A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana

A Report by the City of Bloomington Environmental Commission
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Executive Summary

As affirmed in the US Mayors Climate Protection Agreement and City Council Resolution 06-05, the City of Bloomington is committed to reducing climate change by reducing greenhouse gas emissions. We recognize that human activity is having an adverse impact on the earth's climate—with subsequent predicted negative effects on human welfare and ecological health in many countries—and we seek through education and policy implementation to reduce these impacts for the benefit of future generations. This document provides many ideas through which our community can reduce greenhouse gas emissions. These ideas provide a palette from which the Bloomington community can choose in developing an implementation plan to achieve the goals of the Mayors Climate Protection Agreement and City Council Resolution 06-05. Indeed, the Environmental Commission strongly recommends that the City facilitate a community-wide process through which a concrete action plan is developed, selecting the ideas from this document (and elsewhere) that will work best for Bloomington.

Each section of this document is organized to provide examples of concrete goals within given timeframes (e.g., by 2007, 2009, and 2011). This approach is used to illustrate the notion of setting targets and incorporating accountability into a plan. While ideas and tasks have been distributed across these timeframes, the particular sequencing should be revisited to prioritize tasks as the community sees fit. In addition, concrete suggestions of a particular percent increase or decrease in a given parameter are provided as illustrations of target goals. These specific targets will also need to be revisited in developing an implementation plan.

A summary of six general strategies for reducing greenhouse gas emissions (GGEs) is provided below, followed by more detailed sections which present specific action items for achieving each reduction strategy. Additional information and resources related to some of these strategies are provided as footnotes and appendices. We have drawn many of our ideas from cities that already have established plans to reduce greenhouse gas emissions, including Portland, Oregon; Madison, Wisconsin; Berkeley, California; and Ann Arbor, Michigan. To give credit to these cities we have added in italics, where applicable, the first letter of whichever of these four cities inspired each of our suggested points of action.

I. Establish the Conditions for Change

As a basis for positive change, we must research the current state of greenhouse gas emissions, integrate greenhouse gas reduction into all relevant public policy, and educate individuals, businesses, and community groups on the importance of greenhouse gas reduction. These are ongoing activities whose completion is <u>not</u> a prerequisite for implementation of subsequent

sections of this document. Rather, research, policy development and education can be implemented along side the strategies described in sections II – VI.

II. Increase Energy Efficiency

By using less energy (electricity, heating, cooling), we can reduce the greenhouse gas emissions that result from the use of fossil fuels. The city government, businesses, community groups, and individuals can all play an important role.

III. Reduce the Need for Fossil-Fueled Transportation

One of the most significant sources of greenhouse gas emissions is transportation via individual automobiles. We can greatly reduce these emissions by using alternative transportation modes, increasing the private costs of fossil-fueled driving to include the external costs to society, and investing in alternative fuels. Reducing the need for transportation through compact urban form is also a key tool in reducing GGEs.

IV. Increase Use of Renewable Energy Resources

Along with reductions in energy use, our community must explore alternative sources of energy that have fewer adverse environmental impacts. A goal Bloomington could establish in this area is to require that a specified average percent of the megawatts consumed in Bloomington be derived from new renewable energy resources by a target year in the future.

V. Reduce Waste and Increase Recycling

It also may be possible to decrease energy use and greenhouse gas emissions by reusing and recycling materials rather than discarding them. Bloomington has already made significant strides in recycling, which is a good predictor for success in reaching higher targets. A goal Bloomington could establish in this area is to achieve an overall solid waste recycling rate of 60 percent city-wide by 2009 and set a new target for 2011.

VI. Reduce Greenhouse Gas Effects through Carbon Offsets

Healthy trees can, in aggregate, offset the effects of greenhouse gas emission by converting carbon dioxide into tree growth. Therefore another important way in which our community can ensure the long-term viability of our climate is to plant trees and protect the forested areas in our city and surrounding region.

Specific action items for reducing greenhouse gas emissions

I. Establish the Conditions for Change

A. Research

1. Compile an inventory of greenhouse gas emissions (GGEs) associated with City operations, and annually collect data tracking City GGEs. *(P)*
2. Research technologies and programs that reduce GGEs.
3. Prepare a progress report on the greenhouse gas reduction plan every two years, and identify action items for the following two years. *(P)*
4. Explore opportunities for the City to bank and trade GGE credits in an emissions allowance trading marketplace. *(P)* *(Appendix 3)*

B. Policy Development

1. Publicly recognize that City policies and decisions have an impact upon Bloomington's contribution to climate change. *(P)*
2. Review all current and planned City policies and programs to identify ways to reduce GGEs. *(P)*

C. Education & Outreach

1. Educate city employees about sustainability, with a focus on specific operational changes that can be made to reduce GGEs. Require employee education on fuel-efficient driving and reducing energy use at work and at home. *(P)*
2. Inform community leaders and local media about the causes and impacts of climate change.[1] *(P)*
3. Implement a program to educate community groups and the general public about greenhouse gas effects and their long-term implications, as well as how to reduce GGEs.[2] *(P)*

Some of the following footnotes include links to pdfs.
Sometimes, the page number on a printed pdf is different from the searchable page number that appears at the bottom of the pdf when you view it electronically.
In such cases, *the page number of the printed pdf is listed first, followed by the searchable electronic page number in parentheses*. For example: "p. 2 (e-page 6)"

[1] Media example: Rockford, IL's Rock River Times newspaper includes a special "renewable energy" section http://www.rockrivertimes.com/

[2] Inform citizens of low-cost and no-cost energy-saving measures: http://www.eere.energy.gov/buildings/building_america/for_consumers_top_sites.html

Coordinate with the 2005 U.S. Energy Act Sec. 134 "Energy Efficiency Public Information Initiative": http://www.biodiesel.org/pdf_files/20050729_EnergyConf.pdf p. 77-79

The *Stop Global Warming Virtual March* is a "non-partisan online effort to bring all Americans together to acknowledge that global warming is here now... and it is time to take action to stop it." http://www.stopglobalwarming.org/default.asp

Hire a person to give presentations to schools and professional associations about the predicted effects of climate change, the City of Bloomington's efforts to reduce greenhouse gas emissions (GGEs), and what people can do on their own to reduce GGEs.

