Energy Conservation at EPA:

Program and Projects

Greening the Government Conference

Philadelphia, Pa. June 2-4, 2003

Energy Conservation at EPA

Program and Projects

- EPA Facilities Overview
- EPA How We Do It
- EPA What We Do

EPA Facilities Overview

National Office Perspective

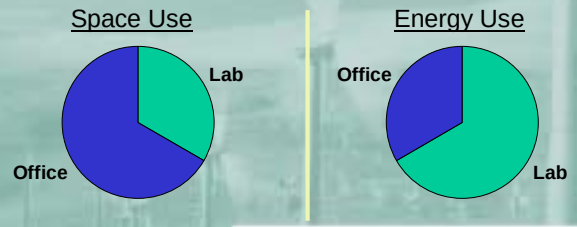
- EPA has approximately 160 facilities, and 56 large facilities; we house approximately 26,000 people in 9 million square feet of offices and laboratories.

EPA Facilities Overview

EPA Facilities Overview

Energy Use in Laboratories vs. Office Buildings

- Laboratories make up ~1/3 of EPA's inventory but use 2/3 of our energy.
  - » Labs have 100% outside air, while offices have recirculated air.
  - » Labs use 3 to 6 times the energy of an office building.



EPA Facilities Overview

- How EPA acquires its buildings affects how utilities are paid and how energy use concerns are addressed.
- Types of EPA buildings:
  - » EPA owned
  - » EPA leased private buildings
  - » GSA owned and assigned to EPA
  - » GSA leased private buildings

EPA: How We Do It

National Energy Program

Goal: Make EPA facilities as energy efficient as possible, given real estate interest, budget, and institutional constraints.

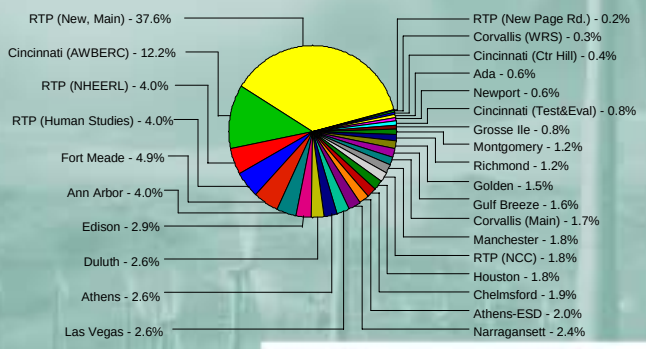
EPA's National Energy Program

Management Approaches

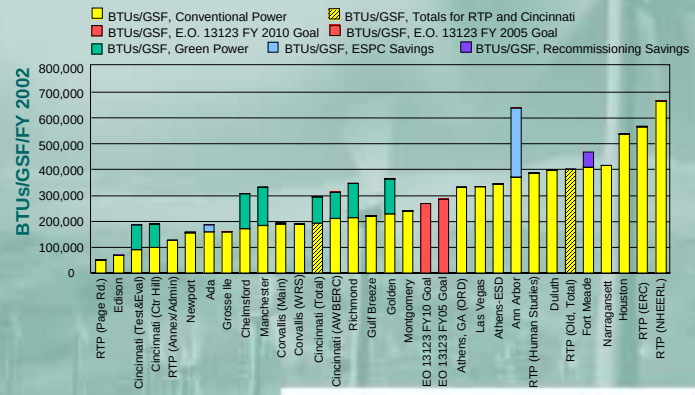
- You Can't Manage What You Don't Measure
  - » Energy data tracking
  - » Identify problems, find opportunities, and set priorities
  - » Energy E-mail
    - —Disseminates information
    - —Creates peer pressure

Share of Total Energy Use

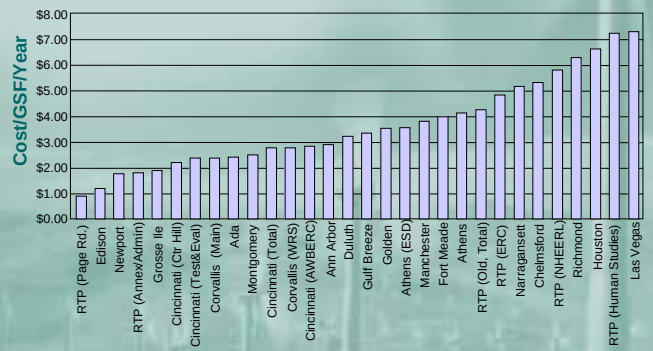
Total BTUs, FY 2005 (Green Power Not Netted Out)



