - Use energy-saving settings on appliances.
    - Maintain refrigerator at 40°F and freezer section at 0°F.
    - Use "sleep" settings on computers and other appliances when not using them for a while.
    - Repair leaky faucets and toilets.
    - Vacuum your refrigerator's condenser coils annually and defrost the freezer whenever ice is more than ¼ inch thick.
    - Air-dry your laundry and dishes.
    - If using the dryer for laundry, clean the lint trap after every use.
    - Wash clothes in cold water – there is detergent for cold water washing that gets clothes just as clean.
- Affordable Changes that Pay for Themselves
    - Put weather-stripping around your windows and doors.
    - Use caulk and spray-in foam to seal cracks and leaks around your windows, doors, and baseboards. Check for gaps around chimneys and where pipes enter your home. Pay special attention to your attic and basement.
    - Install a water-saving showerhead ($15).
    - Install water-efficient faucet heads for your sinks ($2 each).
    - Install a compact fluorescent light bulb in the fixture you use the most ($12).
    - Install an R-7 or R-11 water heater wrap ($12).
- Greater Investment – Greater Savings
    - If buying new appliances, look for those with the Energy Star label, and cut utility bills up to 30%.
    - Seal and insulate heating and cooling ducts.
    - Seal and weather-strip your windows and doors.

Work Shop Curriculum

1. Tips on obtaining the appropriate audience
    a. Post signs for the workshop at local governmental agencies and community centers.
    b. Ask local churches to post notices or place inserts in their bulletins.
    c. Ask local businesses to post fliers in their stores/restaurants.
    d. Place advertisements in *The Buffalo News* and community papers.
    e. Chose a location that is easily accessible to a majority of city residents. Pick a location that has a Metro stop nearby.
    f. Make sure that the location is comfortable and inviting.
    g. Chose a convenient date and time, perhaps weekends and later in the day.
    h. If possible, provide childcare onsite.
2. Tips on addressing your audience
    a. Maintain a friendly and open atmosphere where people feel comfortable asking questions.
    b. Keep language short and simple to insure that the greatest number of people will understand what you are saying.
    c. Provide breaks and perhaps refreshments to maintain the audience's ability to focus.
3. Introduction
    a. Cost of energy bills in Buffalo
        i. Average home - $2,267 a year
    b. Savings of implementing energy saving tips
        i. Approximately $816 a year
4. Make some calls
    a. Call your electric utility company and see if they offer free or discounted water heater blankets, new showerheads, or compact fluorescent lamps.
        i. While on the phone with them, ask if they offer financial incentives for the purchase of more efficient appliances or heat pumps.

b. If you have not done so already, contact Erie County Social Services HEAP program at 850-7870.
    i. HEAP can also assist with furnace repairs or replacement.
c. Call Neighborhood Housing Services of South Buffalo at 837-0071 to see if you qualify for free weatherization assistance, which can include adding insulation, testing and repairing heating systems, minor home repairs, and more.
d. If you do not qualify for the free weatherization assistance, check to see if you qualify for Assisted Home Performance, 842-1522, which offers help with up to 50% of your project's cost, up to a total of $5,000 in assistance.
e. Call Honeywell DMC at (800) 263-0960 to see if you qualify for EmPower New York, a program that includes free compact fluorescent light bulbs, and, in some cases, free refrigerator replacement.

5. Reap rewards from changes that are free or low-cost
    a. Turn down water heater thermostat to 120°F.
        i. Discuss where their water heater may be located and how the thermostat can be adjusted.
        ii. A diagram of a water heater would be useful.
    b. Turn off lights when leaving the room.
    c. During hot months, keep window coverings closed on the south, east, and west windows. In winter, let the sun in.
        i. Discuss inexpensive window covering options – curtains, blinds.
        ii. Instructions on how to determine which windows are facing which direction without the use of a compass.
    d. Set thermostats to 68°F in the winter when you are home, and lower to 55°F when you are gone.
    e. Move any obstructing furniture and draperies away from radiators, baseboard units, and air registers.
    f. Check furnace or air conditioner filters each month, and clean or replace it as needed.

