



City of New Albany, IN

Energy Efficiency and Conservation Block Grant (EECBG)

Energy Conservation Opportunities (ECO) Research and Evaluation Report



June 14, 2010

Submitted to:

New Albany Redevelopment Commission

311 Hauss Square, Room 325

New Albany, Indiana 47150-3586



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Introduction

The City of New Albany, Indiana was awarded Energy Efficiency and Conservation Block Grant (EECBG) funding from the United States Department of Energy (US DOE) on December 9, 2009. Under this grant, KERAMIDA Inc. assisted the City of New Albany to identify and prioritize its energy conservation opportunities (ECOs) during two working sessions conducted in March and April 2010 of its proprietary Energy FastTrack© program. Energy FastTrack© is a structured and programmatic approach to assist municipalities with the strategic information gathering, ranking and selection of energy efficiency and conservation initiatives.

The facilitated sessions served to strategically gather information from City staff, and resulted in the ranking and selection of four priority energy efficiency and conservation initiatives (ECOs) by the City's EECBG team. The four selected ECOs are:

1. City Owned Structure Lighting Retrofit
2. City-Wide Energy Conservation
3. Softball Field Lighting Retrofit
4. Energy Auditing Program

KERAMIDA worked with the City's EECBG team to develop an action plan for three of the four ECOs. Each action plan contained a task-by task implementation timetable, identification of responsible parties, defined metrics to determine progress, and a description of resources needed to complete each task. The City EECBG Team decided to postpone the completion of the fourth ECO action plan until after the City's Energy Auditing Program is developed.

The purpose of this report is to provide the research and evaluation identified by the City's EECBG team as necessary to support the successful implementation of each ECO. Research and evaluation provided to the City of New Albany in this report includes the following:

- **Potential funding mechanisms**
For the City Owned Structure Lighting Retrofit (ECO #1) action plan, the City's EECBG team identified the need to research the various funding mechanisms available to municipal entities to support the project such as grants, revolving loans, and performance contracting. A thorough review of potential funding mechanisms to support the City Owned Structure Lighting Retrofit project is provided.
- **Sample green purchasing policies**
For the City Owned Structure Lighting Retrofit (ECO #1) action plan, the City's EECBG team identified the need to research the "green" purchasing policies of other similarly sized municipalities in the Midwest and identify the *best-in-class* after which to model their own green purchasing policy. Examples of three green purchasing policies from similarly sized municipalities are provided.
- **Sample energy efficiency and conservation policies**
For the City-Wide Energy Conservation Policy (ECO #2) action plan, the City's EECBG team identified the need to research potential policy language to support the development of their own energy efficiency and conservation policy. Examples of three energy efficiency and conservation policies from similarly sized municipalities are provided.
- **Softball field lighting retrofit ECO evaluation**
For the Softball Field Lighting Retrofit (ECO #3), the City's EECBG team requested that KERAMIDA review the MUSCO lighting specifications and further evaluate the project by calculating the jobs created, GHG emissions reduction, and energy savings expected from the project.

Potential Funding Mechanisms

For the City Owned Structure Lighting Retrofit (ECO #1) action plan, the City EECBG team identified the need to research the various funding mechanisms available to municipal entities to support the project. A thorough review of potential funding mechanisms to support the City Owned Structure Lighting Retrofit was conducted, including: (1) Energy savings performance contracts; (2) Bonding initiatives; (3) Pension Fund Investments; (4) Revolving Loan Funds; (5) Grants; and (6) Rebates and tax incentives.

While it is beyond the scope of this report to make specific project financing recommendations or provide a complete project financial analysis, lighting retrofit projects typically have a quick rate of return and good return on investment. It is likely that as staff develops a financing strategy for this project, it may find the use of a combination of the financing options described below to be most advantageous.

Energy Savings Performance Contracts

Energy Savings Performance Contracts are provided by full-service Energy Service Companies (ESCOs) who provide property managers with detailed assessments of recommended energy efficiency upgrades and then perform the energy retrofits at no up-front cost. Energy savings is guaranteed, and the up-front financing of capital costs is repaid through the energy savings over time. Energy retrofit projects have a long history of generating significant energy cost savings – mainly through HVAC and lighting upgrades. Lighting retrofits alone achieve an average 47% savings over existing lighting costs (New Energy for Cities).

Despite these results, financing Energy Efficiency projects through a formal Energy Savings Performance Contract with an ESCO is one of the more expensive manners of financing an energy efficiency project. Financing is provided at a premium cost in exchange for the full-service nature of the contract and the ESCO's full acceptance of risk. Indiana law restricts formal Energy Savings Performance Contracting to public entities who may undertake this strategy in combination with additional financing mechanisms in order to make them more cost-effective.

In 1999 an ESCO was completed between the Building Authority and Energy Systems Group LLC. Energy conservation measures totaling approximately \$200,000 in capital expenditure were completed. A review of this past contract, savings realized, and methods of measurement should be reviewed if future Energy Savings Performance contracts are considered a potential funding source moving forward.

Additional Resources:

EPA Introduction to Performance Contracting

http://www.energystar.gov/ia/partners/spp_res/Introduction_to_Performance_Contracting.pdf

Sustainable Cities Institute: Model Energy Performance Contract

http://www.sustainablecitiesinstitute.org/view/page/basic/rfp/feature.rfp/rfp_energy_performance_model_contract

State of Indiana Guaranteed Energy Savings Contract State Code

<http://www.in.gov/legislative/ic/code/title36/ar1/ch12.5.html>

Bonding Initiatives

Issuing public bonds is one financing strategy used by local governments to fund large-scale renewable and efficient energy project without raising taxes. Public bonds can take several forms, but the most common are revenue bonds and general obligation bonds. General obligation bonds do not specify a payback mechanism. They leverage a city's credit rating to obtain low-interest financing for public projects, including energy efficiency project, and are paid off over time through municipal tax revenues. Revenue bonds, in contrast, incorporate a specific payback mechanism in their design. They are often repaid through fees or project income. In the case of energy efficiency projects, revenue bonds fit particularly well because the revenue required to repay the bonds can be generated from the significant and long-term cost-savings generated by the project.

Additional Resources:

Indiana Bond Bank

<http://www.in.gov/tos/bond/>

National Association of Counties: Counties and Commercial Green Buildings. Financing Green Buildings, p. 6-7.

http://www.naco.org/GreenTemplate.cfm?Section=Green_Government_Initiative_Publications&template=/ContentManagement/ContentDisplay.cfm&ContentID=28651

California Energy Commission: Energy Efficiency Revenue Bond Program

<http://www.energy.ca.gov/efficiency/revenuebonds/>

Pension Fund Investments

Targeted pension fund investments are one emerging approach being explored by state and local governments to finance energy efficiency and renewable energy programs. The cost savings which results from facility energy efficiency retrofit projects is then used to repay the capital costs of the program, plus interest to the pension fund. Once all repayments have been made, revenue continues to be received in the form of reduced energy costs. Investment in energy efficiency projects can provide yields that are greater and more stable than investing in the stock market (New Energy for Cities). A small portion of employee pension funds can be invested in facility energy efficiency upgrades as a pilot project, with additional investment in energy-efficiency upgrades of City buildings subsequently evaluated.

Additional resources:

Pension Fund Investment in Infrastructure: A Resource Paper. Harvard Law School Occasional Paper Series. 12/08.

<http://www.law.harvard.edu/programs/lwp/pensions/publications/occpapers/occasionalpapers3.pdf>

California State Treasurer Green Wave Fund

<http://www.treasurer.ca.gov/greenwave/>

Indiana Public Employees Retirement Fund (PERF)

<http://www.in.gov/perf/>

Revolving Loan Funds

One viable option to provide dedicated funding for energy efficiency projects with high cost-savings potential is to form an internal clean energy revolving loan fund. Through this fund, no- and low-cost loans can be made for energy efficiency upgrades at City-owned facilities, and repaid to the loan fund through energy cost savings. In this way, City facilities benefit from low-cost loans for facility upgrades and benefit from continued utility cost-savings after the loan is repaid. The loan fund, in turn, is replenished so that funding is available for future projects (New Energy for Cities). The original funding to establish the revolving loan fund can come from re-prioritized existing organizational funds, a special bonding initiative, investment fund monies, grant monies, private donations, or a combination of funding sources.

Additional Resources:

City of Ann Arbor, Michigan: Energy Fund

http://www.a2gov.org/government/publicservices/systems_planning/energy/Pages/EnergyFund.aspx

US Department of Energy Solution Center: State and Municipal Revolving Loan Funds

<http://www.l.eere.energy.gov/wip/solutioncenter/financialproducts/RevolvingLoanFunds.html>

National Renewable Energy Laboratory: Revolving Loan Fund Guidance. Sam Booth. July 6, 2009.

http://www.l.eere.energy.gov/wip/solutioncenter/pdfs/Booth_2009_Revolving_Loan_Funds.pdf

Grants and Donations

A wide variety of potential grant and donation funding options are available to support implementation of the City of New Albany's current and future identified ECOs. Funding opportunities include potential state and local grants made available through the American Recovery and Reinvestment Act (ARRA), private foundation grants, and private donations. It is recommended that each of the opportunities presented here be explored as a potential funding source.