4. Ensure that Bloomington's teachers have access to effective resources for educating students about climate change. *(P)*
5. Provide information and resources for local businesses and nonprofit organizations to estimate and reduce their GGEs. *(P)*
6. Publicize public and private projects which seek to reduce GGEs.
7. Form neighborhood "action teams" to promote residential energy efficiency, water conservation, waste reduction, and alternative transportation.[3] *(M)*
8. Establish and advertise a web site that residents can visit to obtain information about reducing GGEs and saving money through energy efficiency at home and work.
9. Inform residents of federal, state and local tax incentives to use renewable energy and low-emissions vehicles. *(P)* *(Appendix 1)*

II. Increase Energy Efficiency

A. Actions Within City Government

2007

1. Replace incandescent light bulbs with compact fluorescent bulbs in all city facilities.
2. Explore lighting automation options such as photosensors, motion sensors, and timers, for city facilities
3. Develop and adopt energy and resource-efficient building standards for all new construction and major renovation projects funded by the city.[4] *(P)*
4. Purchase only EnergyStar® appliances and energy-efficient machinery for city use and for low-income housing supported with city funds.[5] *(P)*
5. Continue converting traffic signals to LED technology.[6] *(P, M, B)*

2009

1. Require all city construction projects to exceed the energy code by 20 percent on new construction and by 10 percent on retrofits. *(P)*
2. Strategically finance energy-saving projects. *(Appendix 4)*
3. Include a green building requirement for developers who receive tax-increment financing from the city.[7] *(M)*

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[3] Madison's Eco-Teams: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 29, 34, 38

[4] Seattle, WA green building standards: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 2 (e-page 6)

[5] Energy Star: http://www.energystar.gov/

[6] The City of Bloomington Traffic Division (within the Dept. of Public Works) already is in the process of changing traffic bulbs to LED. Other cities have done the same:

Berkeley: http://www.ci.berkeley.ca.us/news/2003/01jan/011403energyrebate.html
Madison: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 7, 27, and 35
Passaic, NJ and St. Paul, MN: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 7 (e-page 11)

4. Consider adopting sliding-scale building permit fees, with lower fees for buildings that meet energy-efficiency criteria and higher fees for conventional buildings. *(P)*
5. Increase energy efficiency in city buildings by 10 percent.[8] *(P, M, B, A)*

2011

1. Convert street lights to more energy-efficient technology.[9] *(P, M, A)*
2. Meet LEED Gold standards in all new city buildings and major renovations.
3. Establish the position of a City energy plans examiner and a required field inspection of energy systems, with technical consultation available at the planning stage. *(P)*

B. Actions in the Community

2007

1. Work with many of the largest local business, industrial, and institutional energy customers in Bloomington to establish and meet energy-efficiency and greenhouse gas-reduction targets.[10] *(P, M)*
2. Advocate for the establishment of a state-wide Public Benefits Fund (also called a Systems Benefit Charge or Clean Energy Fund) to pay for energy efficiency programs by levying a small charge on every customer's electricity bill.[11] *(P)*
3. Reduce the need for indoor air-conditioning by promoting green roofs, light-colored roofs, and light-colored paving materials; planting trees; and increasing vegetative cover. *(P) (Appendix 5.8)*

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[7] Madison: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 34

[8] Madison's Memorandum of Understanding (MOU) with the EPA for an Energy Star buildings partnership: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 33
and an MOU for the local school district: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 34

Berkeley's energy-saving retrofits of city-owned buildings: http://www.ci.berkeley.ca.us/sustainable/government/successes.html

Ann Arbor's computer tracking of energy consumption in City-owned facilities: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 41 (e-page 45)

[9] Madison's conversion to high-pressure sodium streetlights: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 7, 27

Ann Arbor's Streetlight Replacement Program: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 44 (e-page 48)

[10] Berkeley's *Sustainable Business Action Plan (Preliminary Report)*: http://www.ci.berkeley.ca.us/sustainable/government/actionplans.html

Madison's ClimateWise program goal and commercial sector green building program goal, with CO_2 reduction estimates: http://www.ci.madison.us/Environment/ccp_2002.pdf p. 7

[11] See the following USEPA document for excellent information, case studies of other states, and links to more articles about "Public Benefits Funds for Energy Efficiency": *Clean Energy-Environment Guide to Action: Policies, Best Practices, and Action Steps for States (Prepublication Version)* http://www.epa.gov/cleanrgy/pdf/gta/guide_action_full.pdf p. 4-19 to 4-36 (e-pages 188 to 205)

4. Promote energy-efficient construction and renovation in all buildings—residential, commercial, and industrial.[12] *(P)*
5. Explore the likely impact of an Energy Efficiency Portfolio Standard (EEPS) for Indiana and/or Bloomington, and consider advocating for legislation to establish a progressive, achievable EEPS target. *(Appendix 2.2)*

2009

1. Facilitate the installation of energy-conservation measures in single- and multi-family residential units. *(P)*
2. Educate residents and businesses on how to lower their energy bills by weatherizing their homes and better maintaining their heating, ventilation, and air-conditioning systems. *(P)*
3. Work with the state and other partners to offer financial incentives for residents and businesses to weatherize buildings and homes and purchase high-efficiency appliances and heating and cooling systems. *(P)*
4. Improve the efficiency of outdoor lighting in residential, public, and commercial settings.
5. Provide educational and technical resources to local builders and developers to encourage green building construction in Bloomington. *(P)*
6. Develop local green building criteria; explore modeling these criteria on LEED™ green building standards.[13] *(P)* *(Appendix 5)*
7. Establish a green building incentives program.[14]
8. Publicly recognize local businesses that have implemented substantial energy efficiency measures.

2011

1. Develop a consortium of local and state support for more stringent federal efficiency standards for furnaces, refrigerators, water heaters, air conditioners, other appliances, and lighting products. *(P)*
2. Strengthen Bloomington's building code and advocate for Indiana's building code to require all cost-effective energy-efficiency measures.[15] (*P)*
3. Explore requiring residential properties to be weatherized and brought up to a minimum code level at the time of sale.[16] *(P, B, A)*

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[12] Ann Arbor School System's energy retrofit: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 40 (e-page 44)

[13] King County, WA: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 1 (e-page 5)

[14] Arlington County, VA's "green building incentives" for the private sector: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 2 (e-page 6)

Chicago's Green Building Agenda 2005—*Building Healthy, Smart, and Green* http://egov.cityofchicago.org/city/webportal/portalEntityHomeAction.do?entityName=Environment&entityNameEnumValue=05 (click on "Green Building" [under "Initiatives and Programs"], then click on "Chicago's Green Building Agenda")

[15] Require new buildings to meet the most recent International Energy Conservation Code (IECC) standards.

