Sustainable Energy Plan

Green Ribbon Study Committee

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Outline

- Background
- Emissions Inventory
- Sustainable Energy Plan
  - Goals
  - Efficient Buildings and Infrastructure
  - Efficient Transportation
  - Effective Waste Management
  - Renewable Energy
  - Communication and Outreach
- Organizational Structure for Plan Implementation
  - Sustainable Energy Committee
  - Sustainable Energy Coordinator
  - FY11 Budget Request
- Benefits to Town
- How to Participate

Background: Town Meeting Actions

- 2008 Town Meeting
  - Created Green Ribbon Study Committee
- 2009 Town Meeting
  - Adopted goal to reduce Town-wide greenhouse gas emissions 10% below 2007 levels by 2013
- 2010 Town Meeting
  - Request approval of Sustainable Energy Plan
    - Plan approval does not authorize specific Plan initiatives
    - Initiatives will be presented subsequently to Boards/Town Meeting, as appropriate, for approval
  - Request approval of new bylaw that creates Sustainable Energy Committee and Sustainable Energy Coordinator position

Background: Charge to Green Ribbon

- **Develop a Sustainable Energy Plan for the Town**, to help guide its future choices concerning energy and consumption
- Identify policies and actions that will increase energy conservation and efficiency, reduce reliance on fossil fuels, and reduce carbon emissions, at both the public and private levels

2008 Annual Town Meeting

Background: Green Ribbon Activity

- 2008
  - Studied sustainable energy efforts in ten Massachusetts towns
  - Joined ICLEI—Local Governments for Sustainability
  - Reviewed Massachusetts environmental laws enacted in 2008
    - Green Communities Act
    - Global Warming Solutions Act
  - Developed a benchmark inventory of Town energy use and emissions in 2007
  - Recommended a Town goal to reduce emissions 10% below 2007 level by 2013
- 2009
  - Developed inventory of 2008 Town energy use and emissions
  - Developed proposed Sustainable Energy Plan
  - Drafted proposed bylaw to create a Sustainable Energy Committee and a Sustainable Energy Coordinator position
  - Drafted proposed job description for Sustainable Energy Coordinator

Emissions Inventory - Methodology

- **"*What you can measure, you can manage*"** is the guiding principal for the emissions inventory
  - Quantify energy use and waste production to estimate greenhouse gas (GHG) emissions
  - Monitor progress towards reduction goals
  - Update and improve precision of inventory as new information becomes available
- Standard emissions inventory software used throughout U.S. and internationally
  - ICLEI Clean Air and Climate Protection Software
    - (2003 version)
- Baseline and annual inventories will provide the information to monitor progress and identify need for new initiatives
  - 2007 baseline year (completed)
  - 2008 (completed)
  - 2009 (in progress)
    - Convert all years to 2009 version of software and compare
  - 2013 target year

Measurement of Greenhouse Gas (GHG) Emissions

- Equivalent Carbon Dioxide Emissions (e-CO_2) is the standard unit used of GHG measurement
  - Common unit of measure of the warming effect of all GHGs in terms of the comparable amount of CO_2
  - Includes GHGs produced during
    - The combustion of natural gas, fuel oil, gasoline and diesel
    - The generation of electricity consumed in New England
    - The production of methane during the anaerobic decomposition of organic matter in landfill (e.g. paper products, yard waste and food waste)
  - Software (version 2003) estimates e-CO_2 emissions for the three major GHGs
    - Carbon Dioxide (CO_2) = 1 e-CO_2
    - Methane (CH_4) = 21 e-CO_2
    - Nitrous Oxide (N_2O) = 310 e-CO_2

Emissions Inventory – Scope Residential and Commercial

- Sources of GHG emissions produced (or metered) within Town
  - **Electricity** - as metered by residential and commercial users
    - emissions coefficients based on annual electric generation in North East
  - **Natural Gas** - as metered by residential and commercial users
  - **Fuel Oil** - estimated for residential and commercial users
    - Residential fuel oil model based on the number of residences x North East average residential fuel oil consumption (926 gallons)
    - Commercial fuel oil model based on estimate of commercial buildings using fuel oil
  - **Gasoline and Diesel** - estimated from traffic studies within Town
    - Emissions coefficients based on annual averages for vehicles on the road
  - **Waste** - estimated methane production from the tonnage of waste hauled to managed landfill from the RDF
    - 75% methane recovery at landfill
    - Does not currently include waste handled by private haulers
    - Emissions avoided by recycling include both methane production at landfill and additional energy required to manufacture from new materials