Potential grant opportunities are outlined in Appendix A. Appendix B lists private grant-making entities known to financially support environmental initiatives. It is recommended that City development staff further research the funding opportunities available through these public and private grant-making entities, and pursue appropriate prospects.

The City of New Albany can additionally take a public-private-partnership approach and solicit private donations in support of its environmental stewardship efforts from appropriate corporations and private foundations. It is recommended that grants and private donation funding be utilized to the greatest extent feasible.

Additional Resources:

American Recovery and Reinvestment Act Website

<http://www.recovery.gov>

EPA Stimulus Information for State and Local Governments

<http://www.epa.gov/statelocalclimate/econ-recovery/index.html>

Local Governments for Sustainability: Financing and Staffing Resources.

<http://www.icleiusa.org/action-center/financing-staffing>

National Association of Counties: Counties and Green Public-Private Partnerships.

http://www.naco.org/GreenTemplate.cfm?Section=green_government_initiative_publications&template=/ContentManagement/ContentDisplay.cfm&ContentID=30735

Rebates and Tax Incentives

Numerous rebates and tax incentives are available for organizations and individuals to enable the implementation of energy efficiency upgrades and other environmentally-friendly improvements. Rebates are available from the Federal government, state government, local utilities and other organizations. While tax incentives are not available to the City of New Albany, they can be utilized by residents and local businesses. Additionally, the City of New Albany may be able to work in partnership with private entities through a third-party ownership model to monetize tax incentive benefits. Available rebates and residential tax incentives are outlined in Appendix C.

Additional Resources:

Federal Tax Credits for Energy Star

http://www.energystar.gov/index.cfm?c=tax_credits.tx_index

Database of State Incentive for Renewables and Efficiency: Indiana

<http://www.dsireusa.org/incentives/index.cfm?re=I&ee=I&spv=0&st=0&srp=I&state=IN>

US Department of Energy Government Tax Incentives

http://www.energy.gov/government_tax_incentives.htm

Sample Green Purchasing Policies

For the City Owned Structure Lighting Retrofit (ECO #1) action plan, the City EECBG team identified the need to research the green purchasing policies of other similarly sized municipalities in the Midwest in order identify the *best-in-class* after which to model their own green purchasing policy. Municipal green purchasing policies often address guidelines beyond lighting purchases, as is the case for the examples provided below.

Green purchasing policies from (1) Fayetteville, Arkansas; (2) Annapolis, Maryland; and (3) Burlington, Vermont are provided below. Internet links to select supplementary green purchasing policy resources are additionally provided.

Fayetteville, Arkansas

CITY OF FAYETTEVILLE, ARKANSAS

POLICY AND PROCEDURE Subject:	Environmental Purchasing Policy
Policy Number:	PU-16
Original Policy Date:	March 10, 2008
Effective Date of New/Revised Policy:	N/A
Revision Dates:	N/A
Custodian: (Division)	Purchasing
Mayor's Signature and Date	

PU-16.0 PURPOSE:

The purpose of this directive is to create a formal policy establishing City of Fayetteville's purchasing program for environmentally preferable products and services.

City of Fayetteville recognizes we are a large consumer of goods and services. Every one of our purchases has an environmental impact resulting from the combined impact of a product's manufacture, use, and disposition. As a result, every day, the purchasing decisions of our employees and contractors can positively or negatively affect the environment.

The goal of this policy is to reduce the adverse environmental impact of our purchasing decisions by buying goods and services from manufacturers and vendors who share our commitment to the environment. By including environmental considerations in our purchasing decisions, along with our traditional concerns with price, performance, and availability, we will remain fiscally responsible while promoting practices that improve public health and safety, reduce pollution, conserve natural resources, and reward manufacturers and vendors that reduce the adverse environmental impact of their production and distribution systems.

PU-16.1 DEFINING ENVIRONMENTALLY PREFERABLE

Buying the most environmentally preferable alternative means City of Fayetteville will seek products and services that have a reduced effect on human health and the environment.

In practice, this means seeking products that have reduced environmental impact because of the way they are made, used, transported, stored, packaged, and disposed of. It means looking for products that do not harm human health, are less polluting, and that minimize waste, maximize use of bio-based or recycled materials, conserve energy and water, and reduce the consumption or disposal of hazardous materials.

PUR.16-2 BALANCING ENVIRONMENTAL CONSIDERATIONS WITH PERFORMANCE, AVAILABILITY, AND FINANCIAL COST

City of Fayetteville is committed to buying more environmentally preferable goods and services as long as they meet our performance needs and they are available within a reasonable period of time at a reasonable cost. Nothing in this policy shall be construed as requiring a purchaser or contractor to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price or in a reasonable period of time.

When comparing cost, City of Fayetteville will not focus exclusively on the initial price. Instead, we will calculate and compare total costs over the life of the item, which includes the initial cost along with maintenance, operating, insurance, disposal, replacement, and potential liability costs. Examining life cycle costs will save money by ensuring we are quantifying the total cost of ownership before making purchasing decisions.

City of Fayetteville recognizes that competition exists not only in prices, but also in the technical competence of suppliers, in their ability to make timely deliveries, and in the quality and performance, including environmental performance, of their products and services. Balancing these sometimes competing factors means that initial cost is never the only consideration. Instead, the City will continue to follow existing state law by purchasing the item with the lowest life-cycle cost.

PUR.16.3 ESTABLISHING AN ENVIRONMENTAL PURCHASING TASK FORCE

The purchasing manager and the sustainability coordinator shall establish an environmental purchasing task force. The Task Force will review the following for possible implementation:

- Identify environmentally preferable purchasing opportunities.
- Develop metrics for measuring progress in implementing the goals of this policy.
- Recommend ways to integrate adherence to the requirements of the environmental purchasing policy into employee job descriptions.
- Recognize the efforts of individuals and departments that are successful at implementing the goals of this policy.
- Review and approve an annual report documenting efforts to buy more environmentally preferable goods and services.
- Recommend changes to the environmental purchasing policy.

PUR.16.4 ESTABLISHING INITIAL PRIORITIES

The environmental purchasing task force will examine purchases of the following commodities and, based on anticipated purchasing needs and volume, prioritize its efforts to integrate environmental considerations into their purchase:

- Recycled content products
- Energy Star products
- Building renovation and new construction
- Cleaning products and services
- Furniture
- Hybrid, electric, or alternative fuel vehicles
- Landscaping products and services
- Paint and painting services
- Paper (beyond the initial recycled-content requirements)
- Pest management products and services
- Renewable energy
- Vehicle maintenance products and services

PUR.16.5 REVIEWING EXISTING SPECIFICATIONS, SOLICITATION LANGUAGE, AND PURCHASING REGULATIONS

The purchasing manager will ensure procedures are in place to review upcoming procurements so that wherever possible specifications, solicitation language, and purchasing regulations are amended to expand the use of more environmentally preferable products.

The review will include the following:

- All generic solicitation language, purchasing regulations, and procedures should be reviewed to ensure they do not conflict with the goals of this environmental purchasing policy.
- All products for which the US Environmental Protection Agency (EPA) has developed recycled-content recommendations <www.epa.gov/cpg> should meet or exceed EPA's recommended recycled content percentages unless costs are prohibitive or other environmental considerations are more important.

- All products for which the federal Energy Star program has developed energy-efficiency standards <www.energystar.gov> should meet or exceed the Energy Star standard unless costs are prohibitive or other environmental considerations are more important.
- All products for which the US Department of Agriculture (USDA) has developed bio-based recommendations <www.ars.usda.gov/bbcc> should meet or exceed USDA's recommended bio-based percentages, unless costs are prohibitive or other environmental considerations are more important.
- All products and services for which the Environmental Choice <www.environmentalchoice.com> or Green Seal <www.greenseal.org> standard setting organizations have established standards should meet or exceed those standards unless costs are prohibitive or other environmental considerations are more important.

PUR.16.6 PROMOTING ENVIRONMENTAL PURCHASING

Every department should be aware of City of Fayetteville's desire to buy more environmentally preferable goods and services from companies sharing our environmental commitment.

Every department is responsible for ensuring that any of its employees who have been issued procurement cards are fully aware of their responsibilities under this policy.

Every department shall also encourage their contractors and consultants to use environmentally preferable products whenever cost effective and to the extent practicable for all work completed on behalf of City of Fayetteville.

If a department would like to be included in the report, it should provide purchasing information that highlights their accomplishments no later than mid January of each year. The information submitted will be combined into a report that will be submitted to the environmental task force. After approval by the environmental task force the report will be posted on the City's website to promote the City's efforts and commitment to environmental sustainability.