Phoenix, AZ's new Building Construction Code: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 3 (e-page 7)

Madison, WI: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 34

4. Promote improved operations and maintenance practices in local buildings, include the creation of resource-conservation management positions. *(P)*
5. Work with local industry to implement waste-heat recovery and other methods to improve energy efficiency.[17] *(P)*
6. Establish an energy-efficiency program for local small businesses. *(P)*

III. Reduce the Need for Fossil-Fueled Transportation

A. Make alternatives to individual automobile use more attractive

2007

1. Require city departments to pay public transportation fares for guests in any circumstance in which private car parking would normally be validated. *(P)*
2. Implement City policies to encourage bus travel whenever appropriate and to provide employees with bus tickets for business travel. *(P)*
3. Expand City transit-pass subsidy programs; for example, give all city employees a bus pass as a job benefit. *(P)*
4. Work with Bloomington Transit to expand bus routes and frequency of service.[18] *(P)*
5. Increase the number of locations that sell Bloomington Transit passes and tickets.
6. Work with Bloomington Transit to improve access to bus service (e.g. park and ride, improved bus shelters). *(P)*
7. Design and distribute maps showing suggested routes for alternative (non-fossil fueled) modes of transportation. *(P)*
8. Publicize and support campaigns promoting alternatives to single-occupancy vehicle travel (e.g. Internet-based ride-share programs and increased information about pleasant walking and biking routes).[19] (P)
9. Provide secure, covered bicycle parking at schools, shopping areas, and other destinations. (P)

2009

1. Reduce per-employee vehicle miles traveled in City administrative vehicles by 15 percent by 2013 by promoting teleconferencing and the availability of pedestrian, bicycle, bus and ridesharing options for employees on business travel.[20] *(P, M, A)*

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[16] Berkeley's Residential Energy Conservation Ordinance requires that minimum energy conservation standards be met when residential structures are sold: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 9 (e-page 13)

Ann Arbor's Weatherization Ordinance for rental units: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 23 (e-page 27)

[17] Links to articles on Process Heating, from the U.S. Dept. of Energy's Industrial Technologies Program: http://www.eere.energy.gov/industry/bestpractices/energymatters/topic.cfm/topic_id=10

[18] Presently, the Bloomington Transit Corporation provides public transportation around the city to citizens and students, while the IU Campus Bus System serves as a means of alternative transportation for those traveling around campus. Students who show a valid student ID are able to use both transit systems free of charge. Bloomington Transit also provides transportation for the disabled through the BT Access program. Transfers from the Monroe County rural bus program to the city bus are free of charge.

[19] Portland, Oregon's internet-based carpool matching program: http://www.carpoolmatchnw.org/

2. Promote City telework and flexible hours policies, and encourage department managers to consistently apply them. Enable 25 percent of City employees to telework or work nine-hour days, to avoid commuting at least twice a month.[21] *(P, M, A)*
3. Implement vehicle-sharing programs for City departments.[22] *(P, B, A)*
4. Develop a contingency plan for fuel emergencies, so that essential public services can operate in the event of an energy crisis.[23] *(A)*
5. Increase drivers license test emphasis on pedestrian/bicycle rights.[24] *(M)*
6. Institute a "bike to work week" to take place each summer.[25] *(M)*

2011

1. Continue to improve Bloomington's pedestrian and bicycle infrastructure to meet the needs of pedestrians and bicyclists.[26] *(P, A)*
2. Promote telework, compressed workweeks, and other work options which would reduce commuting. *(P)*
3. Promote vehicle sharing to individuals, businesses, and community groups (e.g. neighborhood car-share programs, sharing business delivery vehicles).[27] *(P)*

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[20] Ann Arbor's bicycle programs: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 7 (e-page 11)

Madison's Employees Bike at Work Program: http://www.cityofmadison.com/Environment/BikesAtWork.htm

[21] Madison: promote flex-time work hours so that not everyone begins and ends work at once, to avoid traffic congestion and idling: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 37

[22] Ann Arbor's City Car Pool Program: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 35 (e-page 39)

Berkeley's City Car-Sharing program: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 5 (e-page 9)

[23] Ann Arbor: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 33 (e-page 37)

[24] Madison: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 39

[25] Madison: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 39

[26] Ann Arbor's bicycle programs: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 7 (e-page 11)

City of Bloomington Alternative Transportation & Greenways System Plan proposes a network of bicycle and pedestrian facilities for Bloomington.

City of Bloomington Growth Policies Plan includes a policy to "Enhance Bicycle and Pedestrian Transportation Facilities" (p.15; e-page 26), as well as a "Master Thoroughfare Plan" (p. 79-94; e-pages 90-105) that defines construction standards for the bicycle and pedestrian facilities defined in the *City of Bloomington Alternative Transportation & Greenways System Plan*.

City of Bloomington Greenway Corridor Project will convert an old railway into a pedestrian/bicycle trail.

[27] Details about and examples of car sharing-programs: http://eartheasy.com/live_car_sharing.htm http://www.smartcommunities.ncat.org/transprt/maxchoic.shtml#Van

B. Increase the private costs of fossil-fueled driving to include the external costs to society

2007

1. Explore increasing the cost of parking on public lots and streets to make it reflect the costs of the infrastructure as well as the long-term effects driving has on the environment.[28]
2. Work with businesses to encourage all employers who offer their employees subsidized parking also to offer a parking "cash out"—an equivalent payment to employees who do not require vehicle parking. *(P)*

2009

1. Support the use of auto insurance premiums based on the number of miles a car is driven. *(P)*
2. Work with financial institutions and interested citizens to explore the potential for location-efficient mortgages (LEMs) in the Bloomington area.[29] *(P)*

2011

1. Extend parking pricing to all appropriate commercial areas to reduce single-occupancy vehicle use. *(P)*
2. Implement a sliding-scale fee for vehicle registration or parking permits based on a vehicle's greenhouse gas emissions (revenues would go toward programs to improve public transportation or facilitate carpools and non-motorized transportation). *(P)*

C. Increase the use of fuel-efficient and alternative-fuel vehicles and equipment

2007

1. Require a fuel efficiency of at least 30 mpg for all new City car purchases.[30] *(M)*
2. Educate all city employees on fuel-efficient driving practices, such as avoiding unnecessary idling.[31] *(P, M)*
3. Ensure that the City's vehicle fleet maintenance practices optimize fuel efficiency.[32] *(P, A)*

