

The New England Community Energy Challenge



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Overview:

Community Energy Challenge

- EPA is Challenging Every City and Town to:
 - Commit to energy efficiency by taking the Challenge
 - Benchmark buildings, schools, and/or wastewater treatment facilities
 - Set a target to reduce energy use by 10% or more
 - Work with local energy committees promote energy efficiency and renewable energy in the community
- High Profile Regional and National ENERGY STAR Recognition
- EPA will provide free training and technical support

Massachusetts Partners

- EPA is working with numerous stakeholders in Massachusetts to promote clean energy and the Community Energy Challenge:
 - ICLEI
 - Massachusetts EEA, DOER
 - Massachusetts Technology Collaborative
 - Utilities and ESCOs
 - Congressional Delegation
 - US Conference of Mayors

Background:

Why energy performance?

- **Cut waste.** Buildings typically waste 30% of energy consumed. ENERGY STAR buildings perform 35% better than average
- **Save money.** New England has among the nation's highest energy costs
 - Our 1500 cities, towns spend nearly **one billion** dollars every year on energy for buildings and schools
- **Reduce emissions.** Energy used in buildings is the number one source of GHG emissions in most communities



ENERGY STAR

A Voluntary Partnership



In 2006, Americans - with the help of ENERGY STAR - saved \$14 billion, energy equivalent to 5% of U.S. electricity demand, and 37 MMT of greenhouse gas emissions.



- Environmental leadership through superior energy performance
- Guidance, tools, and resources to help organizations achieve efficiency goals

ENERGY STAR is broad-based



- **Consumer products.** More than **two billion** ENERGY STAR products have been purchased



- **New Homes.** Almost 3,500 builders have constructed over **725,000** ENERGY STAR homes



- **Existing buildings.** EPA's Energy Performance Rating System has been used to evaluate more than 30,000 buildings.



EPA's extensive research shows...

400% variation

in energy use intensity of buildings

(Source: Commercial Buildings Energy Consumption Survey)

Variation that is not explained
by age, technology, hours, size, climate

EPA NE's Green Lab

- EPA New England's Regional Lab in Chelmsford, MA was the first EPA lab in the U.S. to earn LEED Gold certification
- Regional Lab's energy consumption has been reduced by 30% and saved over \$185,000 in 2006 alone.
- Energy saving measures:
 - **Expanding night/weekend hours**
 - **Shutting down analytical equipment and processes**
 - **Manually adjusting chiller / heat supply temperature and humidity controls**
 - **Maximizing natural lighting**
 - **Conducting daily "end of day" walk-throughs**



Do You Know How Well Your Facilities Perform?

- You can't manage what you don't measure.
- Until recently, a standardized, comparable metric of whole building energy performance **did not exist!**
- EPA's **Energy Performance Rating System** was developed to meet this need.

Performance Rating Systems



**Fuel Efficiency
Rating: MPG**



Is 10 MPG high or low for an automobile?

Common knowledge.

Is 80 kBtu/sf/yr high or low for a building?