FY 2002 Energy Intensity Per Lab



FY 2002 Energy Cost/GSF/Year



EPA's National Energy Program

Management Approaches Continued

- No new dogs in the inventory
  - » EPA works diligently on all new major space procurements to make them energy efficient.
- It's never too early to think about energy efficiency
  - » Type: Build to suit labs or offices, leased spaces, new construction.
  - » Stage: master planning, procurement strategy, A/E selection, design, design review, controls review, energy modeling, construction, and commissioning all affect success.

EPA's National Energy Program

Management Approaches Continued

- Institutional/Cultural Change
  - Better budgeting/priorities setting
  - Architectural/engineering firms
  - Master planning
  - Building and lease standards
  - Collaborative processes
  - Staff and management awareness

EPA's National Energy Program

Management Approaches Continued

- Can't Do It Alone
  - We can't do projects without local champions

How EPA Manages Energy

- Energy Reporting
- New Building Review

How EPA Manages Energy

- Energy Auditing—Tiered Approach
  - Energy Light Audits—every three years
  - Stage Two Audits
  - Detailed System Audits

How EPA Manages Energy

- Commissioning, Re-Commissioning, Retro-Commissioning
  - Most cost-effective energy investment
  - Fort Meade cost $75-100K; saved $150K annually in energy costs
  - Absolutely for new buildings
  - Re-commissioning prevents building performance creep
  - Retro-commissioning commissions buildings that were never commissioned (e.g. Chapel Hill and NHEERL North Carolina)

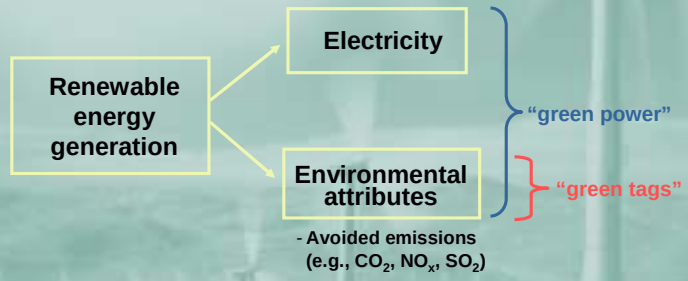
How EPA Manages Energy

- Mechanical Engineering Design and Construction—Conventional
  - These are long term projects, typically 2 to 4 years
- Energy Savings Performance Contracts
  - Ann Arbor, Michigan
  - Ada, Oklahoma

How EPA Manages Energy

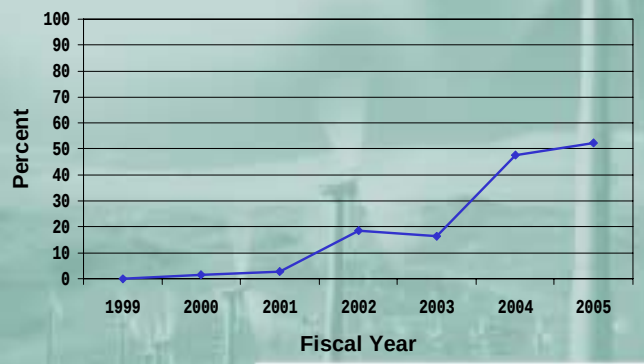
- Green Power Procurement
  - Short term solution for our EO goals.
  - Right thing to do.
  - Green Power does cost a little more, generally.
  - We are not sophisticated enough yet to actively use it to stabilize our energy bills.
  - Examples: *Richmond, Golden, Chelmsford, Cincinnati, Manchester, Houston, RTP (at 40%), Edison, Kansas City Science & Technology Center, Narragansett, Fort Meade.*

Green Power vs. Green Tags



Credit: Jennifer Layke & Craig Hanson, World Resources Institute

Green Power as a Percentage of Total Reportable Energy Use



How EPA Manages Energy

- ENERGY STAR Office Buildings
- Message Projects
  - Send message—photovoltaics and other solar projects rarely pay for themselves.
  - GM Fuel Cell—HQ

Contact EPA

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www.epa.gov/greeningepa