

COLUMN: As I See It

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## **Worcester poised on leading edge of cleaner energy policy**

**By Timothy Downs**

On Feb.16, the Kyoto Protocol went into effect for 128 nations. The U.S. government opted out of this treaty. In the wake of inaction at the federal level, communities around New England are taking a stand in support of clean air, energy independence and clean technological development. We in Worcester, with our proud industrial heritage, have a unique opportunity to be a clean energy leader in Massachusetts.

Electricity production is the leading cause of industrial air pollution in Massachusetts and in the country. The Environmental Protection Agency estimates that fine particles and sulfur dioxide pollution from fossil fuel power plants shortens the lives of more than 300 Massachusetts residents each year and is responsible for an additional 700 heart attacks, 40 lung cancer deaths and 8,000 asthma attacks a year. Coal-fired power plants also emit the highly toxic heavy metal, mercury. Even exposure to low levels of mercury can permanently damage the brain and nervous system and cause behavioral changes in children.

To help reduce harmful air pollution, consumers must support the production of more energy from clean, renewable sources, such as the sun, wind and water. According to the Union of Concerned Scientists, when a single 1.5 megawatt wind turbine replaces fossil fuel generation, emissions are reduced by approximately 2,700 tons of carbon dioxide, 14 tons of sulfur dioxide and 8 tons of nitrogen oxides annually.

Energy efficiency is also vitally important; if 1 million old homes were to upgrade insulation so walls and ceilings reduced losses of heat fourfold (changing from R11 to R40 insulation), we would need one less 1,000-megawatt power plant and save tons of emissions as well.

When comparing energy alternatives, we must go beyond simple financial costs to include social impacts and ecological impacts.

For example, when deciding to build or not build the Cape Cod Wind Project, we should be comparing the social, ecological and economic

impacts of generating energy using the existing technology versus a wind-energy option that supplies the same energy. As scientists who inform policy, we encourage the flow of information and communication among politicians, community groups, businesses and scientists so the tradeoffs among options can be appreciated, and better policies made as a result. Principles of equity and social justice, ecological stewardship, as well as economic efficiency should guide us.

Nuclear power is another risky way we currently produce large amounts of electricity. Risks from nuclear power include radiation leaks, pollution by radioactive waste and, with lower probability but higher consequence, catastrophic reactor failure. Safely disposing of radioactive waste from active and decommissioned reactors has still not been adequately addressed. The risks of transporting all waste to a single location are also significant. In addition, keeping weapons-grade plutonium waste out of the hands of terrorists is a very serious, unresolved issue.

According to EPA emissions data, in 2003, Massachusetts, power plants emitted more than 23 million tons of carbon dioxide. This is equivalent to the carbon dioxide emissions of driving more than 970,000 cars each year. There is now widespread scientific agreement that the emissions are contributing to climate instability and that an overall rise in average global surface temperature is likely. The Intergovernmental Panel on Climate Change warns that potential impacts include an increase in frequency and severity of floods, droughts and blizzards; a rise in sea level affecting coastal areas, and changes in precipitation patterns that would impact water supply and food production. Climate change poses serious potential risks to human and ecological health, as well as to economies and the productivity of agriculture, forestry and fisheries.

While the federal government is not acting to help stop climate change, communities around New England are proceeding with precaution.

A growing number of municipalities in Connecticut have committed to purchase 20 percent of their electricity from clean energy sources by 2010.

Worcester has the opportunity to continue to be on the cutting edge of energy innovation and to be a leader in Massachusetts by committing to purchase a portion of the electricity used by municipal facilities from clean, renewable energy sources.

Massachusetts Electric customers can purchase clean, renewable electricity with ease. The additional cost to customers, typically \$4-\$12 a month, will be matched and doubled by the Massachusetts Technology Collaborative to bring energy dollars back to the city and state to fund clean-energy projects. In addition, if 3 percent of households decide to purchase clean energy by the end of June, Worcester will receive an additional \$100,000 to be used for clean-energy projects.

Institutions of higher learning are among large energy users and sources of emissions in Worcester. Leading institutions, including Clark University, Worcester Polytechnic Institute, the College of the Holy Cross and Worcester State College are taking initial steps to shift to clean energy and reduce their environmental impacts.

Clark installed a cogeneration plant in 1982 (electricity generation that also uses waste heat for space heating), one of the first in the country. In 2004, Clark signed a partnership with the nonprofit organization Clean Air-Cool Planet to play a leadership role in raising awareness of global climate change and implement responses on campus. The first step, completing a Campus Greenhouse Gas Emissions Inventory Calculator, has begun. One of the most energy-efficient laboratory buildings in the nation was just built at Clark, the new Lasry Center for Bioscience.

In June 2004, WPI installed a 1-kilowatt photovoltaic system on the roof of Morgan Hall that is now providing a small amount of electricity for the building as well as serving as an educational tool.

Holy Cross has been very active in community environmental projects, including the annual Earth Day cleanups, asthma studies and mercury awareness.

WSC is forming a new Energy Awareness Group and has announced a new environmental studies concentration.

We applaud these actions and encourage these institutions and other colleges to take responsibility for their environmental impacts and support clean, renewable energy. Our challenge is to make progress despite growing demands for more habitable space per person and more computers and other electronic devices. Worcester and its institutions are poised on the leading edge of a better, cleaner energy policy that can serve as a model for other cities. Its success would

reflect the city's proud tradition of industry and innovation and requires all of us to play a part.

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Timothy Downs, D.Env., is assistant professor of environmental science and policy at Clark University. Also contributing to this article were: Scott Jiusto, Ph.D., assistant professor, Interdisciplinary and Global Studies Division, Worcester Polytechnic Institute; Halina Brown, Ph.D., professor of environmental science and policy at Clark University; Catherine A. Roberts, associate professor of mathematics, College of the Holy Cross; and Timothy Hagopian, instructor of mathematics, Worcester State College.