Technical Assistance

Case Study

FEMP
FEDERAL ENERGY MANAGEMENT PROGRAM

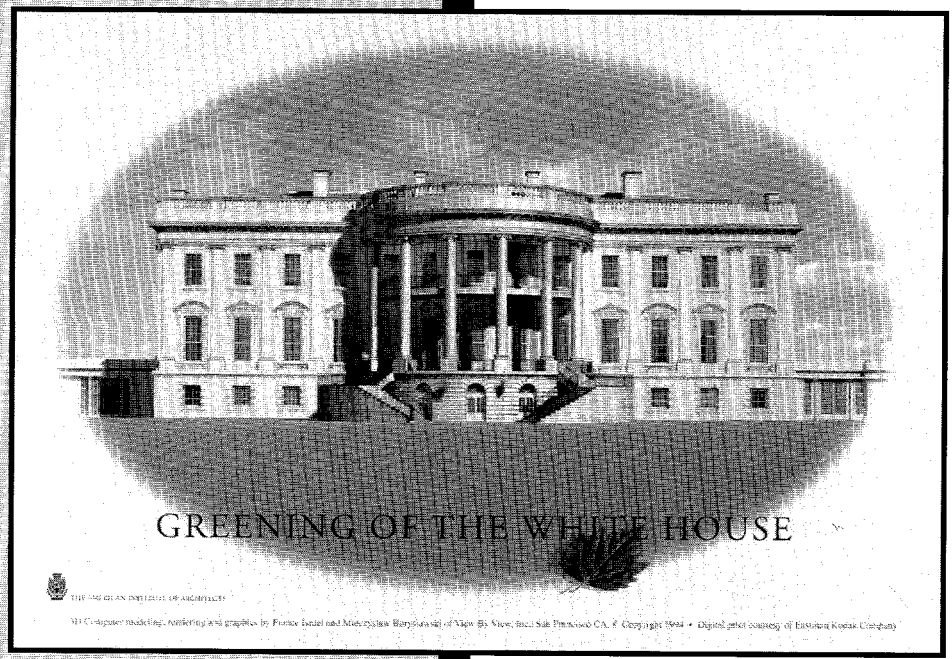
Greening of the White House

"We're going to identify what it takes to make the White House a model for efficiency and waste reduction, and then we're going to get the job done."
President Bill Clinton

The White House is one of the most important historical and functional buildings in the United States. It requires regular maintenance, repairs, and upgrades, all of which must be done while preserving its historical beauty and its place in our modern society.

A national model of energy efficiency

In 1993, during an Earth Day event, President Clinton announced that the White House would undergo a comprehensive upgrade to become energy efficient and environmentally friendly. This upgrade, called "Greening of the White House," is an ongoing effort to cut waste and improve energy efficiency throughout the complex (the Executive Residence, the Old Executive Office Building [OEOB], and the White House Grounds). Since beginning the upgrades at the White House, similar upgrades have been made at other Federal facilities, including the Pentagon and buildings at the Grand Canyon.



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The Greening of the White House sets a precedent for other Federal buildings.

The program's start

The President's Council on Environmental Quality assembled a team of experts that included members of the American Institute of Architects, the U.S. Department of Energy's Federal Energy Management Program (FEMP), the U.S. Environmental Protection Agency, the General Services Administration, the National Park Service, the District of Columbia, the Executive Residence Staff, the White House Office of Administration, and the Potomac Electric Power Company. The team oversaw a comprehensive energy and environmental audit. In addition, the team, led by FEMP, participated in a greening design workshop that produced recommendations to preserve the historical presence of the structure and maintain (or improve) comfort and productivity.