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[28] See Shoup, Donald, *The High Cost of Free Parking*, Chicago: Planners Press, 2005

[29] Location-Efficient Mortgages (LEMs):
http://www.apolloalliance.org/docUploads/apollo-final.pdf p.5 (e-page 9)
and http://www.locationefficiency.com/

[30] Madison: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 36

[31] USEPA Anti-Idling program resources (including free video, posters, and more):
http://www.epa.gov/cleanschoolbus/antiidling.htm

USEPA tips to save gas: http://www.epa.gov/otaq/consumer/17-tips.htm

Madison: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 36

[32] Ann Arbor's Vehicle Fleet Management Program:
www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p.45-46 (e-page 49-50)

Austin, TX's greener fleet resolution: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 5 (e-page 9)

"A Clean and Green Fleet: An Action Plan for the City of Seattle":
http://www.cityofseattle.net/environment/Documents/CleanGreenFleetAP.pdf

4. Continue using biodiesel (B20 or higher) in City diesel vehicles.[33] *(Appendix 6)*
5. Support proposals to raise the federal Corporate Average Fuel Economy standards for new automobiles to 45 mpg and for light duty trucks to 35 mpg.[34] *(P, M)*

2009

1. Increase the average fuel efficiency of passenger vehicles in the City motor pool to 35 mpg. *(P)*
2. Implement life-cycle costing for the purchase of energy-using equipment—vehicles and otherwise.
3. Encourage the use of lower-CO_2 emission technologies in non-road vehicles and equipment—for example, electric forklifts. *(P)*
4. Work with auto repair shops to educate customers on the fuel savings (and financial savings) that result from properly maintaining vehicles and using fuel-efficient driving techniques.[35] *(P)*

2011

1. Offer incentives for citizens to drive fuel-efficient vehicles.[36]

D. Encourage Compact Urban Form and Mixed-Use Development

1. Ensure that the city's Unified Development Ordinance promotes infill and brownfield development as well as bicycle and pedestrian-friendly urban and suburban neighborhoods.[37]
2. Promote mixed-use development that places residential units near commercial development and employment opportunities, to reduce the need for transportation.
3. Develop a city-wide transportation plan to reduce the number of vehicle miles traveled, increase use of alternative modes of transportation, and support Smart Growth planning to limit urban sprawl.[38] *(P)*

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[33] Bloomington Transit (35 busses), the IU Campus Bus System (27 busses), Monroe County Community School Corporation (107 busses), the Monroe County Highway Department and Van Buren Township Fire Department (50 vehicles) all use soy-biodiesel for their fleet vehicles.
Also, explore converting diesel vehicles to run on Straight Vegetable Oil (see *Appendix 6.2*).

[34] Madison: http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 39

[35] "Fuel-efficient driving tips from the pros":
http://www.canada-news.info/articles/fuel_efficient_driving_tips_from_the_pros.shtml

Launch an anti-idling campaign focused especially upon educating both bus drivers and parents picking their children up from school. USEPA Anti-Idling program resources (including free video, posters, and more): http://www.epa.gov/cleanschoolbus/antiidling.htm

[36] Austin, TX's parking meter credit for hybrid cars: http://www.apolloalliance.org/docUploads/apollo-final.pdf

[37] Strategies for successful infill development: http://www.nemw.org/infillbook.htm

City of Bloomington Growth Policies Plan recommends several infill development policies (pdf p. 17, 18, 23, 28, 29, 41, 42, 47, 51, 69, 82, 87)

[38] EPA's Smart Growth website: http://www.epa.gov/smartgrowth/

Smart Growth Network: http://www.smartgrowth.org/default.asp

Portland, OR's long-term Smart Growth policy:
http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 6 (e-page 10)

4. Learn from the innovative parking solutions of other cities to implement smart parking policies for Bloomington.[39]

IV. Increase Use of Renewable Energy Resources

2007

1. Purchase 10 percent of City government electricity from renewable resources;[40] take advantage of tax incentives and smart financing strategies *(Appendices 1.3, 1.4, 4,* and *7.2.1)*
2. Advocate for the establishment of a state-wide Public Benefits Fund (also called a Systems Benefit Charge or Clean Energy Fund) to pay for the development of new renewable energy sources by levying a small charge on every customer's electricity bill.[41] *(P)*
3. Explore the likely impact of a Renewable Portfolio Standard (RPS) for Indiana and/or Bloomington, and then advocate for legislation establishing a progressive, achievable RPS target. *(Appendix 2.1)*

2009

1. Purchase 20 percent of City government electricity from renewable resources; take advantage of tax incentives and smart financing strategies *(Appendices 1.3, 1.4, 4,* and *7.2.1)*
2. Install photovoltaic panels on the roof of City Hall.[42] *(Appendices 1, 4, 7.2.1,* and *7.2.3)*
3. Encourage residents and businesses to purchase at least 10 percent of their electricity from new renewable sources as they become available.[43] *(P) (Appendices 1, 4,* and *7)*

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[39] EPA's *Parking Spaces / Community Places: Finding the Balance through Smart Growth Solutions*: http://www.epa.gov/smartgrowth/pdf/EPAParkingSpaces06.pdf ←This document contains a wealth of excellent case studies.

City of Bloomington Growth Policies Plan supports conscientious parking policies (pdf p. VI, 7, 39; e-pages 7, 18, 28; and more)

[40] Ann Arbor's solar-heated public pool: www.ci.annarbor.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20energy%20plan%20update%201994.pdf p. 19 (e-page 23)

[41] See the following USEPA document for excellent information, case studies of other states, and links to more articles about "Public Benefits Funds for State Clean Energy Supply Programs": *Clean Energy-Environment Guide to Action: Policies, Best Practices, and Action Steps for States (Prepublication Version)* http://www.epa.gov/cleanrgy/pdf/gta/guide_action_full.pdf p. 5-21 to 5-31 (e-pages 258 to 268)

[42] Also consider using solar-powered (photovoltaic) streetlights and other outdoor lighting.