Emissions Inventory – Scope Municipal Sector

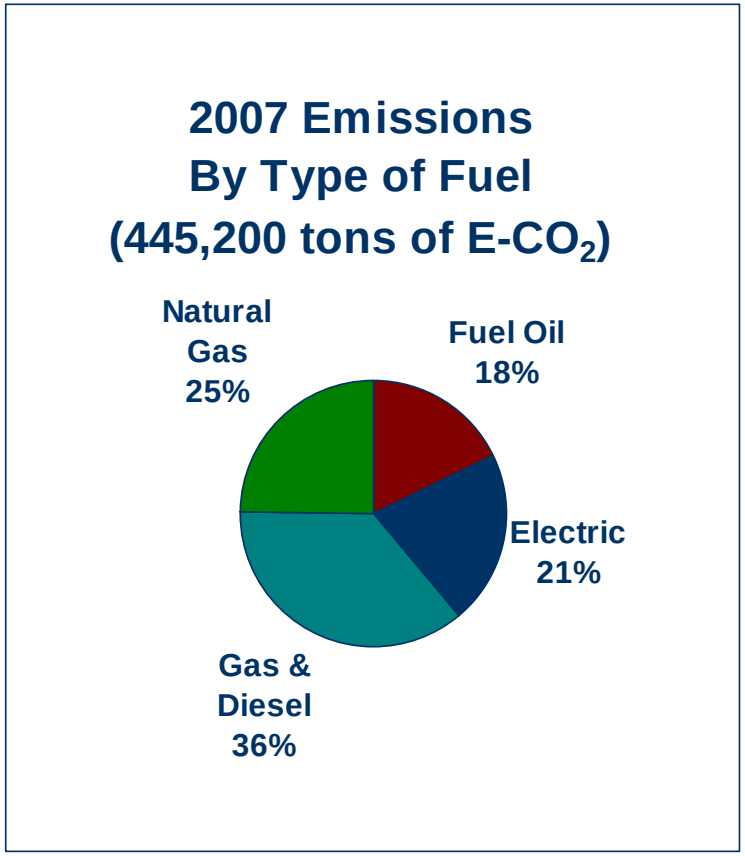
- Actual records and billing receipts
  - Data on a Fiscal Year (FY) basis was chosen to facilitate collection and develop initiatives within the Town's existing annual planning cycle
    - Electricity
      - By building
      - Street Lights
      - Traffic Lights
      - Field Lights
      - Water/sewer pumps
    - Natural gas
      - By building
    - Fuel oil
      - Used only at Middle School and High School
    - Municipal fleet
      - Gallons per fleet vehicle
  - Monthly Municipal database by fuel and by building is also maintained to interpret trends and develop initiatives

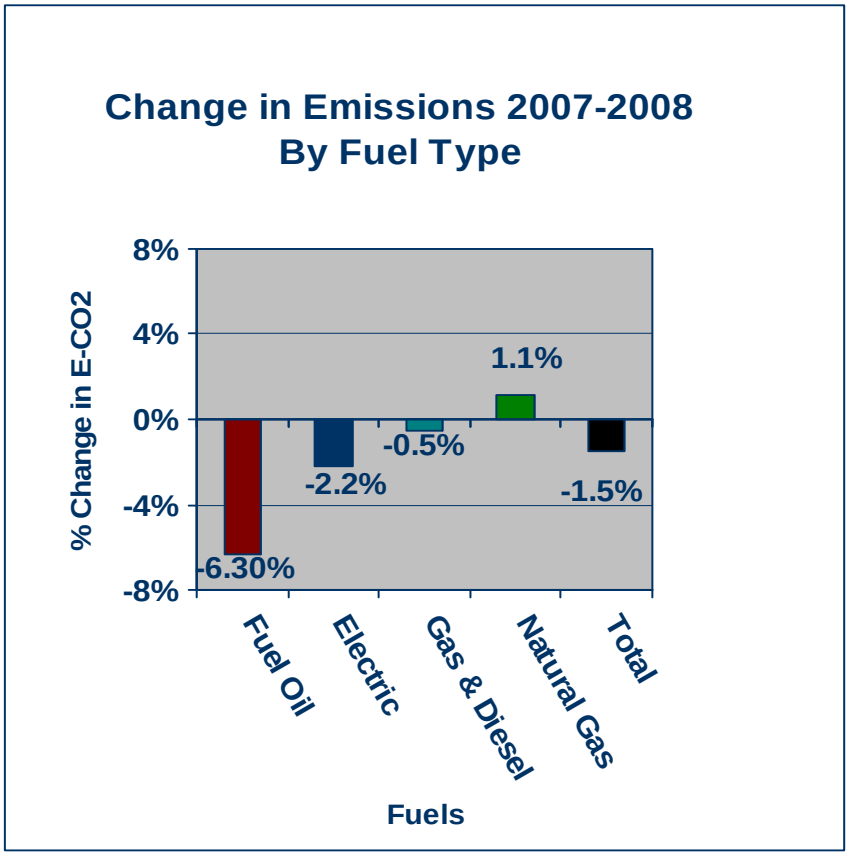
Emissions Inventory – Transportation

- Transportation model is based on vehicle miles traveled (no. of vehicles x road miles), estimated from actual traffic counts
  - Small streets (estimate from Town traffic counts) (108 miles)
  - 10 busier streets (average from Town traffic counts) (16 miles)
  - Route 9 (average of Town traffic counts and MA Highway) (5.2 miles)
  - Route 128 (average of traffic counts by MA Highway) (1.1 mile)
- Alternative model used for validation
  - Number of vehicles registered in Wellesley
  - 12,000 annual miles average per vehicle
- Potential model, as data becomes available
  - Classification and count of vehicles in Wellesley, as registered by RMV
  - Actual records of annual odometer readings

