



\$SMART \$SAVINGS

Climate Solutions for Cities

FACILITIES AND INFRASTRUCTURE

Make building energy improvements.

Municipal buildings represent a substantial opportunity to achieve cost-effective reductions in local greenhouse gas emissions. Taking this kind of initiative is a way for city governments to lead by example. Municipal building retrofits in Chicago are reducing CO₂ emissions by 7,602 tons a year and saving the city budget almost \$1 million annually. Likewise, Minneapolis' Public Housing Agency made efficiency improvements that save \$981,201 per year and reduce greenhouse gas emissions by 5,144 tons annually.

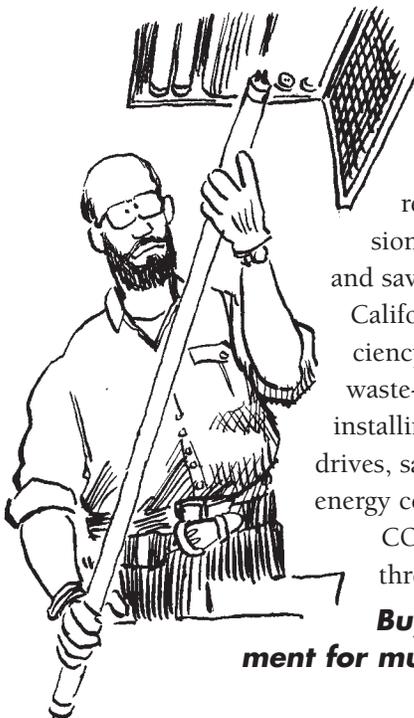
Twenty municipal-level actions that can save money, save energy, clean the air, reduce congestion, curb sprawl, and reduce greenhouse gas emissions.

Copiers, fax machines, computers, scanners, exit signs, heating and cooling products, windows, and other equipment with the ENERGY STAR[®] label save money while reducing energy-related greenhouse gas emissions and other air pollution. Portland, Oregon, has written ENERGY STAR office equipment into its standard specifications for all city purchasing. The city operates more than 2,000 computers. Assuming that 30 to 40 percent of users leave their equipment running 24 hours a day and on weekends, Portland's energy savings from using ENERGY STAR[®] equipment could approach \$35,000 per year.

Replace motors in city operations with more efficient models.

Energy-efficient motors can slash energy consumption, reduce greenhouse gas emissions and other air pollution, and save money. Long Beach, California, improved the efficiency of its recycling and solid waste-to-energy plant by installing variable frequency drives, saving \$329,508 per year in energy costs and reducing annual CO₂ emissions by more than three million pounds.

Buy ENERGY STAR[®] equipment for municipal offices.



Change traffic lights to light-emitting diode (LED) fixtures.

LEDs are 80-90 percent more efficient and last 10 times longer than ordinary lights, reducing energy and maintenance costs. Saint Paul, Minnesota, is installing red LEDs and red arrows at more than 200 intersections citywide, for a projected annual savings of more than \$135,000 and 1,250 tons of CO₂. When Denver has finished converting its traffic signals to LEDs, it expects to save \$357,000 annually in energy, labor, and materials costs while reducing greenhouse gas emissions by 8,894 tons per year.

Use renewable energy systems to improve air quality.

Switching from fossil fuel-generated electricity to renewable-based power is an effective way to reduce greenhouse gas emissions and other air pollution. The City of Austin, Texas, which has a municipal electric utility, plans to meet 50 percent of all new electricity demand with renewable energy by 2010. Achieving this goal would reduce CO₂ emissions by 1.9 million tons per year.

Purchase green power to improve air quality.

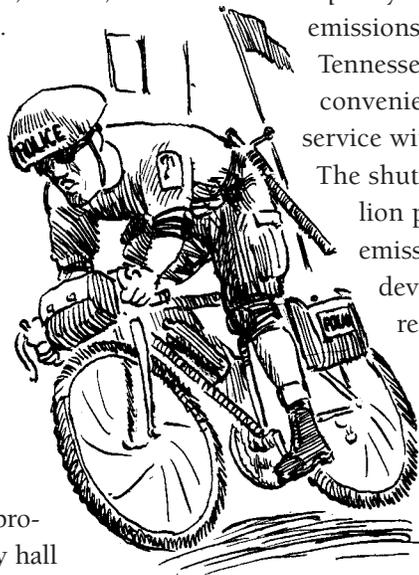
In states where competitive electricity markets exist, utili-

ties and other electricity retailers may offer customers the option to purchase “green” renewable-generated power. Santa Monica, California, has decided to purchase five megawatts of green electricity, enough to power all its municipal facilities. The \$2.3 million that the city spends annually for electricity will now go to companies that contract directly with renewable generators.

TRANSPORTATION

Redesign communities to encourage walking, biking, and mass transit. Every gallon of gas burned by a vehicle releases 20 pounds of CO₂ to the atmosphere, and vehicles are major contributors to urban air pollution. The City of Xenia and Green County, Ohio, converted 60 miles of former railway corridors and a railroad depot into an alternative transportation center. The center includes bike and pedestrian trails, parking facilities, and a community building. By the end of 1997, more than 300,000 people had used the trails to go to work, school, and other destinations.