[43] Duluth, MN's 2.4 kWh *photovoltaic* array on the roof of the city's main public library, and Chesapeake, VA school's savings with a *geothermal* system: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 4 (e-page 8)

4. Include renewable energy incentives in utility agreements. *(P)*
5. Provide educational opportunities to develop local expertise in solar electric (PV) and solar hot water system installation. *(Appendix 7.2.3)*
6. Explore amending municipal code to provide for lower-cost interconnection of PV and other renewable electricity systems. *(P)*
7. Work with appropriate local industries to explore possibilities for distributed electricity generation (DG) as a means to increase renewable energy production and energy efficiency (e.g. combined heat and power (CHP)).[44]

2011

1. Purchase 30 percent of City government electricity load from new renewable resources, and set a goal for 2013; take advantage of tax incentives and smart financing strategies *(Appendices 1.3, 1.4, 4,* and *7.2.1)*
2. Install solar, geothermal, and other renewable energy technologies at appropriate City facilities. *(P)*
3. Consider purchasing Renewable Energy Certificates to offset City GGEs and support development of the U.S. renewable energy infrastructure.[45]
4. Inform residents and businesses of their opportunity to purchase Renewable Energy Certificates to offset personal or corporate GGEs.

V. Reduce Waste and Increase Recycling

2007

1. Hire a City resource-conservation manager (full- or part-time) to reduce solid waste, energy use, and water use at City facilities. Pay for this person's salary with the savings that result from lower utility bills.
2. Track waste disposal and recycling practices and quantities at all City facilities to obtain a baseline rate for future comparison. *(P)*
3. Establish City policies to use recycled antifreeze, recycled latex paint, and paper with at least 30 percent post-consumer recycled content. Establish standards for purchasing additional recycled-content products.[46] *(P, M)*

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[44] A Combined Heat and Power (**CHP**) system generates power (electricity) and thermal energy (heat) from a single fuel source. A Distributed Generation (**DG**) system produces electric power at a facility—typically small in scale—that is either at the site of the electricity user or closer to the user than the central generation facility (i.e. the central power plant). "Clean" DG systems include both renewable energy systems and CHP systems. Therefore, CHP is a type of DG.

Information about **CHP** is available at USEPA's Combined Heat and Power Partnership website: http://www.epa.gov/chp/

The Indiana Utility Regulatory Commission (IURC) refers to **DG** facilities as "customer-generator facilities." In Nov. 2005 the IURC approved new standards for interconnection between a public utility and a customer-generator facility.

Indiana's new DG interconnection standards are available in full here, from the IURC website: http://www.in.gov/iurc/rules/rm0502_040506.pdf

Indiana's new DG interconnection standards are summarized here by the U.S. Dept. of Energy: http://www.eere.energy.gov/states/state_news_detail.cfm/news_id=9640/state=IN

The following USEPA document contains many ideas for policies to promote CHP and DG: *Clean Energy-Environment Guide to Action: Policies, Best Practices, and Action Steps for States (Prepublication Version)* http://www.epa.gov/cleanrgy/pdf/gta/guide_action_full.pdf

[45] A list of and links to Renewable Energy Certificate providers: http://www.eere.energy.gov/greenpower/markets/certificates.shtml?page=1

4. Improve and expand curbside recycling and other residential recycling services; extend recycling to apartment complexes within the city limits.[47]
5. Purchase only printers and copiers with duplexing capacity for City use; evaluate making duplexing the default setting. *(P)*
6. Lobby for an Indiana state bottle/can deposit law.
7. Assist local businesses in improving their waste management practices; expand commercial recycling programs and services. *(P)*
8. Explore the pros and cons of reversing Monroe County Solid Waste Management District's computer and electronic waste recycling incentives (presently residents must pay to recycle computers and TVs). In general, promote the reuse and recycling of electronic devices.[48] *(P)*

2009

1. Achieve a solid waste recovery rate of 60 percent at City facilities; set a new target for 2011. *(P)*
2. Hold City department managers responsible for resource-conservation practices in their departments. *(P)*
3. Require City contractors and vendors to use recycled materials in their products, whenever possible and to handle their waste in an environmentally friendly manner. *(P)*
4. Seek ways to promote Bloomington's material salvage businesses. *(P)*
5. Implement a commercial food-waste collection and composting program. *(P)*
6. Launch a public education campaign on food composting (indoor and outdoor), and explore the possibilities for a residential food-waste collection program. *(P)*
7. Institute recycling of all types of plastics, not just #1 and #2 bottles; tap into the regional market for various recycled plastics.[49]

2011

1. Institute City recycling of asphalt and other street material and encourage private contractors to do the same. *(P)*
2. Work with the Indiana Department of Environmental Management and other jurisdictions to develop policies promoting extended product responsibility (EPR).[50] *(P)*

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[46] Madison's recycled-plastic park benches and curb blocks:
http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 27

[47] USEPA's recycling publications (several excellent downloadable documents):
http://www.epa.gov/epaoswer/non-hw/muncpl/recpubs.htm

Models for city recycling legislation: http://www.highroadnow.org/envirometro/recycling/index.cfm

[48] Computer Take-Back Campaign: http://www.computertakeback.com/

Electronic Waste Recycling: A Toolkit for Legislators:
http://www.computertakeback.com/docUploads/LegislatorToolkit.pdf

Electronic Equipment Recycling and Recovery links:
http://www.plasticsresource.com/s_plasticsresource/sec_electronics.asp?TRACKID=&CID=272&DID=823

[49] Recycled Plastics Markets Database (enter a Bloomington zip code and a type of plastic to locate nearby buyers):
http://www.plasticsresource.com/s_plasticsresource/rmd_default.asp?TRACKID=&CID=86&DID=760

PlasticsResource.com's Community Recycling Resources:
http://www.plasticsresource.com/s_plasticsresource/sec.asp?TRACKID=&CID=151&DID=256

3. Stay informed of emerging waste-to-energy technologies and less-polluting methods of combusting organic waste for fuel.[51]

VI. Reduce Greenhouse Gas Effects through Carbon Offsets

A. Support efforts to preserve and grow regional forests

1. Adopt policies to restrict the purchase and use of non-sustainably harvested timber by City agencies. *(P)*
2. Support non-profit, private, and government efforts to reforest Indiana timberland. *(P)*

B. Plant new native trees and protect the ones we have locally

2007

1. Update the Parks and Recreation Urban Forestry Division's inventory of the urban canopy to determine its current health, and identify needs and priorities for future urban forest management.[52] *(P)*
2. Promote planting native trees to offset GGEs, improve air quality, absorb stormwater runoff, provide animal habitat, and reduce summer energy use through cooling and shading.[53] *(P)*
3. Increase public awareness of the importance of the urban forest, and solicit funding for the Bloomington Tree Fund from local businesses, residents, and organizations.[54] *(P)*
4. Assess the financial value of the city's urban forest by quantifying the benefits summarized in point 2. Use this assessment to guide policy decisions, and include it in public education programs *(P)*
5. Protect existing trees from development impacts, and encourage planting new native trees as a component of future development projects.[55] *(P)*