2008 Emissions Decreased 1.5% from 2007 Baseline

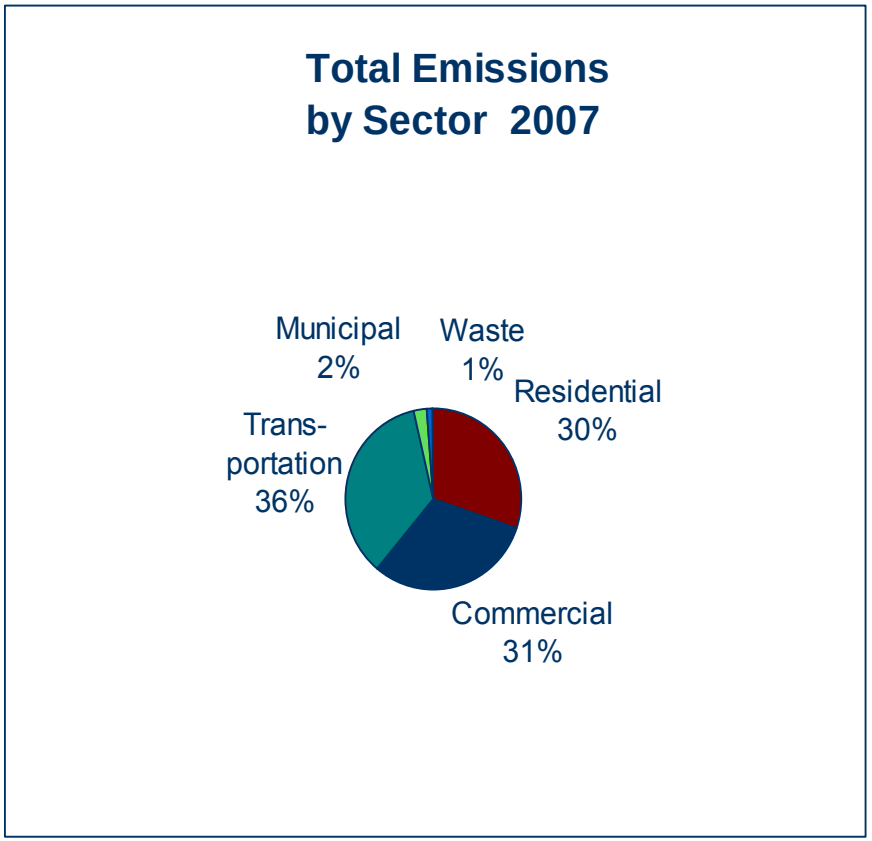
The large decrease in fuel oil use and slight increase in natural gas use reflect the ongoing trend in the conversion of heating fuels, with a net decrease of 1.9% emissions from these two fuels. Both electric use and waste management met the goal of a 2% per year decrease.

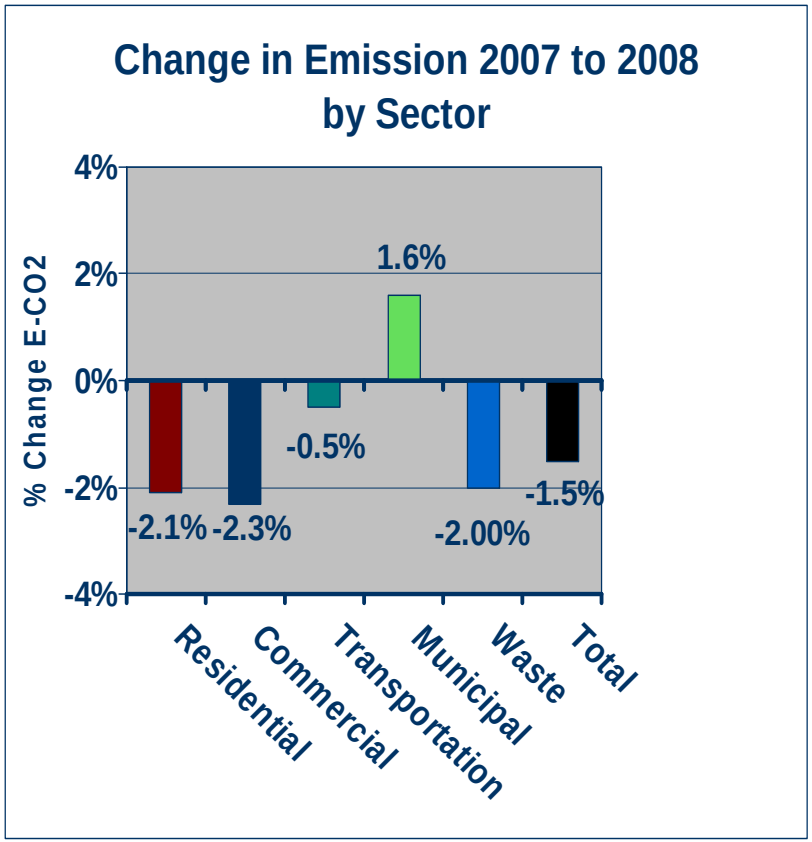




Residential, Commercial and Waste Sectors Achieved the Goal of 2% Annual Reduction in Emissions