Annapolis, Maryland

CITY COUNCIL OF THE CITY OF ANNAPOLIS

ORDINANCE NO. O-27-07RevisedC

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Introduced by Mayor Moyer
Co-Sponsored by Alderman Israel
Alderwoman Finlayson
Alderman Arnett
Alderman Cordle
Alderman Shropshire

LEGISLATIVE HISTORY

First Reader: Public Hearing: Fiscal Impact Note: 120 Day Rule:
7/9/07 7/23/07 8/20/07 11/6/07
Referred to: Meeting Date: Action Taken:
Economic Matters 11/10/07 Recommended revised version to be
submitted 11/19/07
Revised version introduced 11/19/07

12

13 AN ORDINANCE concerning

14

15 The Promotion of Reusable, Recyclable and Compostable Materials

16

17 FOR the purpose of establishing that the goal of the City is to encourage residents and
18 business owners to use reusable and recyclable materials and to purchase goods
19 from companies that practice energy use reduction and sequestration of carbon
20 dioxide; to establish an Environmental Review Committee to review existing
21 practices of the City to assure that the its policies and procedures foster the use of
22 materials that are compostable, recyclable, and reusable, to assist the various City
23 offices to ensure that contracting procedures do not discriminate against reusable,
24 recycled, or environmentally preferable products with sufficient justification, to
25 evaluate environmentally preferable products to determine the extent to which they
26 may be used by the City and its contractors, to review and revise contracting
27 procedures to maximize the specification of designated environmentally preferable
28 products where practicable, to facilitate data collection on purchases of designated
29 environmentally preferable products, and to monitor compliance with a number of
30 environmentally friendly standards and practices; and all matters related to the use
31 by the City of environmentally friendly standards and practices.

32

33 *****

34

35 BY adding the following new chapter to the Code of the City of Annapolis, 2007 Edition:
36 Section 2.48.350

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1

2 SECTION I: BE IT ESTABLISHED AND ORDAINED BY THE ANNAPOLIS CITY
3 COUNCIL that the Code of the City of Annapolis shall read as follows:

4

5 Section 2.48.350 Environmental Review Committee.

6

7 A. The goal of the City is to encourage residents and business owners to use reusable

8 and recyclable materials and to purchase goods from companies that practice energy use
9 reduction and sequestration of carbon dioxide.

10 B. In furtherance of this goal, there is hereby established an Environmental Review
11 Committee within the municipal government. The Committee consists of the Directors of
12 the Departments of Neighborhood and Environmental Programs (DNEP), Public Works,
13 Central Services, and Recreation and Parks. The Director of DNEP shall serve as the
14 chair.

15 C. As a minimum, the Committee shall:

16 1. Review existing practices of the City to assure that its policies and procedures foster the
17 use of materials that are compostable, recyclable, and reusable.

18 2. Assess the effectiveness of the voluntary environmental reusable bag program.

19 3. Assess the value of bans and/or fees on materials in furtherance of the City's goals.

20 4. Develop a plan for distribution of re-useable bas as part of and consistent with the City's
21 recycling plan.

22 5. Assist the various City offices to ensure that contracting procedures do not discriminate
23 against reusable, recycled, or environmentally preferable products with sufficient
24 justification.

25 6. Evaluate environmentally preferable products to determine the extent to which they may
26 be used by the City and its contractors.

27 7. Review and revise contracting procedures to maximize the specification of designated
28 environmentally preferable products where practicable.

29 8. Facilitate data collection on purchases of designated environmentally preferable
30 products by the City and its contractors and report the data to the City Council by July 31 of
31 each year.

32 9. Prior to fiscal year 2009, the Committee shall:

33 a. Begin issuing to all City organizational elements purchasing specifications that comply
34 with U.S. Environmental Protection Agency Comprehensive Procurement Guidelines for
35 products. Recovered Materials Advisory Notices (RMAN) shall be used as a reference for
36 determining the recycled content specifications for these products.

37 b. Monitor the implementation of the following:

38 (1) To the extent practicable, all printing and copy paper products shall consist of a
39 minimum of 30% post-consumer recycled fiber.

40 (2) All janitorial paper products shall consist of a minimum of 50% post-consumer content.

41 (3) A ten percent price preference for processed chlorine-free paper shall be applied to
42 (100 percent) of photocopy-grace and janitorial paper purchases.

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Page 3

1 (4) Returning used toner cartridges for remanufacture and purchase re-manufactured toner
2 cartridges when practicable.

3 (5) To the extent practicable, no janitorial cleaning or disinfecting products shall contain
4 ingredients that are identified by United States Environmental Protection Agency or the
5 National Institute for Occupational Safety and Health as carcinogens, mutagens, or
6 teratogens.

7 (6) Phase out the use of chloroflourocarbon containing refrigerants, solvents and other
8 products.

9 (7) All surfactants shall meet EPA standards as "readily biodegradable". Where
10 practicable, no detergents shall contain phosphates.

11 (8) The City shall not procure products that originate from rainforest hardwood or tropical
12 wood.

13 (9) Where practicable, purchased or leased electronic equipment including photocopiers,
14 computers, printers, lighting systems, HVAC, kitchen and laundering appliances, and
15 energy management systems must meet U.S. Environmental Protection Agency (EPA) or
16 U.S. Department of Energy (DOE) energy efficiency standards. Where applicable, the
17 energy efficiency function must remain enabled on all energy efficient equipment.

18 (10) All motor oil shall contain a minimum 25 percent re-refined base stock. All re-refined
19 oil must be American Petroleum Institute certified.

20 (11) All motor vehicles operated by the City shall use recycled propylene glycol antifreeze
21 where practicable.

22 (12) Paint purchased by the City or its contractors shall contain the minimum amount
23 necessary of volatile organic compounds, and shall contain maximum recycled content
24 where practicable.

25 (13) The City shall implement an integrated pest management program for pest control.
26 Any chemicals used to eliminate or deter insect pests and undesirable vegetation shall be
27 the most readily and completely biodegradable product available for the given application,
28 and shall be applied in a manner that is least likely to come into contact with humans and
29 any other animals for which treatment is not intended.

30 (14) All construction and renovation projects performed by the City shall incorporate Silver
31 LEED "green" building practices.

32 (15) The City shall give preference to products that are produced and are available locally
33 to the extent practicable.

34 (16) All departments, offices, and agencies shall ensure that they and their
35 contractors/consultants use double-sided copying. All photocopiers purchased by the City
36 following adoption of this policy are required to be capable of double-sided copying.

37 (17) The City shall reduce or eliminate its use of products that contribute to the formation
38 of dioxin and furan compounds.

39 D. The following are environmentally preferred products:

40 1. Compostable and vegetative products;

41 3. Horticultural mulch made with recycled land clearing and other wood debris;

42 4. Construction aggregates made with recycled cement concrete, glass or asphalt;

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1 5. Alternative fuels and vehicles and rolling stock that utilize same including, but not limited
2 to, electric, hybrid, compressed natural gas, hydro-diesel, hydrogen and ethanol;

3 6. Cement and asphalt concrete containing glass cullet, recycled fiber or plastic, tire or
4 rubber;

5 7. Lubricating oil and hydraulic oil with re-refined oil content;

6 8. Recycled plastic products;

7 9. Remanufactured tires and products made from recycled tire rubber, including rubber
8 mats and play field surfaces;

9 10. Low wattage/high efficiency lighting fixtures, including but not limited to traffic signals,
10 crosswalks, street lights and all interior and exterior building fixtures;

11 11. Remanufactured laser printer toner cartridges; and

12 12. Other products as designated by the Mayor and/or the Mayor's designee, the Task
13 Force and/or Coordinator.

14

15 E. Nothing contained in the policy of this section shall be construed as requiring a
16 department or contractor to procure products that do not perform adequately for their
17 intended use, exclude adequate competition, or are not available at a reasonable price in a
18 reasonable period of time.

19

20 F. One year from adoption of this ordinance, the Environmental Review Commission will
21 evaluate the effectiveness of the voluntary programs for reusable materials and may
22 recommend a ban or fees on materials that are not reusable, recyclable or compostable.

23

24 SECTION II: AND BE IT FURTHER ESTABLISHED AND ORDAINED BY THE
25 ANNAPOLIS CITY COUNCIL that this Ordinance shall take effect on the date of adoption.

26

27 ADOPTED this _____ day of _____ 2007.

28

29 ATTEST: THE ANNAPOLIS CITY COUNCIL

30

31

32 BY: _____
33 Regina C. Watkins-Eldridge, CMC ELLEN O. MOYER, MAYOR
34 City Clerk
35
36

EXPLANATION:

Highlighting indicates matter added to existing law.
Strikeout indicates matter deleted from existing law.
Underlining indicates amendments

Burlington, Vermont

ENVIRONMENTALLY PREFERABLE PURCHASING POLICY City of Burlington, Vermont (Adopted by City Administration June 18, 2009)

1.0 STATEMENT OF POLICY

It is the policy of the City of Burlington to:

- require purchase of products and services that minimize environmental and health impacts, toxics, pollution, and hazards to worker and community safety and to the larger global community to the greatest extent practicable; however

It is not the intent of this policy to require a department, buyer or contractor to take any action that conflicts with local, state or federal requirements or to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price in a reasonable period of time.

2.0 PURPOSE

This Policy is adopted in order to meet the following goals, which are not limited to:

- minimizing health risks to City staff and residents,
- minimizing the City's contribution to global climate change,
- improving air quality,
- protecting the quality of ground and surface waters, and
- minimizing the City's consumption of resources.

Further, this Policy is adopted in order to:

- purchase products that include recycled content in order to support strong recycling markets,
- institute practices that reduce waste by increasing product efficiency and effectiveness, use products that are durable and long-lasting, and reduce materials that are landfilled,
- purchase products and institute practices that conserve energy and water, use agricultural fibers and residues, reduce greenhouse gas emissions, use unbleached or chlorine free manufacturing processes, and use recycled wood and wood from sustainably harvested forests,
- purchase energy from renewable or green sources in preference to fossil fuels,
- purchase products that are free of mercury and lead and eliminate the use of other persistent bioaccumulative toxic chemicals where possible,
- increase the use and availability of environmentally preferable products, services and distribution systems that protect human health and the environment,
- support emerging and established manufacturers and vendors that reduce environmental and human health impacts in their services and production and distribution systems, and
- create a model for successfully purchasing environmentally preferable products and services that encourages other buyers and consumers in our community to adopt similar

goals.