**Even many
building experts
don't know.**

**EPA Energy
Performance
Rating**

STATEMENT OF ENERGY PERFORMANCE			
Margrave High School			
Building ID: 102152		Date SEP Generated: March 20, 2004	
For 12-month Period Ending: January 31, 2004			
Margrave High School 1200 May St Empire ID #2229		Owner: Carlson Group Contact: John Doe 3000 North of Main Ohio State St Arlington VA 22206 (703) 247-8900	
Queen Building Area: 315,305 sq ft Year Built: 1982		Site ID: Arlington VA 22206 (703) 247-8900	
Facility Space Use Summary			
Space Type	Area (sq ft)	Number of Students	Number of PCs
Computer Data Center	158	N/A	N/A
K-12 Schools	304,221	4,221	420
Site Energy Use Summary			
Electricity (kBtu)	5,649,861	Professional Verification John Doe 3000 North of Main Ohio State St Arlington VA 22206 (703) 247-8900	
Propane (kBtu)	320,419	Licensed Number: 123456789	
Natural Gas (kBtu)	0	State: VA	
Total Energy (kBtu)	5,970,280		
Ratios			
Energy Performance Rating (1-100)	94		
Energy Intensity*			
Site (kBtu/sq ft)	17		
Source (kBtu/sq ft)	49.4		
Emissions			
CO ₂ (1000 lbs/yr)	4,295		
SO ₂ (1000 lbs/yr)	366		
NO _x (1000 lbs/yr)	21		
Energy Cost			
Cost (\$/yr)	\$264,485		
Intensity (\$/sf/yr)	\$0.82		
Indoor Environment Criteria*			
Smoke or pollution controlled?	Yes		
Adequate ventilation provided?	Yes		
Thermal conditions met?	Yes		
Adequate illumination provided?	Yes		



Community Savings

- Whitman-Hanson Regional High School
 - Designed to maximize energy efficiency and use renewables
 - Daylighting, energy efficient mechanical systems and appliances, a white roof predicted to save nearly \$100K per year in energy costs
 - 51 KW PV array on roof meets 5% of schools energy use

- The Lowell Regional Water Utility in Lowell, MA
 - Installed new drives on its pumps
 - Saved the facility over \$145,000 per year
 - Received funding from the local electric utility, which funded \$67,000 of the \$358,000 project
 - Reduced CO2 emissions by 953 tons over the lifetime of the project

- Stamford, CT
 - Occupancy sensors, variable frequency drives and other measures at city's Government Center, reduced electric bills 24%, or \$124,000 every year

Join the Challenge

Step 1: Make a Commitment

- Submit a commitment letter
- Set a community goal to reduce energy intensity in public buildings, wastewater treatment facilities and/or schools **by 10% or more**
 - EPA estimates that - on average - 30% of the energy used in public buildings is wasted
 - **A 10% reduction is well within everyone's reach**
 - Typical town of 25,000 spends well over \$1 million on energy for buildings
 - **10% reduction would save up to \$100,000 each year**

Join the Challenge

Step 2: Strategize

Convene stakeholders

- Energy Committee
- Municipal staff
- Interns
- Utilities
- ENERGY STAR
Service and Product
Provider Network



Join the Challenge

Step 3: Action Plan

Develop and Implement Action Plan

Who's working on the project? What needs to get done? How will reductions be achieved?

Main tasks:

- Gathering and inputting data
- Prioritizing buildings for retrofits, on-site audits
- Planning Financials

Join the Challenge

Step 4: Promote EE and RE

Renewables

- Green Power Partnership



Consumer ENERGY STAR Efficiency Resources

- Yardstick
- ENERGY STAR New Homes
- Educational materials
- Rebate Finder
- Interactive Virtual Home Tour



Join the Challenge

Step 5: Gain Recognition

- **Community Energy Challenge**
 - Community Energy Challenge Website
 - Success Stories
 - Recognition Events
- **ENERGY STAR National Recognition**
 - ENERGY STAR Leaders for energy intensity reductions of 10% or more
 - ENERGY STAR Label for Buildings scoring 75 or higher
 - Automatic enrollment in national ENERGY STAR Challenge

Every Community Can Benefit from Energy Efficiency

In Summary, the Community Energy Challenge involves:

- Make the commitment
- Use Local Energy Committees to identify opportunities and engage the broader community
- Set a Community Goal
- Assess performance
- Recognize Achievements

Resources

- **ENERGY STAR**

www.energystar.gov

- Webinar Trainings
- Networking meetings
- On Site Training

- **Community Energy Challenge Web Site**

<http://www.epa.gov/region1/eco/energy/energy-challenge.html>

Contact Us

If it's not energy efficient ...



U.S. EPA – Region 1

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...it's not on a sustainable path.