Provide incentives for mass transit or carpooling. City governments can implement market measures to influence automobile use. West Hollywood, California, has a parking cash-out program in which city hall employees receive cash incentives of up to \$65 per month to leave their cars at home and use alternative methods to commute to work.



Foster telecommuting and similar trip reduction programs.

Working at home or at a telecommuting center reduces vehicle miles traveled. The San Francisco-San Mateo Videoconferencing/Trip Reduction Project uses videoconferencing technology to allow attorneys with San Francisco's Public Defender Office to conduct interviews with inmates at two county jail facilities in San Bruno, California. The program has eliminated the need for a 40-mile round-trip between facilities and reduced annual vehicle miles traveled by 600,000 and annual CO₂ emissions by 351 tons.

Convert fleets to run on alternative fuels. Using vehicles that run on fuels such as compressed gas, ethanol, methanol, biodiesel, hydrogen, and electricity can improve urban air quality and reduce greenhouse gas emissions. The City of Chattanooga, Tennessee, provides clean, quiet, convenient, and free electric bus service within the downtown area. The shuttle system avoids 3.5 million pounds per year of CO₂ emissions, and related retail development is projected to reach \$12 million, generating \$800,000 in city and county revenue.

Put police on bicycles. Many municipal police departments have cut the number of vehicles in their fleet by instituting “Cops on Bikes” programs. These initiatives save vehicle, fuel, and maintenance costs, and typically improve the

departments' ability to serve and protect citizens. Dayton, Ohio's program saves \$27,000 per year in reduced fuel and maintenance costs, and reduces CO₂ emissions from police transportation by 7.5 tons per year.



WASTE MANAGEMENT

Initiate “Pay As You Throw” waste disposal programs.

Charging residents for the collection of household trash based on the amount they throw away creates a direct economic incentive to recycle more and generate less waste. Reducing the amount of trash sent to landfills can lower methane emissions. From 1990 to 1995, Mount Vernon, Iowa's Pay As You Throw program cut the amount of trash sent to the landfill by 40 percent, almost doubled the recycling rate, and virtually eliminated disposal of yard waste.

Implement curbside recycling.

Recycling can save energy by reducing the fossil fuels needed to extract and manufacture new products and, in the case of paper products, increase carbon sequestered in forests. Recycling also diverts paper, cardboard, and other organic materials from landfills, where they would otherwise decompose and produce methane. In Hillsborough County, Florida, nearly 800,000 tons of CO₂ equivalent are

avoided each year through the county's comprehensive waste reduction, recycling, and composting programs.

Recycle office paper and reduce landfill costs. Recycling reduces the energy and materials needed to produce new paper. Methane emissions also are decreased by diverting paper from landfills. In 1998, the town of Littleton, New Hampshire, recycled 68 tons of mixed office paper. If the town

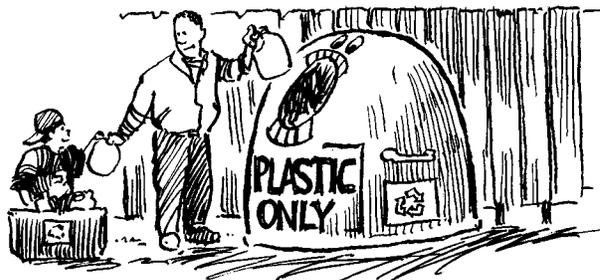


had thrown that paper away, disposal and trucking fees would have run \$3,876. Littleton's cost for recycling, including all operating and shipping expenses, was \$1,020. The town sold the paper for \$5,950 to a company in Québec that manufactures toilet tissue and paper towels. This is the high end. More typical recompense for mixed paper is \$10 per ton.

Buy products made from recycled materials. Recycled products typically require less energy to produce than new products, and many recycled products cost less than new ones. Items such as recycled plastic lumber also may reduce the user's installation and maintenance costs. In 1998, Metropolitan King County, Washington, saved an estimated \$600,000 by purchasing recycled materials such as toner cartridges

(\$300,000 savings), retreaded tires (\$77,000 savings), and shredded wood-waste for temporary road surfaces, landscaping, and erosion control (\$65,000 savings).

Establish composting programs. Composting organic wastes reduces methane emissions and



diverts waste from landfills. Under Albuquerque's Green Waste Composting Program, yard and stable waste and stable bedding are composted. The

end product is marketed to the community through a local garden center. The program diverts 9,570 tons of waste from the landfill and reduces greenhouse gas emissions by 4,626 tons of CO₂ equivalent per year.