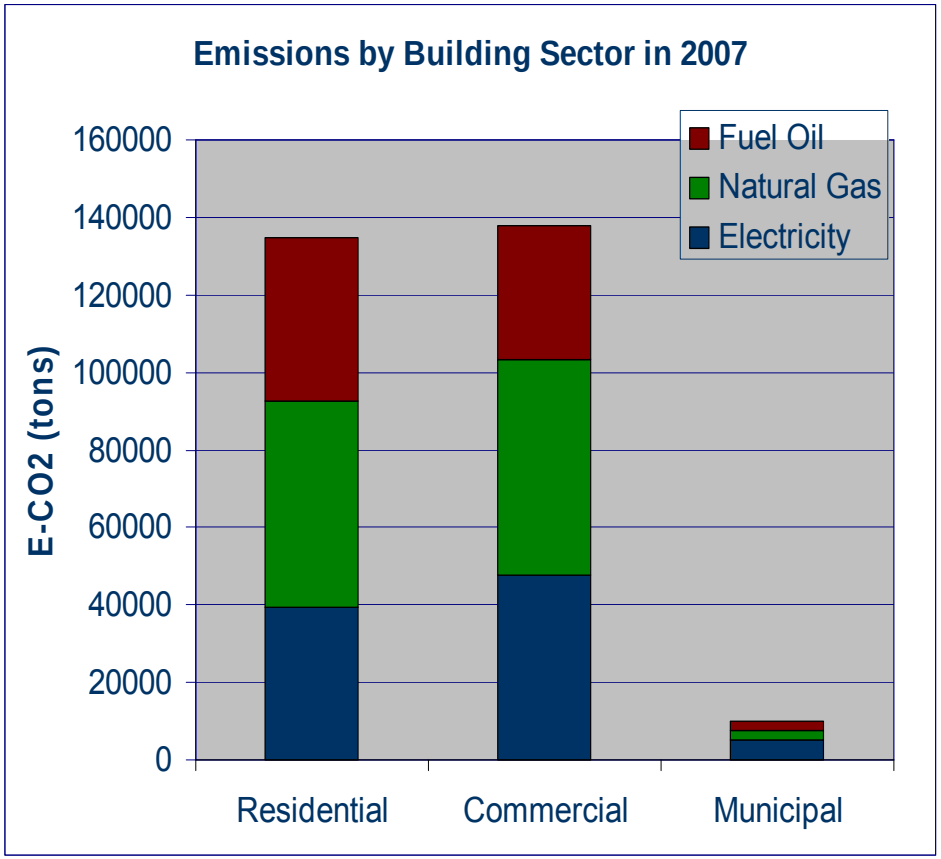
Transportation is the greatest producer of GHGs, and the most challenging emissions source to measure and address. The small reduction in transportation emissions is based on the gradual improvement in average miles per gallon (MPG) of vehicles on the road. In addition to continuing to improve MPG, long-term planning for an integrated transportation system will be necessary to also reduce the total miles driven.

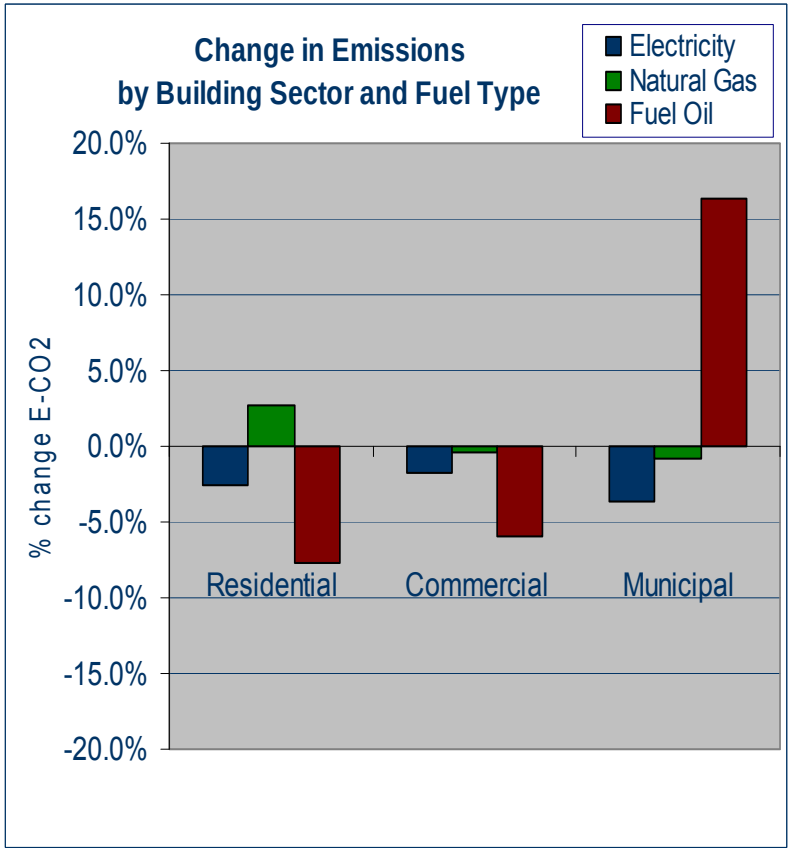




Change in Emissions By Building Sector and Fuel Type

The increase in emissions in the municipal sector from FY07 to FY08 was due entirely to a greater use of fuel oil in heating WMS and WHS, which can be heated by either natural gas or fuel oil depending on price. The fuel oil increase offset a decrease in both Municipal electric and natural gas use.