3.0 SPECIFICATIONS

3.1 Source Reduction

- The City of Burlington shall institute practices that reduce waste and result in the purchase of fewer products whenever practicable and cost-effective, but without reducing safety or workplace quality.
- The City of Burlington shall purchase remanufactured products (i.e. for equipment and vehicles) whenever practicable, but without reducing safety, quality or effectiveness.
- The City of Burlington shall require all equipment bought after the adoption of this policy to be specified and delivered so it is compatible with source reduction goals as referred to in this section (3.1), whenever practicable.
- All buyers shall consider short-term and long-term costs in comparing product alternatives, when feasible. This includes evaluation of total costs expected during the time a product is owned, including, but not limited to, acquisition, extended warranties, operation, supplies, maintenance, disposal costs and expected lifetime compared to other alternatives.
- Products that are durable, long lasting, reusable, refillable, recyclable or otherwise create less waste shall be selected whenever possible. The city shall avoid purchasing single use plastic water bottles for city catered events.
- The City of Burlington requires vendors to minimize packaging to the greatest extent practicable.
- Packaging that is reusable, recyclable or compostable shall be selected when suitable uses and programs exist. The City of Burlington shall not purchase any polystyrene foam food packaging and 50% by volume of the food packaging purchased by the City shall be recyclable or degradable.
- Vendors shall be required whenever possible to take back and reuse pallets and packaging materials.
- Suppliers of electronic equipment shall be required to take back equipment for reuse or environmentally safe recycling when the City of Burlington discards or replaces such equipment, unless the City deems it worthwhile to send the equipment to a non-profit organization for reuse.
- All documents shall be printed and copied on both sides to reduce the use and purchase of paper, unless needed to be single sided as per legal requirements.

3.2 Toxics Reduction and Pollution Prevention

No product or service purchased by the City of Burlington shall contain, emit, or create the following in its use, to the extent practicable:

- carcinogens and reproductive toxins,
- persistent bioaccumulative toxicants, including lead, mercury, dioxins and furans for example,
- compounds toxic to humans or aquatic life, corrosive to the skin or eyes, or that are skin sensitizers, and
- substances that contribute to the production of photochemical smog, tropospheric ozone production, or poor indoor air quality.

All cleaning or disinfecting products (i.e. for janitorial or automotive use) shall at a minimum meet Green Seal Standards for environmental preferability and performance, whenever practical.

Purchasing products containing persistent, bioaccumulative and toxic chemicals (PBTs) shall be avoided, where alternatives exist.

The use of chlorofluorocarbon-containing refrigerants, solvents and other products known to contribute to the depletion of the ozone layer shall be phased out and new purchases shall not contain them.

When maintaining buildings, the City of Burlington shall use products with the lowest amount of volatile organic compounds (VOCs), highest recycled content, and low or no formaldehyde when purchasing materials such as paint, carpeting, flooring, adhesives, furniture and casework.

The City of Burlington shall reduce or eliminate its use of products that contribute to the formation of dioxins and furans. Purchases shall be consistent with the City's resolution to eliminate anthropogenic sources of dioxin pollution. This includes, but is not limited to:

- Purchasing paper, paper products, and janitorial paper products that are unbleached or that are processed without chlorine or chlorine derivatives, whenever possible, and
- Prohibiting purchase of products that contain or are packaged in polyvinyl chloride (PVC) such as, but not limited to, office binders, furniture, carpeting/flooring, other building materials and supplies, and medical supplies whenever practicable.

The City of Burlington shall purchase products and equipment with no lead, cadmium or mercury whenever possible. For products that must contain lead or mercury because no suitable alternative exists, the City of Burlington shall give preference to those products with the lowest quantities of these metals available and to vendors with established lead, cadmium and mercury recovery programs.

When replacing vehicles, the City of Burlington shall lease or purchase only the most fuel-efficient models available that are suitable for each task and through carsharing and carpooling, shall minimize the number of vehicles purchased.

To the extent practicable, the City shall use renewably-derived fuels or fuels that are cleaner and less-polluting than gasoline and conventional diesel fuel, including biodiesel, natural gas and electricity.

The purchase of all pentachlorophenol, arsenic and creosote treated wood by the City of Burlington is prohibited.

The City shall avoid purchasing products containing brominated flame retardants (BFRs) wherever possible. In particular, the BFRs "penta" and "octa" will be targeted for phaseout.

3.3 Recycled Content Products

All products purchased for which the United States Environmental Protection Agency (U.S. EPA) has established minimum recycled content standard guidelines shall contain the highest postconsumer content practicable, but no less than the minimum recycled content standards established by the U.S. EPA Guidelines.

Copiers and printers purchased shall be compatible with the use of recycled content and remanufactured products.

The city shall continue to recycle asphalt and concrete that is removed for streets and sidewalks and will use materials containing recycled asphalt and concrete for constructing roads and sidewalks when such materials are available and appropriate for the projects at hand.

The City of Burlington shall specify and purchase recycled content transportation products, including signs, cones, parking stops, delineators, and barricades.

A 10% price preference may be given to recycled content products based on the lowest bid or price quoted by the suppliers offering the competing non-recycled content products.

All pre-printed recycled content papers intended for distribution that are purchased or produced shall contain a statement that the paper has recycled content. Whenever feasible, the statement should indicate the percentage of postconsumer recycled content it contains.

3.4 Energy and Water Savings

New and replacement equipment for lighting, heating, ventilation, refrigeration and air conditioning systems, water consuming fixtures and process equipment and all such components

shall meet or exceed Federal Energy Management Program (FEMP) recommended levels, whenever practicable.

All products purchased by the City of Burlington and for which the U. S. EPA Energy Star certification is available shall meet Energy Star certification, when practicable. When Energy Star labels are not available, products shall meet or exceed the FEMP recommended levels.

When energy is purchased, renewable or green sources are preferred. These include solar power or photovoltaics, wind power, geothermal, and hydroelectric energy sources and do not include fossil fuels (coal, oil or natural gas).

Demand water heaters shall be purchased whenever practicable. Where renewable forms of energy are unavailable or not practicable, natural gas shall be used in lieu of electricity for space heating and water heating.

Energy Star and power-saving features for copiers, computers, monitors, printers and other office equipment shall be enabled during the initial installation and shall remain enabled unless these features conflict with the manufacturer's recommended operation and maintenance of the equipment.

3.5 Green Building - Construction and Renovations

All new construction and major renovations** of over 5,000 square feet undertaken by the City of Burlington after January 1, 2010 shall be certified LEED Rating System.

**Major renovation: Exterior walls and ceilings are updated and/or change of the HVAC and lighting equipment.

3.6 Landscaping

All landscape renovations, construction and maintenance by the City of Burlington, including workers and contractors providing landscaping services for the City of Burlington, shall employ sustainable landscape management techniques for design, construction and maintenance whenever possible, including, but not limited to, integrated pest management, grasscycling, drip irrigation, composting, and procurement and use of mulch and compost that give preference to those produced from regionally generated plant debris and/or food waste programs.

When available, the City shall purchase landscaping equipment that is not dependent on the use of fossil fuels.

Plants should be selected to minimize waste by choosing species for purchase that are appropriate to the microclimate, species that can grow to their natural size in the space allotted them, and perennials rather than annuals for color.

Hardscapes and landscape structures constructed of recycled content materials are encouraged. The City of Burlington shall limit the amount of impervious surfaces in the landscape, wherever practicable. Permeable substitutes, such as permeable asphalt or pavers, are encouraged for walkways, patios and driveways.

3.7 Forest Conservation

To the greatest extent practicable, the City of Burlington shall not procure wood products such as lumber and paper that originate from forests harvested in an environmentally unsustainable manner. When possible, the City of Burlington shall give preference to wood and wood products that are certified to be sustainably harvested by a comprehensive, performance-based certification system. The certification system shall include independent third-party audits, with standards equivalent to, or stricter than, those of the Forest Stewardship Council certification.

3.8 Agricultural Bio-Based Products

Vehicle and equipment fuels made from non-wood, plant-based contents such as vegetable oils are

encouraged whenever practicable.

Paper, paper products and construction products made from non-wood, plant-based contents such as agricultural crops and residues are to be purchased and used whenever practicable.

4.0 PRIORITIES

The health and safety of people who live and work in Burlington is of utmost importance and takes precedence over all other City policies. All policies and practices shall be protective of the health of children, the elderly and other vulnerable populations, and the greater global community.

The City of Burlington has made significant investments in developing a successful recycling system and recognizes that recycled content products are essential to the continuing viability of that recycling system and for the foundation of an environmentally sound production system. Therefore, to the greatest extent practicable, recycled content shall be included in products that also meet other environmental specifications, such as chlorine free or bio-based.

Nothing contained in this policy shall be construed as requiring a department, buyer or contractor to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price in a reasonable period of time.