Capture methane from landfills. Decomposing trash in landfills produces landfill gas, which is about 50 percent methane, a powerful greenhouse gas. Methane also can be a reliable fuel. Prince George's County, Maryland, installed a methane recovery system at a landfill and uses the

methane to provide heat, hot water, and electricity to a nearby correctional facility. The county sells the leftover landfill methane, a renewable energy source, to a utility company. Annual energy revenues are nearly \$1.3 million, and methane emissions have been reduced by 45,000 tons—a greenhouse gas reduction equivalent to that achieved by planting almost 83,000 acres of trees.

PLANNING AND URBAN ENVIRONMENT

Integrate Smart Growth in planning. Smart Growth is metropolitan development that pays for itself while protecting air and water quality, encouraging redevelopment of former industrial sites (brownfields), and promoting community economic vitality and livability. Portland, Oregon, practices Smart Growth by increasing the use of land within its Urban Growth Boundary and redeveloping brownfields. One of these redevelopment projects is expected to create 5,700 jobs near an economically depressed area that the city has targeted for economic revitalization.

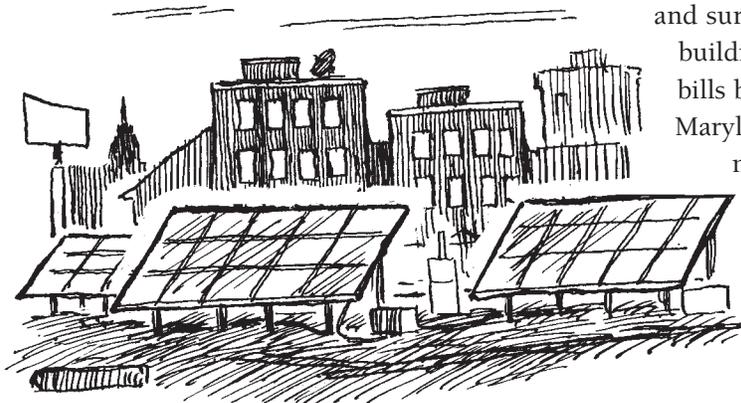


Plant trees to keep buildings and streets cooler to improve air quality, lower air-conditioning loads, and save money.

Trees provide shade for buildings and streets, reducing the amount of energy needed to cool buildings. In the Miami Lakes neighborhood of Miami, the city planted 88 trees scattered among 14 homes. Each homeowner has saved \$20 per year in energy costs, and the project reduced the neighborhood's annual energy-

related CO₂ emissions by 42.13 tons while storing 0.33 tons of carbon per year in the growing trees.

Use highly reflective surfacing and roofing materials.



Highly reflective roofs and pavements can help make cities cooler, reduce the formation of smog (which is dependent on air temperature), reduce air-conditioning loads, and save money. Highly reflective roofs and surfaces can reduce home or building owners' air-conditioning bills by 10 to 50 percent. Frederick, Maryland, saves an estimated \$1 million annually in cooling costs from its existing highly reflective roofs and tree plantings, and has identified additional projects that could triple the savings.

For More Information

EPA's State and Local Climate Change Program
Website: <http://www.epa.gov/>

Municipal Facilities

International Council for Local Environmental Initiatives (for information on building energy retrofits, LED traffic lights, and using renewable energy systems to improve air quality)
Tel: (510) 540-8843
Website: <http://www.iclei.org/us>

DOE's *Motor Challenge* program (for information on energy-efficient motors)
Tel: (800) 862-2086
Website: <http://www.motor.doe.gov>

EPA/DOE *ENERGY STAR* program (for information on buying ENERGY STAR equipment for municipal offices)
Tel: (888) 782-7937
Website: <http://www.epa.gov/energystar.html>

DOE's *Green Power Network* (for information on green power)
Website: <http://www.eren.doe.gov/greenpower>

Transportation

EPA's *Transportation Partners* program (for information on community redesign, alternative transportation incentives, and telecommuting)
Tel: (202) 260-6830
Website: <http://www.epa.gov/tp>

DOE *Clean Cities* program (for information on alternative fuel fleets)
Tel: (800) 224-8437
Website: <http://www.ccities.doe.gov>

International Police Mountain Bike Association (for information on police bike programs)
Tel: (410) 685-2220
Website: <http://www.ipmba.org/>

Waste Management

EPA *Pay As You Throw* program (for information on Pay As You Throw)
Tel: (888) 372-7298
Website: <http://www.epa.gov/payt/>

EPA *Office of Solid Waste* (for information on recycling and composting)
Tel: (800) 424-9346 (outside D.C. area) and (703) 412-9810
Website: <http://www.epa.gov/mswclimate>

EPA *Landfill Methane Outreach Program* (for information on capturing methane from landfills)
Tel: (888) 782-7937
Website: <http://www.epa.gov/lmop>

Planning and Urban Environment

Smart Growth Network (for information on Smart Growth initiatives)
Tel: (202) 260-2750
Website: <http://www.smartgrowth.org>

International City/County Management Association
Tel: (202) 962-3591

Cool Communities program (tree planting)
Tel: (202) 955-4500
Website: <http://www.amfor.org/ufc/cool/cool.html>

Heat Island Reduction Initiative (highly reflective surfaces)
Email: gorsevski.virginia@epa.gov