Plan Goals

- Reduce Town-wide emissions 10% by 2013
  - Total Town e-CO_2 emissions in 2007 was 445,000 tons
  - Target reduction = 44,500 tons e-CO_2
  - Average annual reduction of 2% per year

- Reduce municipal emissions 20% by 2013
  - Total municipal e-CO_2 emissions in 2007 was 9,900 tons
  - Target reduction = 1,980 tons e-CO_2
  - Average annual reduction of 4% per year

Efficient Buildings and Infrastructure

- Residential, commercial/institutional, and municipal buildings account for about 62 percent of the Town's GHG emissions
  - 30 percent each for residential and commercial/institutional
    - Average residential electric use has increased about 3% annually since 1997 to 990 kWh per month, which is twice the usage of an average residence in MA
    - The size of new homes has increased 30% from 4,500 SF in 2005 to more than 6,000 SF as of June 2009
    - Commercial electric use has increased about 2% annually since 1997
  - 2 percent for municipal
    - School buildings are the largest contributor (52% of total municipal GHG emissions); $1.4 million is budgeted in FY2011 to supply energy to Wellesley's schools

- Improving energy efficiency not only will help the Town achieve its 10 percent GHG reduction goal but will also:
  - Achieve significant economic benefit through energy cost savings, including the deferral of costly improvements to the Town's electrical infrastructure
  - Improve the quality of services provided (lighting, heating, and cooling)
  - Result in improved, healthier, and more productive living, work, and study environments

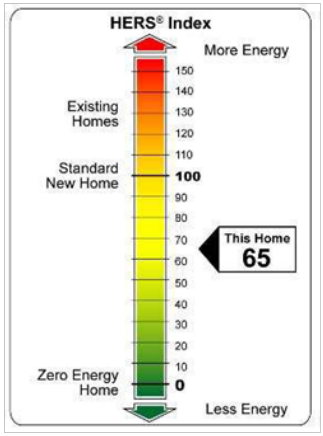
- Improving energy efficiency in buildings is also one of the more cost-effective opportunities to reduce GHG emissions

Efficient Buildings and Infrastructure

- Major municipal successes to date:
  - Municipal Energy Efficiency Committee set a target reduction of 20% by 2013
  - MLP Energy Conservation Fund (annual savings of 150 tons of e-CO_2)
  - MLP line loss reduction program (annual savings of 1,900 tons of -eCO_2)
  - MLP hybrid car meter reader (annual savings of 600 gallons of gasoline)
  - MLP time-of-use pilot program (participants decreased electric use by an average of 37%)
  - Energy efficient elements incorporated into new high school

Efficient Buildings and Infrastructure (Recommendations)

- **Adopt Massachusetts stretch building code** (estimated annual savings of 7,000 tons e-CO_2 by 2013)
  - 15% to 35% more efficient than current state code
    - Requires third-party testing and certification of building energy performance
    - "Prescriptive" options are available for residential additions and alterations and medium-sized commercial buildings (< 100,000 sq. ft.)
  - Represents a single, uniform, legal option for communities that want to require higher efficiency standards
    - Already adopted by Newton and Cambridge
    - Other communities currently considering include Acton, Brookline, Carlisle, Lexington, and Sudbury
    - Readily available technical assistance and support from state agencies and organizations
  - Increased construction costs are quickly recovered through and exceeded by the resulting energy cost savings achieved
  - Adoption satisfies one of the qualifications for being designated as a "Green Community," which would make the Town eligible for a variety of energy efficiency grants and loans
  - Minimal oversight required of the Town building department



ENERGY STAR HOMES

Top image source: www.lexingtoninfrared.com/hers-ratings.php

Efficient Buildings and Infrastructure (Recommendations)

- **Develop a program that encourages and motivates homeowners to conduct energy audits** (estimated annual savings of 1,100 to 1,500 tons e-CO_2 by 2013)
  - Not many Town residents are taking advantage of current MLP complimentary audit program (only 10% have participated)
  - Achievable energy savings of 10% to 20% following audit and readily-implementable upgrades (e.g., install more efficient light bulbs, add/improve insulation, seal large air leaks)
  - Audit and upgrades are eligible for rebates from utility companies
  - Some communities require audits in real estate transactions
  - Town should explore approaches that are less compulsory or are based on incentives

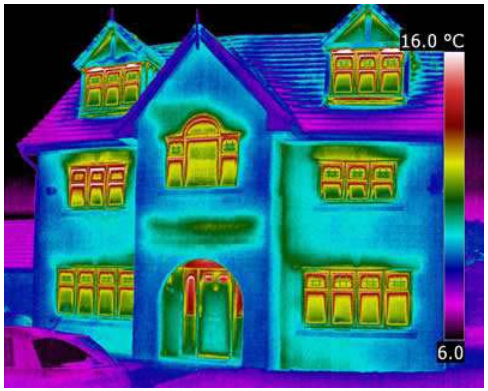
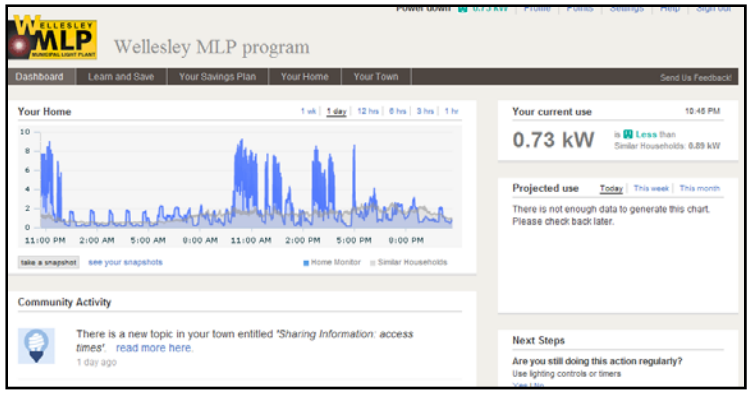