2009

1. Implement best management practices for City urban landscaped areas.[56] *(P)*

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[50] EPR explanation: http://www.grrn.org/resources/what_is_epr.html

USEPA's *Extended Product Responsibility: A Strategic Framework for Sustainable Products*: http://www.epa.gov/epaoswer/non-hw/reduce/epr/docs/eprbrochure.pdf

[51] U.S. Department of Energy's *Energy from Organic Waste Project Fact Sheet*: http://www.eere.energy.gov/inventions/pdfs/enertech.pdf

[52] City of Bloomington Parks & Recreation "Street Trees & Landscaping": http://bloomington.in.gov/parks/landscaping.php

[53] City of Bloomington Environmental Commission's *Toward a Comprehensive Greenspace Plan* (2003) describes the mechanisms of, potential funding sources for, and case studies of successful greenspace planning. Bloomington's greenspace preservation and expansion efforts could coincide with urban tree planting.

[54] Information about the Bloomington Tree Fund is at the bottom of the following web page: http://www.bloomington.in.gov/egov/apps/services/index.pl?path=details&action=i&id=1043

[55] *City of Bloomington Growth Policies Plan* calls for policies to "protect trees and greenspace from development impacts." pdf p. 9-10 (e-pages 20-21)

[56] Indiana DNR's Community and Urban Forestry Program offers technical assistance for urban forestry management: http://www.state.in.us/dnr/forestry/

2. Improve and sustain the health of Bloomington's urban forest through proper planning and maintenance. *(P)*
3. Work with local residents, businesses, and organizations to organize tree-planting and maintenance events. *(P)*

2011

1. Increase the acreage of Bloomington's urban forest by planting more trees each year than are lost through development or disease.
2. Expand the function of the Urban Forestry Division to include a Green Roofing Program. *(Appendix 5.8)*

C. Forge community partnerships to offset greenhouse gas emissions

1. Explore investing in carbon offset projects to help the City meet its overall GGE-reduction goal.[57] *(P)*
2. Inform local residents, businesses, and institutions of their opportunity to invest in carbon offset projects, to meet personal or corporate GGE-reduction goals.[58] *(P)*

[57] The World Land Trust, among other organizations, provides an opportunity to invest in its carbon offset projects: http://www.carbonbalanced.org/corporate/carbonoffset.htm#n04

[58] Carbon offset project links and price information: http://www.ecobusinesslinks.com/carbon_offset_wind_credits_carbon_reduction.htm

Some of these appendices include links to pdfs.
Sometimes, the page number on a printed pdf is different from the searchable page number that appears at the bottom of the pdf when you view it electronically.
In such cases, *the page number of the printed pdf is listed first, followed by the searchable electronic page number in parentheses*. For example: "p. 2 (e-page 6)"

Appendix 1 *State and Federal incentives to use renewable energy and low-emissions vehicles*

1.1 Hybrid car incentives: 2005 U.S. Energy Act Sec. 1341, page 1402
(Energy Act pdf: http://www.biodiesel.org/pdf_files/20050729_EnergyConf.pdf)

1.2 Net metering:
Rule: www.dsireusa.org/documents/Incentives/IN05R.pdf
Summary:
http://www.irecusa.org/articles/static/1/1118339755_987096450.html
under "Rules, Regulations & Policies" (10 kw max, as of September 2004). However, utilities may limit the aggregate amount of net-metering facility nameplate capacity to 0.1% of the utility's most recent summer peak load.

1.3 Indiana state financial incentives for renewable energy:

http://www.dsireusa.org/library/includes/map2.cfm?State=IN&CurrentPageId=1

100% **property tax exemption** for Solar Water Heat, Solar Space Heat, Wind, Hydroelectric, Geothermal Electric, and Geothermal Heat Pumps. These exemptions are listed in four separate statutes pertaining to solar, wind, hydropower, and geothermal systems, respectively. The definition of "solar" is restricted to active solar systems used for heating or cooling. More information about
active solar heating: http://www.eere.energy.gov/consumerinfo/factsheets/ac7.html
active solar cooling: http://www.eere.energy.gov/consumerinfo/factsheets/ac2.html

1.4 Federal financial incentives for renewable energy:

http://www.dsireusa.org/library/includes/genericfederal.cfm?CurrentPageID=1&state=us&ee=0&re=1

including a 10% credit for businesses using solar or geothermal energy, plus other incentives. Also, the 2005 U.S. Energy Policy Act establishes a 30% tax credit up to $2,000 for the purchase and installation of residential solar electric (photovoltaic) and solar water heating systems. An individual can take both a 30% credit up to the $2,000 cap for a photovoltaics system and a 30% credit up to a separate $2,000 cap for a solar water heating system. A 30% tax credit up to $500 is also available for fuels cells. (Sec. 1335)
http://www.dsireusa.org/library/includes/GenericIncentive.cfm?Incentive_Code=US37F&currentpageid=3 (Energy Act pdf: http://www.biodiesel.org/pdf_files/20050729_EnergyConf.pdf)

Guide to Federal Tax Incentives for Solar Energy, by the Solar Energy Industries Association: http://www.seia.org/manualdownload.php

Appendix 2 *Renewable Portfolio Standards and Energy Efficiency Portfolio Standards*

2.1 Renewable Portfolio Standards (RPS)

22 states plus D.C. have RPS legislation. This table summarizes the % or amount of electricity that is targeted to come from renewable sources.		
State	*% Renewable*	*by the year…*
Maine	30	2000
Illinois	25	2017
New York	24	2013
California	20	2017
Hawaii	20	2020
Nevada	20	2015
Montana	15	2015
Rhode Island	15	2020
Washington, D.C.	11	2022
Connecticut	10	2010
Colorado	10	2015
Delaware	10	2019
New Mexico	10	2011
Vermont	10	2013
Pennsylvania	18	2020
Maryland	7.5	2019
New Jersey	6.5	2008
Massachusetts	4	2009
Wisconsin	2.2	2011
Arizona	1.1 (3/5 solar)	2007
Texas	5,880 MegaWatts (a capacity target rather than a percentage target)	2015
Minnesota	1,125 MW	2010
Iowa	105 MW	?