Nothing contained in this policy shall be construed as requiring the City of Burlington, department, buyer or contractor to take any action that conflicts with local, state or federal requirements.

5.0 IMPLEMENTATION

Department heads shall implement this policy in coordination with other appropriate City of Burlington personnel.

Implementation of this policy will be phased based on available resources and City priorities. The Burlington Sustainability Action Team shall advise the departments heads regarding environmentally preferable products that comply with this policy. Recommendations will include input of applicable environmental staff. Whenever possible, the City will use existing eco-labels and standards to make purchasing decisions.

Successful bidders shall certify in writing that the environmental attributes claimed in formal competitive bids are accurate.

Vendors, contractors and grantees shall comply with applicable sections of this policy for products and services provided to the City of Burlington, where practicable. In particular, vendors, contractors and grantees providing written materials to the City shall do so on recycled content paper meeting minimum standards of the U.S. EPA Guidelines and labeled as such and vendors, contractors and grantees shall be prohibited from using pentachlorophenol, arsenic, and creosote treated wood.

If the buyer making the selection from competitive bids or the requesting department seek to purchase products that do not meet the environmentally preferable purchasing criteria in this Policy, the buyer shall provide a written justification to the department head with a copy forwarded to the Mayor or its designee explaining why the requirements of this policy should not apply, e.g., the product is not technically practical, economically feasible, or available within the timeframe required.

All future vendor contracts shall be negotiated in light of the requirements of this policy. If a vendor that is under contract to the City of Burlington is no longer able to provide a product that meets the City's environmentally preferable specifications, it shall notify the appropriate city representative and provide written justification for why compliance is not practical. Prior written consent from an authorized City representative shall be required before substituting any alternative product to any City employee.

The Information Technology staff shall be responsible for setting duplexing as the default on each

workstation for all capable printers. This includes printing from network connected or stand-alone personal computer printers that are capable of duplexing.

Training of buyers and other relevant city staff, vendors, contractors and grantees shall include instruction on the requirements of this Environmentally Preferable Purchasing Policy.

6.0 PROGRAM EVALUATION

The Mayor or its designee shall evaluate the success of this Policy's implementation by providing a biannual report to the City Council. The report shall relate progress in meeting the goals and objectives of this Policy and note any barriers encountered, recommendations for resolution, and/or description of assistance needed to continuously improve staff's ability to meet this Policy's objectives for the procurement of environmentally preferable products and services.

7.0 DEFINITIONS

"Agricultural Bio-Based Products" means commercial or industrial products (other than food or feed) that utilize agricultural crops or residues but does not include products made from forestry materials. "Bay Area Green Business Program" is a partnership of governments and businesses that certifies the environmental performance of government agencies and businesses.

"Bay-Friendly Landscaping" means working with the natural ecosystems of the San Francisco Bay Area to foster soil health, to reduce runoff and pollution, prevent and reuse plant waste, and conserve water and other natural resources. Bay-Friendly Landscaping practices are described in the Bay-Friendly Landscape Guidelines, by the Alameda County Waste Management Authority & Recycling Board.

"Buyer" means personnel authorized to purchase or contract for purchases on behalf of the City of Burlington or its subdivisions.

"Chlorine free" means products manufactured or processed without chlorine or chlorine derivatives.

"Contractor" means any person, group of persons, business, consultant, designing architect, association, partnership, corporation, supplier, vendor or other entity that has a contract with the City of Burlington or serves in a subcontracting capacity with an entity having a contract with the City of Burlington for the provision of goods or services.

"Dioxins and furans" are a group of chemical compounds that are classified as persistent, bioaccumulative, and toxic (PBT) by the Environmental Protection Agency.

"Energy Star" means the U.S. EPA's energy efficiency product labeling program.

"Energy-Efficient Product" means a product that is in the upper 25% of energy efficiency for all similar products, or that is at least 10% more efficient than the minimum level that meets Federal standards.

"Federal Energy Management Program" (FEMP) is a program of the Department of Energy that issues a series of Product Energy Efficiency Recommendations that identify recommended efficiency levels for energy-using products.

The "Forest Stewardship Council" is a global organization that certifies responsible, on-the-ground forest management according to rigorous standards for sustainably harvested forests developed by a broad variety of stakeholder groups.

"Green Seal" is an independent, non-profit environmental labeling organization. Green Seal standards for products and services meet the U.S. EPA's criteria for third-party certifiers. The Green Seal is a registered certification mark that may appear only on certified products.

"Integrated Pest Management (IPM)" is an ecosystem-based strategy that focuses on long-term

prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Least toxic pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.

“LEED Rating System” means the Leadership in Energy & Environmental Design system developed by the U.S. Green Building Council designed for rating new and existing commercial, institutional, and high-rise residential buildings.

“Organic Pest Management” prohibits the use and application of toxic chemical pesticides and strives to prevent pest problems through the application of natural, organic horticultural and maintenance practices. All pest control products shall be in keeping with, but not limited to, those products on the approved list of California Certified Organic Foods (CCOF).

“Persistent Bioaccumulative Toxins” (PBTs) are chemicals and/or pollutants that remain in the environment for a long time (persist) without breaking down, accumulate in the environment and build up in the tissues of humans, fish, and animals (bioaccumulative), and are toxic (causing cancer and other health problems) to living organisms, including humans.

“Postconsumer Material” means a finished material which would normally be disposed of as a solid waste, having reached its intended end-use and completed its life cycle as a consumer item, and does not include manufacturing or converting wastes.

“Practical” and “Practicable” mean whenever possible and compatible with local, state and federal law, without reducing safety, quality, or effectiveness and where the product or service is available at a reasonable cost in a reasonable period of time. For energy and water consuming devices, a reasonable cost shall mean that the product has a life-cycle cost that is reasonably similar to the life-cycle costs of other similar products.

“Preconsumer Material” means material or by-products generated after manufacture of a product is completed but before the product reaches the end-use consumer. Preconsumer material does not include mill and manufacturing trim, scrap, or broke which is generated at a manufacturing site and commonly reused on-site in the same or another manufacturing process.

“Recovered Material” means fragments of products or finished products of a manufacturing process, which has converted a resource into a commodity of real economic value, and includes preconsumer and postconsumer material but does not include excess resources of the manufacturing process.

“Recycled Content” means the percentage of recovered material, including preconsumer and postconsumer materials, in a product.

“Recycled Content Standard” means the minimum level of recovered material and/or postconsumer material necessary for products to qualify as “recycled products.”

“Recycled Product” means a product that meets the City of Burlington recycled content policy objectives for postconsumer and recovered material.

“Remanufactured Product” means any product diverted from the supply of discarded materials by refurbishing and marketing said product without substantial change to its original form.

“Reused Product” means any product designed to be used many times for the same or other purposes without additional processing except for specific requirements such as cleaning, painting or minor repairs.

“Source Reduction” refers to products that result in a net reduction in the generation of waste compared to their previous or alternate version and includes durable, reusable and remanufactured products; products with no, or reduced, toxic constituents; and products marketed with no, or reduced, packaging.

“U.S. EPA Guidelines” means the Comprehensive Procurement Guidelines established by the U.S. Environmental Protection Agency for federal agency purchases as of May 2002 and any subsequent versions adopted.

8.0 EFFECTIVE DATES

8.1 This policy shall take effect on July 1, 2009

Additional Green Purchasing Policy Resources

Energy Star: Clean Energy Strategies for Local Government. Chapter 6: Energy Efficient Product Procurement

<http://www.epa.gov/slclimat/documents/pdf/energyefficientpurchasing.pdf>

King County, Washington: Model Environmentally Preferable Purchasing Policy

http://www.kingcounty.gov/operations/procurement/Services/Environmental_Purchasing/~media/operations/procurement/documents/EP_Policy_Model.ashx

Alameda County, California: Environmentally Preferable Purchasing Model Policy

http://www.google.com/url?sa=t&source=web&cd=3&ved=0CBsQFjAC&url=http%3A%2F%2Fwww.calrecycle.ca.gov%2Feppp%2FLawPolicy%2FAlaPolicy.doc&ei=Pj4NTM2xDZXYMI2WzLUE&usg=AFQjCNHFSGiP9p_Rew9wy2Q-D9yDO5o_kw

Sample Energy Efficiency and Conservation Policies

For the City-Wide Energy Conservation Policy (ECO #2) action plan, the City EECBG team identified the need to research potential policy language to support the development of its own energy efficiency and conservation policy. Examples of three energy efficiency and conservation policies from similarly sized municipalities are provided.

Energy efficiency and conservation policies from (1) Town of Plymouth, Massachusetts; (2) Rapid City, South Dakota; and (3) Richmond, Vermont are provided in this section. Internet links to select supplementary energy efficiency and conservation policy resources are additionally provided.

Town of Plymouth, Massachusetts

Town of Plymouth Energy Conservation Policy

Purpose: The Town of Plymouth, through their Board of Selectmen and Energy committee, have placed an aggressive goal to have all municipal electric load come from renewable energy sources in the Plymouth 2020 plan. To do so there are two portions of that plan, one is to create municipal renewable projects. The other is to reduce the amount of electricity, heat and air conditioning we use.

Goal: To create a plan that will provide maximum energy efficiency to all buildings while maintaining comfort for all visitors and employees. Plymouth wants to save on energy costs, help control budget costs and help preserve jobs.