Image source: http://www.pixelthermographics.co.uk/impages/FrontJoinedIR.jpg

Efficient Buildings and Infrastructure (Recommendations)

- **Conduct expanded time-of-use/smart meter pilot program** (estimated annual savings of 400 tons e-CO_2 by 2013)
  - MLP's previous pilot program showed promising results (average electric use reduction of 37%)
  - Expand program to include municipal and commercial buildings and more residential homes
    - Evaluate whether households are likely to sustain long-term, meaningful reductions or changes in the time of energy use
    - Evaluate whether the adoption of higher rates for on-peak use can further motivate energy reductions or adjustments to off-peak use
    - Evaluate the feasibility and effectiveness of deploying smart metering technology throughout the Town
  - Gives homeowners a robust tool with which to actively monitor and manage their individual electrical usage in real time
  - Allows MLP to automatically monitor usage and quickly detect and troubleshoot service outages and interruptions



Efficient Buildings and Infrastructure (Recommendations)

- **Engage a service provider to audit municipal buildings and implement meaningful energy efficiency improvements** (estimated annual savings of 1,500 tons e-CO_2 by 2013)

  - Many nearby towns and cities have engaged an energy services company (ESCO) to audit and implement energy efficient retrofit programs, with resulting energy savings of up to 30%

  - No upfront costs – service provider is paid for its implementation costs from the energy cost savings that are achieved

Images sources: http://www.ci.wellesley.ma.us/Pages/006C4770-000F8513.0/92105_185624_0.jpg, www.elitesuburbs.com/pages/wellesley.htm, www.panoramio.com/photo/19314202

Efficient Buildings and Infrastructure (Recommendations)

- **Continue street light replacement program** (estimated annual savings of 200 tons e-CO_2 by 2013)
  - MLP has already replaced almost all of the Town's more than 3,300 non-ornamental street lights with more efficient sodium or, on a pilot program basis, LED lights (9)
    - Estimated annual savings of about 135,000 kWhs (50 tons e-CO_2)
  - Replace about 500 ornamental street lights with LEDs
    - Estimated annual savings of 750 kWh per light, or 360,000 kWhs total (135 tons e-CO_2)
    - LEDs last 5 to 9 times longer than current metal halide bulbs
    - Estimated 6-year payback period
  - Total annual savings of about 500,000 kWhs , or about 20% of the 2.5 million kWhs used for street lights in 2007
- **Develop municipal policies for computer, thermostat, and lighting use** (estimated annual savings of 500 tons e-CO_2 by 2013)

Image source: http://www.sxc.hu/pic/m/r/ro/ronnibobs/1158340_street_light.jpg

Transportation

- Represents the largest share (36%) of Town emissions: 160,000 tons of e-CO_2
- Reducing transportation emissions can save money for residents, businesses and the Town
- Investments in public transport and walking / biking infrastructure benefit both users and those that stay in their vehicles, due to less congestion
- Many recommendations are adapted from the Town's 2007 Comprehensive Plan

Transportation: How To Reduce Emissions

- Reduce miles driven
  - Combine trips (and save time)
  - Take public transport
  - Rideshare (carpool)
  - Walk or bike for short trips
- Reduce emissions per mile
  - Drive the most efficient vehicle you own
  - Learn economical driving (and don't idle)
  - Maintain your vehicle properly
  - Buy a more efficient vehicle
  - Replace the largest vehicle first:

Which vehicle upgrade saves more gas?

10 mpg SUV ➔ 15 mpg SUV

25 mpg car ➔ 50 mpg hybrid

This one!

Transportation Recommendations: Public Transport

- Today
  - Three MBTA commuter rail stations
  - MBTA Green Line at Woodland and Riverside
  - MWRTA bus from Woodland to Natick via Rte 9
  - Babson, MassBay and Wellesley College shuttles
  - School bus routes
- Future
  - Investigate joining MWRTA
  - Investigate creation of in-town bus
  - Promote increased school bus ridership


http://en.wikipedia.org/wiki/File:Wellesley_Hills_station.jpg

http://www.umcycling.com/mbta3681riverside.jpg

http://www.wickedlocal.com Ken McGagh

http://www.freefoto.com/preview/2030-02-1?ffid=2030-02-1

Transportation Recommendations: Walking and Biking

- Adopt “Complete Streets” policy
  - Design roads to meet the needs of all users: pedestrians, bicyclists and motor vehicles
  - Affects street geometry, marking, signage, etc.
  - Several examples in Town today