Source: U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. *States with Renewable Portfolio Standards*.
http://www.eere.energy.gov/states/maps/renewable_portfolio_states.cfm?print#chart

More on Renewable Portfolio Standards:
http://www.highroadnow.org/high_road/environmental_sustainability/renewable_portfolio_standards/
(including legislation language template, talking points, and background):
www.renew**wi**sconsin.org/reports/UCS_WI_RPSreport.pdf

Case studies and other excellent information from the USEPA regarding Renewable Portfolio Standards:
Energy-Environment Guide to Action: Policies, Best Practices, and Action Steps for States (Prepublication Version)

http://www.epa.gov/cleanrgy/pdf/gta/guide_action_full.pdf
p. 5-3 to 5-20 (e-pages 240 to 257)

2.2 Energy Efficiency Portfolio Standards (EEPS)

Case studies and other excellent information from the USEPA regarding Energy Efficiency Portfolio Standards:
Energy-Environment Guide to Action: Policies, Best Practices, and Action Steps for States (Prepublication Version)
http://www.epa.gov/cleanrgy/pdf/gta/guide_action_full.pdf
p. 4-3 to 4-18 (e-pages 172 to 187)

Appendix 3 *Greenhouse gas emissions credit trading*

3.1 The Chicago Climate Exchange: http://www.chicagoclimatex.com/

3.2 A *set-aside of NO_x allowances for large-scale energy efficiency projects and renewable energy projects* (allowances that can be sold in the national NOx-trading system developed by the EPA)
See "326 IAC 10-4-2 Definitions" and
326 IAC 10-4-9 NO_x allowance allocations" at
http://www.dsireusa.org/documents/Incentives/IN10F.pdf
55,729 tons of NO_x are set aside during each ozone control period, including 1,115 tons for energy efficiency and renewable energy.
In recent years, NO_x allowances have traded in a range between $2,500 and $6,000 per ton.

Appendix 4 *Strategies for financing municipal energy-saving projects*

4.1 Bonding Initiatives
San Francisco http://www.apolloalliance.org/docUploads/apollo-final.pdf
p. 8 (e-page 12)

4.2 Revolving Funds/ "Energy Bank"
Duluth, MN http://www.apolloalliance.org/docUploads/apollo-final.pdf
p. 8 (e-page 12)

Madison's "Energy Efficiency Savings Fund" (to capture City energy efficiency savings and use them to implement additional efficiency measures) http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 33

Ann Arbor's "Energy Bank" idea: www.ci.**ann-arbor**.mi.us/CityAdministration/EnvironmentalCoordination/Energy/a2%20**energy**%20**plan**%20**update**%20**1994**.pdf p. 37 (e-page 41)

4.3 Pension Fund Investments
California: http://www.apolloalliance.org/docUploads/apollo-final.pdf
p. 9 (e-page 13)

4.4 Energy Savings Performance Contracts
Redlands, CA: http://www.apolloalliance.org/docUploads/apollo-final.pdf
p. 9 (e-page 13)

4.5 Also see the USEPA's *Clean Energy-Environment Guide to Action: Policies, Best Practices, and Action Steps for States (Prepublication Version)* Section 3.4 for excellent information and examples:
http://www.epa.gov/cleanrgy/pdf/gta/guide_action_full.pdf
p. 3-64 to 3-92 (e-pages 141 to 169)

4.6 Apply for grant money and/or technical assistance through the Rebuild America program, which is managed by the State Technologies Advancement Collaborative (STAC) http://www.stacenergy.org/
(the program formerly was managed by the U.S. Department of Energy, which still posts information about *Rebuild America* at http://www.rebuild.org).

4.7 Financial opportunities through the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy: http://www.eere.energy.gov/financing/

Appendix 5 *Green Building*

5.1 U.S. Green Building Council

5.1.1 LEED™: http://www.usgbc.org/DisplayPage.aspx?CategoryID=19

5.1.2 US Green Building Council links:
http://www.usgbc.org/DisplayPage.aspx?CMSPageID=76&

5.2 Energy Star®: http://www.energystar.gov/

5.3 State Environmental Resource Center's Green Building Policy Issues Package:
http://www.serconline.org/grBldg/index.html

5.4 Green Building Pages: http://www.greenbuildingpages.com/main_nb.html

5.5 BuildingGreen.com: http://www.buildinggreen.com/

5.6 Rocky Mountain Institute green building documents:
http://www.rmi.org/sitepages/pid174.php#GBBL

5.7 Federal incentive for energy-efficient building systems:
2005 U.S. Energy Policy Act p. 1333-1336
(http://www.biodiesel.org/pdf_files/20050729_EnergyConf.pdf)

5.8 *Green Roofs*

5.8.1 Greenroofs.net http://www.greenroofs.net/index.php

5.8.2 Chicago's green roofs
http://egov.cityofchicago.org/city/webportal/portalEntityHomeAction.do?BV_SessionID=@@@@0685161652.1125081783@@@@&BV_EngineID=ccccaddfidkliklcefecelldffhdffn.0&entityName=Environment&entityNameEnumValue=13

Appendix 6 *Biodiesel*

6.1 Definitions

"Blended"= petroleum/soybean blend biodiesel:
(http://www.biodiesel.org/buyingbiodiesel/retailfuelingsites/showstate_bycity.asp?st=IN gives locations of Indiana retail fueling sites, either B2, B5, or B20 blend)

"Neat" = 100% plant-derived biodiesel (see http://www.bioenergycolorado.com for current price)

"SVO"=100% vegetable oil—that is, oil that has not been converted to biodiesel. While biodiesel can be used in any diesel engine, SVO can be used only in a vehicle that has been converted (see *Appendix 6.2*)

6.2 Converting vehicles to run on SVO (straight vegetable oil)—
companies that sell DIY equipment and/or convert your vehicle for $$:
http://greasecar.com/converserv.cfm?page=Resources
http://frybrid.com
http://greasel.com
http://www.deepfriedrides.com/

6.3 Manufacture your own biodiesel fuel:
Collaborative Biodiesel Tutorial: http://www.biodieselcommunity.org/
Example small-scale biodiesel machine: *Fuelmeister* costs $3000-$4000 and makes 40 gallons of biodiesel in 24 hours.
Sold at http://www.biodieselsolutions.com/products/fuelmeister.asp
and other retailers.