General Requirements:

1. Town Building Temperature Guidelines:

- To maintain reasonable comfort and lower the energy expenditures, the Town has established a standard of 74-77 degrees F for summer thermostat settings (air conditioning) and 70-72 degrees winter setting (heating).
- Areas such as non utilized basement or storage areas shall be kept at 50 degrees F when not occupied and no more than 60 degrees F when occupied.
- This policy conforms to ASHRA (American Society of Heating and Air Conditioning Engineers) standards.

2. Building Resource Management:

- Windows and doors should be kept closed during the heating season and during the summer for those areas that have air conditioning.
- Every employee should assume the responsibility of closing windows and shutting doors in an effort to conserve energy.
- Energy management devices and strategies will become an important part of the town and should be adhered to at all times.

3. Air Conditioning:

- Air conditioners will be started for environmental comfort during the first full work week of June unless the following conditions occur earlier:
 - Average space temperatures in buildings exceed 75 degrees F for four hours on three consecutive days and the windows in the building cannot be opened.
 - All windows shall be kept closed when air conditioning systems are turned on.
 - Equipment and supplies shall not be stored so as to inhibit the convection currents from any air conditioner.
 - Closing blinds or curtains helps stabilize room temperatures by protecting from radiation gain due to the outdoor heat.
 - All heating systems shall be turned off before air conditioning systems are turned on.
- Termination of Air Conditioning:
Air conditioning will be terminated after the last week in September unless the conditions listed for Air Conditioning exist.
 - All air conditioning systems shall be turned off.

4. Heating:

- Manually controlled heating systems will be started for environmental comfort during the first full work week of October unless the following conditions occur earlier.
 - The average temperature in the building is less than 68 degrees for at least two hours on three consecutive days.

- Air conditioning systems and units have been turned off.
 - All windows shall be kept closed while the heating systems are turned on.
 - Equipment and supplies shall not be stored so as to inhibit convection currents from any baseboard, radiator, or other heating unit.
 - Manual space heaters are not allowed per order of the Fire Chief because of the potential fire hazard in public buildings
 - Report any heating/cooling issues immediately the maintenance department
- Closing blinds or curtains helps minimize loss of heat from radiation.
5. Electrical Equipment:
- Completely turn off all computers and peripheral equipment at the end of the day unless being utilized for:
 - Dispatch operations i.e. FAO operations
 - Monitoring systems such as:
 - Voice recorders
 - Servers - web servers, file server, applications servers
 - Fire alarms systems
 - All office machines shall be turned off at night including:
 - Copy machines
 - Laminating equipment
 - Faxes (unless used for after-hour faxes)
 - All Other office machines
 - Turn off all lights in non-occupied areas such as:
 - Non utilized Basements
 - Conference rooms
 - Kitchens
 - Bunkrooms
 - Offices
 - Exterior lighting:
 - Exterior light shall only be utilized between sunset and sunrise.
 - The minimum amount of exterior light necessary for safety and security shall be utilized.
 - Interior lighting:
 - The minimum amount of interior lighting per office should be utilized
 - Desk lamps should be kept to a minimum and utilized compact fluorescent bulbs when possible
 - Natural light should be utilized whenever possible, open blinds and shades whenever possible to regulate light and temperature
 - Refrigerators and freezers:
 - Shall be maintained frost free to maintain efficiency.
 - Shall not be over packed so as to make the unit inefficient.
 - Dust shall be removed from coils and under the unit to maintain efficiency.

Rapid City, South Dakota

PURPOSE OF CITY OF RAPID CITY'S ENERGY CONSERVATION POLICY

- I. To create an environment in the City of Rapid City government that promotes and encourages energy efficiency and the associated cost savings.
 - A. The Mayor will appoint a City Energy Manager. The Energy Manager will be responsible for consulting, educating and distributing information to the City departments concerning the City energy policy/program and the attendant savings.
 - B. Department heads will be responsible for appointing an Energy Officer for their department. The Energy Officer along with the department head will be responsible for implementing the City Energy Policy in their department.
 - C. Department heads will be responsible for communicating the City Energy Policy to their department staff and employees so they understand the policy.
 - D. The Energy Manager will provide visual aids and programs to make employees aware that the City has an active energy program and they are participants.
 - E. The Energy Manager will provide the Department heads with monthly information on their energy use and the associated costs.
- II. To reduce energy use and costs for existing City buildings, lighting, equipment and vehicles while maintaining service to the public and comfort for City employees at safe, efficient and comfortable levels. Realize that reducing energy use reduces the effect on the environment.
 - A. Evaluate and change operations in buildings where the load is people-controlled, i.e. heating/cooling, ventilation, shop and restaurant equipment. These savings would be met by employee participation and low cost energy improvements.
 - B. Work with area energy providers to optimize equipment and building use to make use of savings available by using various utility rates and rebates.
 - C. Evaluate the operation of the City of Rapid City's equipment and vehicle use.
- III. To promote and evaluate the replacement of existing building equipment, lighting and vehicles with equipment that provides the same or increased levels of performance with more efficient energy use. Evaluate tying existing City facilities into the Energy Plant Facility Management System and the associated energy and operational cost savings.
- IV. To promote energy-efficiency in new building construction, lighting, equipment and vehicles. Evaluate tying new City facilities into the Energy Plant Facility Management System and the associated energy and operational cost savings. Require new facilities to tie into the Energy Plant FMS when cost savings are evident.

ENERGY CONSERVATION GUIDELINES

- I. These guidelines supersede all previous policies and procedures. It is essential that energy guidelines be observed in the operation of the heating, cooling, lighting, equipment and vehicles.
- II. All City employees will be responsible for following the City's energy conservation guidelines. Every City employee will be expected to contribute to energy efficiency. Everyone will be expected to be an "energy saver" as well as an "energy consumer".

The Department head will implement policies and procedures that execute the City Energy Policy. The Department Head will be provided information that shows the energy use and costs for his/her building/department on a monthly basis.

- III. An environment will be maintained that is conducive to the safety, efficiency and comfort of City employees.
- IV. The last person to leave an area/building when it is closed each evening shall turn off all non-essential equipment and lighting and reset the thermostats where applicable.
- V. When City owned buildings, rooms or facilities are rented or leased to private individuals or organizations, the energy costs of the facilities should be considered in determining the rental/lease fee for those facilities.

PROCEDURES FOR OPERATING HEATING EQUIPMENT

- I. The following energy conservation guidelines are to be observed when operating heating equipment in City buildings:
 - A. In buildings with centralized electronic/computerized controls, the start time for the heating equipment shall be set as late as possible while still allowing time to heat the building to guideline temperatures by the beginning of the workday. In buildings and areas with individual thermostats, the thermostats will be set appropriately at the beginning of the day. All windows and doors to non-heated spaces should be closed when heating equipment is operating.
 - B. The temperature in occupied heated building areas should be set between 68 and 72 degrees during working hours, except for shop areas which should be set no higher than 65 degrees. Ceiling fans can be used in high ceiling areas to further reduce energy use.
 - C. The unoccupied building setback temperature in heated building areas should be set no higher than 60 degrees for after hours operations. After hour operations are any times the building is minimally occupied and not serving its primary function. This includes times when only security, cleaning or building maintenance personnel are present. This applies to both buildings and areas with centralized electronic/computerized controls and those with individual thermostats.
 - D. If during extremely cold weather an unoccupied building's 60 degree setback will not allow your building to heat to a comfortable level by the time the employees arrive, take the following actions:
 - 1. Notify the office of the City Energy Manager.
 - 2. The City Energy Manager will advise on the appropriate setting.
- II. Deviation from the Energy Policy temperature settings – When the Department head or employees in the Department desire to deviate from the temperature settings defined in this procedure, the appeal shall be made directly to the Mayor by the Department head.

PROCEDURES FOR OPERATING AIR CONDITIONING EQUIPMENT

- I. The following energy conservation guidelines are to be observed when operating air conditioning equipment in City buildings:
 - A. Refrain from turning the air conditioning equipment on until the inside temperature exceeds 75 degrees. Temperature control should be achieved by the use of ceiling fans and window adjustments, instead of air conditioning, when possible. During air conditioning season, the windows should be opened upon arrival each morning if the outside temperature is below 75 degrees. All windows and doors to unconditioned spaces should be closed when the air conditioning equipment is operating.

- B. The temperature in occupied air-conditioned building areas should be set between 75 and 78 degrees during working hours. The workspace can be made more comfortable by the use of ceiling fans where available.
 - C. The setback temperature in air-conditioned building areas should be set no lower than 82 degrees for after hours operations. After hour operations are any times the building is minimally occupied and not serving its primary function. This includes times when only security, cleaning or maintenance personnel are present.
 - D. The air conditioning equipment should be turned off at the end of the workday if the building is unoccupied.
 - E. When the outside temperature requires that air conditioning is needed at the beginning of the workday, the start time for air conditioning equipment should be set as late as possible while still allowing time to cool the building to guideline temperature by the beginning of the work day.
 - F. Use only the minimum lighting required. All lights give off heat and place additional load on the air conditioning equipment. This increases the amount of energy needed to cool the room.
 - G. Air-conditioning units shall be turned on in phases, where applicable, to prevent overloading the system. Overloading occurs when all the units are turned on at the same time. This can be done automatically in building with electronic/ computerized controls.
- II. Deviation from the Energy Policy temperature settings – When the Department head or employees in the Department desire to deviate from the temperature settings defined in this policy, the appeal shall be made directly to the Mayor by the Department head.