- Improve Town trail system
  - Excellent existing asset for Town
  - Consider improved surface and street crossings
  - Better linkage of disjoint trails

Transportation Recommendations: Municipal Vehicles

- Municipal vehicle purchase and use policy options
  - Purchase right-sized efficient vehicle for need
  - Education on efficient driving techniques
  - Continuing attention to maintenance
- Effect will be to reduce emissions, save money and offer a model for Town residents and businesses

Transportation Recommendations: Community and Individual Actions

- Outreach / education on vehicle purchase
- Encourage businesses to institute commuter friendly policies such as “emergency ride home”
- School “green teams” and PTSO and School Committee efforts
  - “Walking school bus”
  - Reducing backpack load for walking students

Waste Management

- **Wellesley Recycling and Disposal Facility (RDF) handles 24,000 tons of waste, annually**
  - **Waste Diversion at RDF**
    - 1/3 waste is handled as recyclables
      - Avoids 12,000 tons e-CO_2
        - From methane
        - From energy used in production of new materials
    - 1/3 waste is composted yard waste
      - Avoids 8,000 tons e-CO_2
  - **1/3 waste hauled to managed landfill**
    - 75% methane recovery
      - Onsite generation of electricity
      - Less than 2,000 tons e-CO_2 emitted as methane
- **Waste and recycling handled by private haulers is not currently documented**

Waste Management Initiatives

- **Continue to improve residential recycling**
  - Step Up! program
    - Increase recycling by 10%
- **Improve commercial recycling**
  - Establish effective requirements for new commercial permits and subleases
- **Document waste management by private haulers**
  - Re-establish annual reporting by private haulers
    - Permitted by the Department of Health
    - Regular reporting by private haulers to RDF should be enforced
      - Establish routine request for
        - Tonnage waste
        - Tonnage of recyclables (single-stream or sorted)
        - Number of residential and commercial accounts

Explore Innovations in Waste Management

- **Pay-as-You-Throw (PAYT) system has been used effectively in area towns**
  - Charge per bag for waste
  - Incentive to increase recycling
    - Needham reports 60% residential recycling
  - Evaluate potential for RDF Program
    - Potential increase in % recyclables, diversion of waste
    - Logistics of system
- **Commercial and institutional food waste can be collected for compost production in some areas**
  - Stated as goal by Department of Environmental Protection
  - Explore availability of food waste haulers
    - Production of compost or energy
    - Compare benefits to methane recovery at landfill

Renewable Energy

- Renewable energy provides an opportunity to reduce e-CO_2 emissions by changing the source of our energy. Naturally replenished sources of energy such as solar, wind, biomass, hydropower, and tidal power can be used in place of fossil fuels
- Challenges to increasing use of renewable energy include
  - Geographic access to hydro
  - Topographic limitations on wind access
  - Tree canopy constraints on solar power

Images source: MLP VREP brochure

Renewable Energy (Existing measures)

- Wellesley demonstrates a commitment to renewable energy sources with in-town small-scale renewable energy initiatives including:
  - 50kW solar photovoltaic (PV) panel system at the MLP garage, which will generate sufficient electricity to meet the building's demand
  - Handful of residences in Town generating
    - Electricity from solar PV
    - Heat or hot water from solar thermal
  - Babson College demonstration-scale wind turbine
  - Wellesley High School
    - Existing 2 kW solar PV system
    - Planned 40 kW solar PV system

Renewable Energy (Existing measures)

- MLP Voluntary Renewable Energy Program (VREP) offers a way for residents and businesses to effectively reduce or eliminate GHG emissions by choosing to buy some or all of their electricity from renewable resources.
  - Electricity accounts for 21% of total annual e-CO_2 emissions
  - Expanding participation in the VREP will help to align Wellesley with the Massachusetts Green Communities Act (2008), which requires Massachusetts to supply 20% of its electric load through new, renewable and alternative energy sources by 2020
  - MLP's low electric rates enable its customers to pay the premium for 50% renewable energy and still pay a lower total rate for electricity than the "standard" rate paid by residents in neighboring towns that do not have a municipal light plant

Renewable Energy (Recommendations)

- **Expand and promote MLP Voluntary Renewable Energy Program (VREP) to achieve 4% of MLP portfolio** (estimated annual savings of 3,700 tons e-CO_2 by 2013)
  - 2008 survey of MLP customers showed many were somewhat or very willing to pay extra for renewable energy
    - 43% of residents willing to pay extra
    - 38% of businesses willing to pay extra
  - Expand VREP to 25% participation. Currently 6% customer participation rate, purchasing 1% renewable power as a percent of total retail sales (Feb 2010)
  - Precedent: Nation-wide leader, *Palo Alto Green,* achieved 21% participation with 5.7% renewable power as a percent of total retail sales (2008 NREL data)

2010 VREP

Image source: MLP VREP brochure

Renewable Energy (Recommendations)

- **Increase local renewable sources** (estimated annual savings of 900 tons e-CO_2 by 2013)
  - Develop a municipal solar PV program to increase the amount of installed PV on municipal buildings
    - 50 kilowatt PV (annual production 60,000 kWh) planned for MLP garage
  - Evaluate the potential impact of encouraging commercial and residential solar PV installations
    - Rebates and/or paying a net-meter rate on energy sold to the grid that is comparable to the cost of commercial renewable energy purchases.