White House upgrades

The upgrades fit into five action categories:

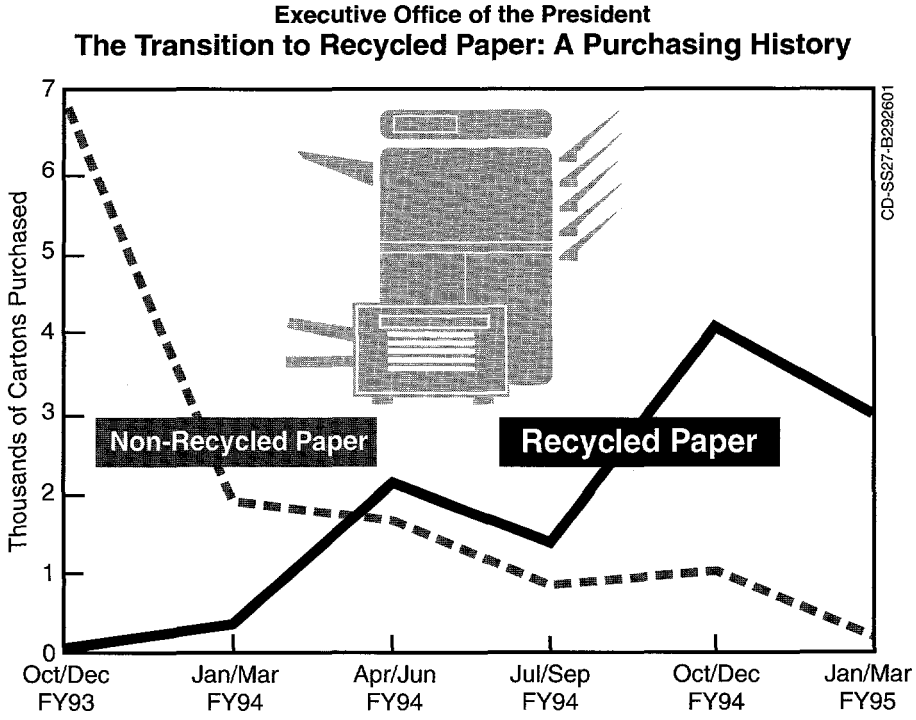
1. *Energy efficiency.* Improved windows; lighting; plug loads; and heating, ventilating, and air-conditioning (HVAC) systems.

2. *Building ecology.* Higher standards for energy-efficient purchasing and indoor air quality.

3. *Air, water, and landscape.* Improved landscape and outdoor air quality practices, water conservation, and reduced water pollution.

4. *Materials waste and resource management.* Improved solid waste

U.S. Department of Energy



management and recycling; hazardous waste, pesticide, and toxic substance management.

5. *Managerial and human factors.* Improved environmental management systems, operations and maintenance, and procurement practices.

Most action items are now complete, and many exceed current energy efficiency standards. The actions include the following:

- Installing energy-saving compact fluorescent lamps to replace incandescent lamps.
- Installing super-efficient lighting (T-8 lamps, electronic ballasts, and specular reflectors) to replace the less-efficient office lights throughout the complex.
- Replacing most (98%) of the windows in the OEOB with energy-efficient, double-glazed, low-E film units.
- Replacing window air-conditioning units in the OEOB with energy-efficient models.
- Installing a state-of-the-art HVAC system with new chillers that contain no chlorofluorocarbons and are designed to meet the highly variable load, and a computerized control system to ensure maximum efficiency and minimal energy usage.
- Replacing old computers and office equipment, as they become inoperable, with energy-efficient models.
- Installing a "Golden Carrot" refrigerator, which exceeds industry efficiency standards by 30%.
- Installing low-flow aerators and toilets to save water.
- Recycling paper, glass, aluminum, cardboard, and building materials. (All paper purchased since 1995 consists of at least 20% recycled content, and nearly half of all dollars spent on office supplies are spent on recycled products.)
- Composting yard wastes into topsoil.

Cost savings and environmental benefits

The energy efficiency measures in the Greening of the White House save taxpayers at least $182,000 per year. The lighting retrofits in the OEOB alone save about 13% in electricity costs. Additionally, about 5.5 million pounds (2268 metric tons) of greenhouse gases have been displaced by Greening of the White House actions.

Other benefits

The Greening of the White House sets a precedent for other Federal buildings. If all Federal agencies switched to energy-efficient lighting systems, the government would save more than a quarter of a billion dollars each year on lighting costs alone.

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