i. Discuss where they can find their furnace or air conditioning unit, where the filters would be located, how to replace filters, and how to best clean filters.
ii. Diagrams of a furnace and air conditioning unit would be useful.
iii. Give options on where new filters can be purchased.

g. Wrap pre-cut insulation around the exposed pipes leading to your hot water heater.
    i. Discuss how hot water heater pipes can be located.
    ii. Discuss what type of insulation should be used and where it can be purchased.
    iii. Instruct on the best way to wrap the insulation around the pipes.
h. Keep lids on pots when you cook.
i. Do not pre-heat your oven.
j. Use energy-saving settings on appliances.
    i. Discuss which appliances might have these settings and where the settings would be located.
k. Maintain refrigerator at 37°F to 40°F and freezer section at 5°F.
    i. Discuss where the temperature regulation for the refrigerator and freezer would be located and how to adjust them.
    ii. A diagram may be useful.
l. Use “sleep” settings on computers and other appliances when not using them for a while.
    i. Discuss which appliances would have this setting and how to put them in “sleep” mode.
m. Repair leaky faucets and toilets.
    i. Discuss how some leaks can be fixed without the assistance of a plumber.
    ii. Using diagrams, show how one can easily tighten fixtures with the use of simple tools.
    iii. For leaks that may require assistance, provide contact information for reliable and affordable plumbers.

n. Vacuum your refrigerator's condenser coils annually and defrost the freezer whenever ice is more than ¼ inch thick.
    i. Discuss where the condenser coils are located and how to vacuum them.
    ii. Instruct on the best way to defrost a freezer.
    iii. Diagrams may be useful.
o. Air-dry your laundry and dishes.
p. If using the dryer for laundry, clean the lint trap after every use.
    i. Discuss where the lint trap is located and how easy it is to clean.
q. Wash clothes in cold water – there is detergent for cold water washing that gets clothes just as clean.
    i. Advise on where cold water washing detergent can be found.

6. Low-cost changes
    a. Put weather-stripping around your windows and doors.
        i. Discuss where weather-stripping can be purchased.
        ii. Using diagrams or a demonstration, show how windows and doors can be weather-stripped.
    b. Use caulk and spray-in foam to seal cracks and leaks around your windows, doors, and baseboards. Check for gaps around chimneys and where pipes enter your home. Pay special attention to your attic and basement.
        i. Give tips on how to find cracks and leaks.
        ii. Tell them where caulk and spray-in foam can be purchased.
        iii. Using diagrams or a demonstration to illustrate how to seal cracks and leaks.
        iv. Advise on the safe use of the caulk and spray-in foam.
    c. Install a water-saving showerhead ($15).
        i. Discuss where showerheads can be purchased.
        ii. Using diagrams or a demonstration, illustrate how the showerhead can be installed.
    d. Install water-efficient faucet heads for your sinks ($2 each).
        i. Discuss where faucet heads can be purchased.

ii. Using diagrams or a demonstration, illustrate how the faucet head can be installed.

e. Install a compact fluorescent light bulb in the fixture you use the most ($15).
    i. Discuss where compact fluorescent light bulbs can be purchased.

f. Install an R-7 or R-11 water heater wrap ($12).
    i. Discuss where water heater wraps can be purchased and the options for potentially obtaining a free one.
    ii. Using a diagram, demonstrate how to best insulate the water heater.

7. Costlier options
    a. If buying new appliances, look for those with the Energy Star label, and cut utility bills up to 30%.
        i. Discuss which appliances are made with the Energy Star label and give options on where they can be purchased.
    b. Seal and insulate heating and cooling ducts.
        i. Discuss where sealant and insulation can be purchased.
        ii. Demonstrate how sealant and insulation can safely be used on heating and cooling ducts.
        iii. Give contact information for companies that are reliable and affordable that could assist if needed.
    c. Seal and weather-strip your windows and doors.
        i. Discuss where sealant and weather-stripping can be purchased.
        ii. Demonstrate how to safely use sealant and weather-stripping.
        iii. Give contact information for companies that are reliable and affordable that could assist if needed.