**Note: 900 ton e-CO_2 assumption requires approximately 2.1 MW renewable energy, approximately 40 times the output from the solar installation planned for the MLP garage

Communication Overview

- Four key tactics
  - Build general awareness
  - Segment likely supporters
  - Use online and social networking tools
  - Measure impact

Communication Overview

- Build general awareness
  - Identify a “face” of energy reduction
    - Town resident to “personify” energy reduction
  - Use traditional media
    - Wellesley “Townsman” articles and op/ed
  - Create signage at RDF
    - Provide “progress” meter
  - Create Marketing Committee
    - “Name the Campaign” contest
    - Key business/community leader involvement

Communication Overview

- Segment Likely Supporters
  - "Recyclers"
  - Advocates / special interest groups
  - Students
  - Business and community leaders

Communication Overview

- Online and social networking
  - Dedicated web site
  - Link from Town web site to dedicated site
  - Facebook and Twitter accounts
  - Identify active/influential “bloggers”

Communication Overview

- Measure Effectiveness
  - Web site activity → *Google Analytics*
  - Awareness and favorability research
  - Uncover ideas to improve effectiveness

Community Outreach and Trends

- Community Outreach
  - Every household replaces one light bulb with CFL--eliminate 250 tons e-CO_2
  - Every household lowers winter thermostat 1 degree for 8 hours/day--eliminate 900 tons
- Continuing Trends
  - 300 households/year convert from fuel oil to natural gas--eliminate 4,000 tons e-CO_2
  - Businesses reduce emissions 5%--eliminate 6,900 tons e-CO_2

Estimated Annual Reduction in e-CO_2 Emissions in 2013	
Efficient Buildings and Infrastructure	10,900 tons
Efficient Transportation	16,000 tons
Effective Waste Management	1,000 tons
Renewable Energy	4,600 tons
Community Outreach and Action	1,150 tons
Continuing Trends	10,900 tons
TOTAL	**44,550 tons**
TARGET	**44,500 tons**

For further detail on the specific GHG emission reduction measures recommended in the Plan, see accompanying appendices.

Organizational Structure for Plan Implementation

Sustainable Energy Committee Responsibilities

- Implement and revise the Sustainable Energy Plan
- Coordinate actions among the municipal departments and community organizations
- Report annually to Town Meetnig on achievements, trends and planned activities
- Propose future sustainable energy goals and plans

Sustainable Energy Committee Composition

- 7 members
  - Selectmen, Schools, Municipal Light Board each appoint a representative
    - Board member, official or employee
  - Selectmen appoint 4 residents with expertise or involvement in sustainable issues
- 3-year terms
  - Initial appointments for staggered terms

Committee Structure in Peer Towns

- Committee structure in Concord, Brookline and Newton includes appointees from Town boards and community organizations
- Selectmen appoint all members in Sudbury, Wayland, Winchester, Lexington
- Town-recognized volunteer committees in Belmont and Weston
- No Town committee in Needham and Natick

Sustainable Energy Coordinator

- Oversee day-to-day implementation of Plan
- Propose and develop energy efficiency policies for Municipal Energy Efficiency Committee consideration; help departments implement policies and analyze effectiveness
- Develop and administer energy efficiency and renewable energy projects for MLP and analyze effectiveness
- Coordinate municipal and community initiatives and consult with community organizations
- Keep abreast of new developments in sustainable energy and new funding opportunities
- Develop annual Town-wide emissions inventory and more detailed municipal emissions inventory; recommend improvements in methodology
- Write grant proposals and prepare annual report to Town Meeting

FY11 Budget Request

- Total cost $44,000
  - Coordinator salary $38,000
    - Half-time position
    - No benefits
  - Expenses $6,000
- Municipal Light Plant pay 50% of salary
- Tax-impact budget $25,000
  - Included in Selectmen's budget
  - $19,000 salary
  - $6,000 expenses

Benefits to Town

- Fulfill our municipal and individual energy needs more efficiently and cost-effectively
  - Improve comfort and health
  - Reduce dependence on foreign fuels
- Do our share to reduce emissions and slow climate change
- Improve quality of life for ourselves and our children and grandchildren

Key to Success…Community Energy in Action

- Town-wide Participation
  - Even small actions taken by **every** household can produce significant results
    - Replace one light bulb with a CFL—save 250 tons e-CO2 per year
    - Lower winter thermostat one degree for eight hours/day—save 900 tons

- Persistent action can reduce a household's GHG emissions 50% over 5-10 years
  - Electricity: 100% reduction
    - Eliminate phantom load; raise summer thermostat; use CFLs; replace appliances
      - MLP rebates on Energy Star appliances and free home energy audits
    - Use $$ savings to buy 100% renewable electricity from MLP
  - Heating: 35% reduction
    - Lower winter thermostat; insulate; seal ducts and cracks; replace furnace; switch from fuel oil to natural gas
      - National Grid rebates for natural gas customers
  - Transportation: 50%
    - Replace vehicle with most efficient vehicle in class
    - Migrate to smaller class of vehicle
    - Take public transport, rideshare or telecommute