PROCEDURES FOR OPERATING LIGHTING EQUIPMENT

- I. The following energy conservation guidelines are to be observed when operating lighting equipment in City buildings:
- A. Inside Lighting
 - 1. Lights in all building areas and workspaces will not be turned on unless needed. Employees will make certain that lights are turned off when leaving an area.
 - 2. Lights in shop areas will not be left on unless the shop is being utilized.
 - 3. During after hour operations, security, cleaning and building maintenance personnel will only turn lights on in the specific area in which they are working.
 - B. Outside Lighting
 - 1. All outside light will be turned off during daylight hours.
 - 2. Outside lighting and building accent lighting will be used only when the building or facilities are occupied, unless the lighting is used for security purposes.
 - 3. Nighttime security lighting will be the minimized to a level that is adequate to reasonably protect the building and facilities.

PROCEDURES FOR OPERATING OFFICE, SHOP & MISC. EQUIPMENT

- I. The following energy conservation guidelines are to be observed when operating office, shop and miscellaneous equipment:

- A. All office machines including copy machines, laminating equipment, faxes (unless used for after-hour faxes), postage machines, and other office machines should be turned off by the office staff each night. Exceptions may be made if documentation from the manufacturer states that turning the equipment off is detrimental to the equipment or it's operation (2/10/03).
- B. All computers, except for network servers that must be left on, should be turned off at the end on the workday. This includes computers used as personal workstations and does not include computers that control critical operating or communication equipment (2/10/03). When computers and monitors are upgraded the monitors shall be an energy-conserving LCD-type flat screen display.
- C. Air lines in shop areas shall be kept leak free and the compressors turned off when the shop is unoccupied.
- D. Power shop equipment shall be turned off when not in use.
- E. The exhaust fan in the rest rooms shall be turned off at the end of the day.

St. Pete Beach, Florida

City of St. Pete Beach Facility Energy Conservation Policy Effective September 1, 2009

The city's policy when it comes to facility energy conservation is twofold. First, is to be environmentally sensitive and seek to conserve dwindling natural resources used in energy production. The second is to be good stewards of the taxpayer's money by keeping energy costs to a minimum. This policy is dependent on all employees being diligent when it comes to energy conversation and seeking ways to minimize energy usage whenever possible. It is expected that all employees will do their part in meeting the guidelines and intent of this policy in order to be successful.

Facility Energy Conservation Guidelines

1. General Guidelines for Energy Conservation - Employees are to exercise good judgment to "conserve, properly use and protect City funds, property, equipment and materials." These guidelines are a few details on conservation as applied to lights, lighting, air conditioning and equipment.

- a. Energy Consumption during Business Hours – During business hours all members of the City staff shall use natural resources in the most efficient manner. However, every employee will develop the ethic of turning off office lights when offices are not occupied for more than a 15 minute period.
- b. Energy Consumption during Non-Business Hours – The City Manager or his/her designee(s) shall coordinate the use of municipal facilities during non-business hours in order to maximize efficient energy consumption during these periods. Most City buildings have hard wired lights that stay on at night by building code for emergency egress.

2. Guidelines and Procedures for HVAC Operations.

- a. Keep all exterior doors and windows closed when heating or air conditioning units are in use. Close room shades or blinds during extreme summer heat.
- b. Thermostat Settings – During air conditioning use, adjust the area thermostat to your highest comfortable temperature when you are there. The setting should be no less than 74 degrees. After hours or when you leave the setting should be no lower than 80 degrees. Most buildings now have programmable thermostats and adjustments are not needed. There's a daily user adjustment if a different temperature is required. These thermostats are set by the management staff in each city facility. If there's

a problem with regard to temperature, notify the Public Services Department to alter the temperature or generate a service work order. Winter or heat settings are 72 degrees when occupied and 64 degrees for after hours.

c. Facilities hosting events shall make every effort to utilize the smallest comfortable space available to hold the event. Individuals responsible for a particular event shall coordinate with the appropriate personnel to schedule and establish temperature controls during the requested time.

3. Guidelines and Procedures for Lighting Operations.

a. Employees shall turn off lighting in the work areas when not in use, unless the lighting standard for the work area is connected to other work areas that are in use. Each Department Director or his/her designee(s) will establish a procedure whereby the last person(s) leaving the premises after the general working day turns off all their respected area lights.

b. Lighting will be turned off in common areas, break rooms and conference rooms anytime that area is vacant and during non-business hours.

c. Where no security concerns exist, all outside lighting shall be kept off during day light hours and if possible turned off from 12:00 a.m. to 5:00 a.m.

d. Natural lighting from skylights and windows allow some types of work without light fixtures during daylight hours. Such activity should be utilized when possible as long as this practice does not result in eye strain. Light fixtures mounted in and around skylights should be used only when necessary.

e. Lighting for display purposes should be turned off at night, although may be utilized for posting of public meetings or special occasions.

f. Evening custodians shall turn on lights only in the specific area where and when they are working. Custodians shall insure that all lighting is turned off at the conclusion of their work.

g. Lighting timers and motion detectors shall be implemented to the fullest extent possible. Individual Department Directors or his/her designee(s) shall review and identify potential locations and shall consider the cost effectiveness of utilizing the alternative mechanism.

h. Exterior athletic lighting shall be used only during scheduled events and must be turned off after scheduled time. Any exterior lighting that is on during the day or non-use time should be reported to the Public Services Department to remedy the condition.

4. Guidelines for Office Equipment Use.

a. Office Equipment Use – Employees shall turn off all computers, copiers, printers, and any other electrical devices when not in use after business hours, except those that are vital to the city's network functions or are in use for emergency response purposes.

b. Facility Equipment - Water Heaters are to be set no higher than 130 degree Fahrenheit at the faucet; water heaters for kitchen sanitation at 170 degrees.

Additional Energy Conservation Policy Resources

City of Portland, Oregon: City Energy Challenge Report

http://www.google.com/url?sa=t&source=web&cd=2&ved=0CBUQFjAB&url=http%3A%2F%2Fwww.portlandonline.com%2Fshared%2Fcfm%2Fimage.cfm%3Fid%3D111736&ei=FkwNTPaoLYzWNcab7LUE&usg=AFQjCNG_2TEo6YO4r0IHxD2CP8k8g6kJPg

City of Durham, North Carolina: Employee Environmental Responsibility Expectations

http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBYQFjAA&url=http%3A%2F%2Fwww.p2pays.org%2Fapp%2Fdocs%2FDurhamEPPEXps.pdf&ei=oUwNTM2zCpHWM_Lp-bUE&usg=AFQjCNHDu0Zb2jIWZEmtIFxv93XWMIIDZ6Q

City of Indianapolis Employee Energy Conservation Policies

Employee Energy Conservation Policy

http://www.google.com/url?sa=t&source=web&cd=2&ved=0CBwQFjAB&url=http%3A%2F%2Fwww.indy.gov%2FMayor%2FGreenPrint%2FDocuments%2FEmployee%2520Energy%2520Conservation%2520Policy.doc&ei=N0oNTJ7yFpfCMo-m9LUE&usg=AFQjCNFWSE-uEADMWq7VTSq_jo4_IDC5w

Energy Conservation Policies for Facilities Managers

<http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBgQFjAA&url=http%3A%2F%2Fwww.indy.gov%2FMayor%2FGreenPrint%2FDocuments%2FEnergy%2520Conservation%2520Policies%2520for%2520Facility%2520Managers.doc&ei=N0oNTJ7yFpfCMo-m9LUE&usg=AFQjCNExoelK2t6NyPdICH2gxf0mPkz9zg>

Softball Field Lighting Retrofit ECO Evaluation

The City EECBG team requested that KERAMIDA review recommendations submitted to the City on a Softball Field Lighting Retrofit project and to evaluate the project by calculating the jobs created, greenhouse gas (GHG) emissions reduction, and expected savings from the project. Musco Sports Lighting, LLC (MUSCO) provided the City an evaluation of replacing the lighting fixtures on three softball fields referred to as Anderson Park Softball Fields #1, #2, and #3 in a letter dated May 29, 2009.

MUSCO did not conduct a direct inventory of the lighting at the Anderson Park softball fields, but rather relied on information they received from the City to determine the savings based on the age and technology of the fixtures used at the softball fields. They then provided comparisons between the existing softball field lighting and MUSCO's new lighting technology referred to as Light Structure Green. The Light Structure Green systems include multiple fixtures per pole to provide a high percentage of the light at ground level, reduced energy use, and reduced light pollution to the surrounding area. The exact types and models of fixtures would be determined during the design stage of the project. A comparison, however, is made based on MUSCO's experience with older outdoor lighting applications similar to the City's.