6.4 Form a local biodiesel cooperative, to augment biodiesel purchasing power.
Examples: http://tcbiodiesel.com/ (Minneapolis/St. Paul, MN)
http://www.boulderbiodiesel.com/ (Boulder, CO)
http://www.tacomabiodiesel.org/ (Tacoma, WA)
http://www.utahbiodiesel.org/index.html (Park City, UT)

6.5 Biodiesel in Indiana:
Indiana's first soy biodiesel plant:
www.biodiesel.org/resources/memberreleases/20050830_IntegrityBiofuelsAnnouncement.pdf

Monroe County Community School Corp. now uses B20:
http://www.indianasoybeanboard.com/BloomingtonKids.shtml
Reynolds, IN: converting to all-renewable energy sources:
http://www.indianasoybeanboard.com/biotown.html

6.6 Additional biodiesel information:
National Biodiesel Board:
http://www.biodiesel.org/
State Environmental Resource Center's biodiesel policy issues package:
http://www.serconline.org/biodiesel/index.html

6.7 Other vehicle topics

Choosing a "green" car:
Green Book Online:
http://www.greenercars.com/online.html
US Dept. of Energy resources:
http://www.eere.energy.gov/afdc/resources/emissions.html

Fuel cell buses
2005 U.S. Energy Act Sec. 743 "Fuel Cell Buses";
Bloomington could propose to be one of the fuel cell demonstration units of local government, as stipulated in the Act.
(http://www.biodiesel.org/pdf_files/20050729_EnergyConf.pdf p. 718)
Georgetown University's fuel cell bus program:
http://fuelcellbus.georgetown.edu/index.cfm

Appendix 7 *Renewable Energy*

7.1 Landfill methane

7.1.1 EPA's Landfill Methane Outreach Program: http://www.epa.gov/lmop/
Landfill gas energy project profiles:
http://www.epa.gov/lmop/proj/prof/index.htm
Landfill gas systems (18 in Indiana):
http://www.epa.gov/lmop/proj/xls/opprjslmopdata.xls
Candidate landfill gas systems (Monroe Co. isn't listed):
http://www.epa.gov/lmop/proj/xls/candlfslmopdata.xls

7.1.2 Madison's landfills:
http://www.ci.madison.wi.us/Environment/ccp_2002.pdf p. 22

7.1.3 Denton, TX landfill methane used to power a biodiesel production facility: http://www.apolloalliance.org/docUploads/apollo-final.pdf p. 4 (e-page 8)

7.2 Solar Power

7.2.1 Demonstration projects and creative financing:

Reduce the cost of local businesses' PV installations by setting up the installations as workshops—people pay to learn how to install PV systems (for their own homes), thereby defraying the business' costs.

Deli dollars / local scrip (example: a local business sells to customers a coupon for $9 that they can redeem for $10 worth of product at a later time. The investments are used to help finance the business' PV system installation. A redemption date is stamped on the coupons to stagger the dates in which the business honors the coupons.)

http://earthskyexchange.org/history.htm
http://www.feasta.org/documents/shortcircuit/index.html?sc4/share.html

Examples from other communities

http://oldmanriver.com/solar/sunny_side.htm
http://www.izzysicecream.com/solarproject/

Hold a free public "solar tour" of houses in the area that use PV panels or solar heating, with a tech expert on hand to answer questions.

7.2.2 Solar schools:

8 schools in Indiana received from Cinergy a 1.1 kw grid-connected PV system with educational monitoring:

http://www.irecusa.org/sgs.php?PHPSESSID=8fba1c33941065eb1dd1b2d10741f3a4&state=Indiana

Ample precedent has been set for school PV systems.

Schools Going Solar Database: http://www.irecusa.org/sgs.php
Suggestion: get Bloomington included.

Solar electricity in schools fact sheet:

http://www.focusonenergy.com/page.jsp?pageId=564

BP America's A+ for Energy program was developed by BP to recognize California teachers for innovation and excellence in teaching energy and/or energy conservation in the classroom (the company funds solar panel installation at schools, with the kids helping out with the whole project). Source: (*Solar Today* July/Aug.'05, p.16-19)
Suggestion: Ask BP to extend their program to the Midwest; ask other large energy companies to establish a similar program that Bloomington schools could apply for.

7.2.3 PV installers:

See the *Midwest Regional Solar Yellow Pages* for a listing (go to http://www.iowadnr.com/energy/solarmidwest/consumer.html, and then click on the *Solar Yellow Pages* pdf; also at this web page are case studies of PV applications in the Midwest).

Also, go to http://FindSolar.com. No Indiana installers are listed at that site, but installers in adjacent states—many of whom are willing to travel—are listed, along with information about their expertise.

Build a local pool of PV system installers— Write a letter from the City of Bloomington to Ivy Tech http://www.ivytech.edu/ to encourage them to develop a PV installation curriculum with advice from NABCEP http://www.nabcep.org/.

7.3 Renewable Energy Associations (a partial list):

Interstate:	http://www.irecusa.org (Interstate Renewable Energy Council)
	http://www.ncat.org/energy.html (National Center for Appropriate Technology)
California:	http://www.solarliving.org/
Illinois:	http://www.illinoisrenew.org/index.html
	http://www.illinoissolar.org/
Iowa:	http://www.irenew.org/
Michigan:	http://www.glrea.org/
Minnesota:	http://mres-solar.org/
Montana:	http://www.montanagreenpower.com/index.html
	http://www.montanagreenpower.com/mrea/
New England:	http://www.nesea.org/ (includes green buildings and sustainable transportation)
Texas:	http://www.treia.org/
Wisconsin:	http://www.the-mrea.org/

7.4 Job creation

Apollo Alliance:
http://www.apolloalliance.org/strategy_center/ten_point_plan.cfm
Economic benefits to Indiana of investments in clean energy:
http://www.apolloalliance.org/state_and_local/Indiana/index.cfm

7.5 Books about Renewable Energy system design or policy

Small is Profitable
http://www.smallisprofitable.org/ (topic: Distributed power generation)
Climate: Making Sense and Making Money
www.rmi.org/images/other/Climate/C97-13_ClimateMSMM.pdf
Article about *Climate…*: http://www.envirolink.org/articles/dec97-1.html

7.6 Inspiration from overseas

Germany's *Environmental Policy: Renewable energy sources in figures—national and international development*
www.umweltministerium.de/files/pdfs/allgemein/application/pdf/erneuerbare_energien_zahlen_en.pdf