The current technology used for the three softball fields was considered to use 103 fixtures that would use an average of 1.62 kW each during operation. The lighting was also determined to be used for an estimated 300 hours per year. The newer more energy efficient lighting fixtures would require only 62 fixtures for all three softball fields while using an average of 1.564 kW per fixture. A summary of the cost and energy profiles of both lighting systems are shown on the following table:

Softball Field Lighting Upgrade – Energy and Cost

Softball Field #1, 2, and 3	Number of Fixtures	Average kW/Fixture	Total kW	Operating Hours/Yr	Annual kWh	Energy Cost/kWh	Annual Cost
Existing Softball Field Estimates	103	1.62	166.86	300	50,058	\$ 0.07	\$ 3,504.06
Proposed Lighting Upgrade	62	1.564	96.968	300	29,090	\$ 0.07	\$ 2,036.33
Annual Savings					20,968		\$ 1,467.73
25 Year Savings					524,190		\$ 36,693.30

Note: Fixture numbers and specifications were supplied by MUSCO based on information provided by New Albany.

The annual energy savings of \$1,467.73, or 42%, is in line with other lighting upgrade projects reviewed by KERAMIDA. Lighting upgrades typically save between 25% and 50% of electrical energy costs. The MUSCO report projected future savings over a 25 year period to be \$36,694, which was confirmed by KERAMIDA as shown in the above table. The electrical costs on a percentage basis would be reduced significantly with the installation of the new lighting technology. However, due to the low annual operating hours of the lighting systems, the yearly cost savings in dollars is low. Although, not part of this evaluation, in order to determine if Light Structure Green is an appropriate investment for the City, other data and estimates provided by MUSCO should be evaluated. For example, the cost to maintain the current system, the type of MUSCO operating contract, and the capital expense of the new system.

The estimated GHG savings are shown in the following table:

Softball Field Lighting Upgrade – GHG Reduction

Softball Field #1, 2, and 3	Annual kWh	Indiana lbs CO ₂ /kWh	GHG Tons/yr CO ₂
Existing Softball Field Estimates	50,058	2.09	52.3
Proposed Lighting Upgrade	29,090	2.09	30.4
Annual Savings	20,968		21.9
25 Year Savings	524,190		547.8

The MUSCO analysis used a national average of 1.583 pounds of CO₂ per kWh while the above table uses an Indiana GHG emission factor of 2.09 pounds of CO₂ per kWh. Electricity in Indiana is primarily generated by coal fired power generating plants and is therefore higher than the national average. The estimated jobs saved as a result of the softball field lighting upgrade are 1.8 jobs per the following table:

Softball Field Lighting Upgrade – Equivalent Jobs Saved

Area	Hours
Softball Field Specifier Design	96
Lighting Contractor Installation	1,440
Lighting Manufacturer Hours	2,046
Total Hours	3,582
Temporary Full-time Equivalent Jobs	1.8

The jobs saved as a result of the softball field lighting upgrade are estimated to be 1.8 in three different areas. The major savings are in the actual manufacture of the lighting fixtures and poles at an estimated 2,046 man hours. The installation of the poles, fixtures and new wiring is estimated to be 1,440 hours and the actual design of the installation is estimated to be 96 hours. The total of 3,582 hours is the equivalent to 1.8 temporary jobs for one year.

The KERAMIDA and MUSCO cost, energy, and GHG savings as well as jobs generated as a result of the project are shown below:

ECO #3 Savings Comparisons – KERAMIDA and MUSCO Analyses

25 Year Period	KERAMIDA	MUSCO
kWh Savings	524,190	837,053
Energy Savings	\$ 36,693	\$ 36,694
GHG Savings	547.8	601.0
Equivalent Temporary Jobs	1.8	1.7

The analysis provided by MUSCO on jobs and cost savings is in general agreement with the results of the same analysis performed by KERAMIDA. The amount of energy and GHG savings are not. The discrepancy in kWh savings is due to a calculation error by MUSCO,

although the cost savings are correct. The GHG savings were different because KERAMIDA used an appropriate Indiana emission factor. The overall electrical energy savings in dollars are confirmed to be \$36,694 over a 25 year period. The estimated total project cost provided by MUSCO is \$230,000 and additional savings projected by the MUSCO report related to the maintenance of the existing lighting systems. The proposal presented by MUSCO includes maintenance of the ball park lighting for a period of 25 years and costs related to equipment for remote scheduling of lighting and remote monitoring of the lighting for maintenance purposes. As stated previously, the cost to maintain the current system, the type of MUSCO operating contract, and the capital expense of the new system, should be evaluated in order to determine if Light Structure Green is an appropriate investment for the City.

References

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APPENDIX A: Government Grant Opportunities

The American Recovery and Reinvestment Act (ARRA) began to infuse \$787 billion of public funding into the economy in spring of 2009. It is estimated that over \$100 billion of this funding is targeted to support energy efficiency, renewable energy and green jobs growth. Funding is being distributed through direct grants, formula grants, loans and loan guarantees, tax incentives and discretionary allocations. Fund allocation began in early 2009 and will continue through early 2011. Select funding opportunities related to the ARRA and other sources are listed below.

Federal Grant Opportunities	Comments
The City of New Albany was awarded Energy Efficiency and Conservation Block Grant (EECBG) Funding in December of 2009. No additional federal grant opportunities are currently open to Local Governments to support energy efficiency efforts. The following sites can be monitored for appropriate grant opportunities as they are announced:	
DOE ARRA Website	http://www.energy.gov/recovery/funding.htm
EPA ARRA Website	http://www.epa.gov/recovery/
EERE ARRA Website	http://www1.eere.energy.gov/recovery/
Federal Grants Website	http://www.grants.gov/

State Grant Opportunities	Comments
Indiana Department of Energy Grants Programs	http://www.in.gov/oed/2588.htm FY 2010-2011 Programs not yet posted as of June 8, 2010. Last year's program included Energy Efficiency rebates, Alternative Power and Energy Programs, and a Geothermal Residential Rebate Program.
Indiana Department of Energy ARRA Funds	http://www.in.gov/oed/2583.htm Indiana was allocated \$68.6M in funding through the ARRA. Funding was administered through the Indiana Department of Energy. Specific grant programs may reopen for additional rounds of funding.

APPENDIX B: Private Environmental Grant-making Entities

Indiana Foundations	Website
The Clowes Fund	http://www.clowesfund.org/
Eli Lilly & Company Foundation	http://www.lilly.com/products/access/foundation.html
Nina Mason Pulliam Charitable Trust	http://www.ninapulliamtrust.org
Arthur Jordan Foundation	http://arthur-jordan-foundation.idilogic.aidpage.com/
Efroymsen Fund	http://www.efroymsenfund.org/
Principal Financial Group Foundation	http://www.principal.com/about/giving/index.htm
Walmart / Sam's Club Foundation	http://www.walmartstores.com/GlobalWMTStoresWeb/navigate.do?catg=217
Key Foundation	https://www.key.com/html/A-12.3.html
LACY Foundation	http://www.sklla.org/
Sycamore Foundation	http://www.sycamorefoundation.org/
Sallie Mae Fund	http://www.thesalliemaefund.org
Indiana Pacers Foundation	http://www.nba.com/pacers/news/Foundation_Index.html
Belvedere Fund	http://www.belvederfund.org/ (note: not operational as of July 18) for complete application information. Contact: Catherine Lerza Tel: (202) 293-0062
Cinery Foundation	http://www.museumsusa.org/vendors/info/1259131
Pfizer Foundation Matching Gifts Program	http://www.blindness.org/pdfs/PfizerMtchGiftForm.pdf
Panta Rhea Foundation	http://www.ega.org/funders/funder.php?op=view&orgid=471
Daimler Chrysler Corporation Fund	http://www2.daimlerchrysler.com/dccfund/
Noyes Foundation Sustainable Communities Grant	http://www.noyes.org/
Duke Energy Foundation	http://www.duke-energy.com/community/foundation.asp
Select National Foundations	
Clinton Climate Initiative	http://www.clintonfoundation.org/cf-pgm-cci-home.htm
The Energy Foundation	http://www.ef.org/home.cfm
The Garfield Foundation	http://www.lisc.org/content/organizations/detail/1090
The William and Flora Hewlett Foundation	http://www.hewlett.org/
The Joyce Foundation	http://www.joycefdn.org/

APPENDIX C: Rebates and Tax Incentives

Rebate or Incentive	Comments
ARRA Tax Incentives	http://www.energy.gov/media/HR_1424.pdf Summary of tax incentive available through the American Recovery and Reinvestment Act, including a 30% Investment Tax Credit for small-scale wind energy generation, and residential energy efficiency tax credits.
Residential Tax Credits for Energy Efficiency	http://www.energystar.gov/index.cfm?c=tax_credits.tx_index (Residential)
EnergyStar Rebates and Offers	http://www.energystar.gov/index.cfm?fuseaction=rebate.rebate_locator EnergyStar rebate locator, by zip code, including rebates for EnergyStar appliances, office equipment, heating and cooling equipment, lighting products, and more.
Indiana State Tax Credits for Energy Star Equipment	http://www.in.gov/oed/2379.htm
Duke Energy - Small Commercial and Industrial Energy Efficiency Rebate Program	http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IN15F&re=I&ee=I
Indianapolis Power and Light - PerfectCents Energy Efficiency Rebate Program	http://www.iplpower.com/ipl/index?page=IPLGeneral&Menu=01050400&DocID=0205016c986701096a4e9803007c00
Vectren Energy Delivery - Commercial Energy Efficiency Rebates	http://www.vectren.com/selectState.do;jsessionid=4TTZKpbNYDtDsMSdMdRQr3I3yTQDrQsGjLyDK4c5wPhvVIVIFT2!481578055