

Addressing Global Climate Change Locally

Vermont Case Studies

for
Clean Energy for Towns and Schools:
Safe Money and Go Green

Cape & Islands Renewable Energy Collaborative and
Waquoit Bay National Estuarine Research Reserve

May 18, 2007

Debra L. Sachs, Alliance for Climate Action





2002

© 2001 USPS

Today's Remarks . . .

- Introduction and brief background
- Economic development and energy efficiency advocates can foster opportunities
- Vermont Energy & Climate Action Network-structure/role of energy committees
- Communities--planning, implementing strategies
- Ideas, lessons learned in leadership

Alliance for Climate Action Members



City of Burlington



Vermont
Department of Public Service



Underground Railway Theater--Vermont

Vermont Agency of Natural Resources



THE UNIVERSITY
OF VERMONT

Vermont Interfaith Power & Light



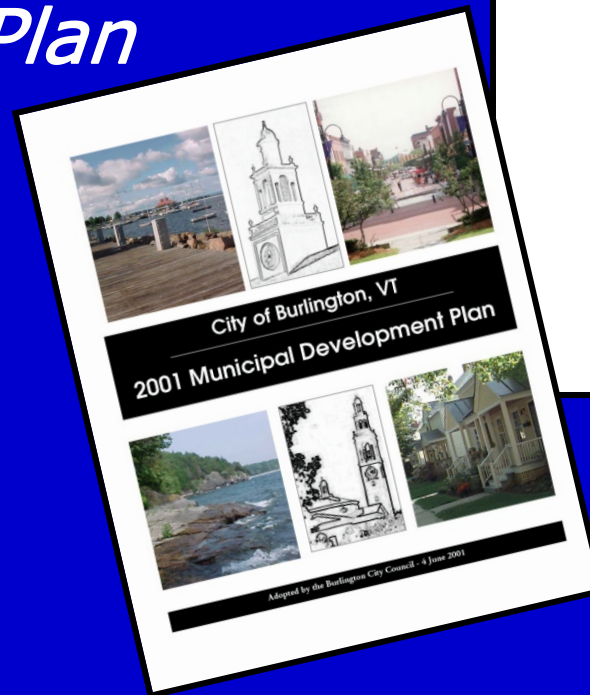
Our Vision

- To support the reduction of greenhouse gas emissions by at least 10 percent;
- To inspire, facilitate and motivate behavior change;
- To monitor community progress; and
- To collaborate with others to expand efforts throughout Vermont and beyond.

Climate Action Plan

Keep the vision consistent...

- *Municipal Development Plan*
- *Climate Action Plan*
- *Legacy Plan*



The Climate Action Plan

A Plan to Save Energy and Reduce
Greenhouse Gas Emissions



Burlington Climate Protection Task
Force
Burlington, Vermont, USA
March 2000

Adopted by Burlington City Council--May 1, 2000

Individual actions to growing partnerships...

- 10% Challenge Program ...*voluntary program encouraging households, businesses, schools and institutions to reduce greenhouse gas emissions in three sectors:
[energy efficiency, transportation and solid waste]*
- Multi-layered marketing approach
- Creative partnerships and approaches

Welcome to the 10% Challenge - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.10percentchallenge.org/

Google

Welcome to the 10% Challenge



Put the chill on global warming
...reducing greenhouse emissions by ten percent..

INFORMATION & SCIENCE

GLOBAL MOVEMENTS

ABOUT US

LINKS

NEWS

HOME

HOW IT WORKS

CALCULATOR

RESOURCES

SIGN-UP

10% CHAMPS

CONTACT US

Accept the Challenge!

User Name:

deb sachs

Password:

Log In

Sign-Up

Need help or have a question? [Email us..](#)



The 10% Challenge is a voluntary program to raise public awareness about global climate change and to encourage households and businesses to reduce their greenhouse gas emissions by at least 10 percent.

[Business Testimonials](#)

[Mow Down Pollution Lawn Mower Exchange](#)

[VT High Performance Schools](#)

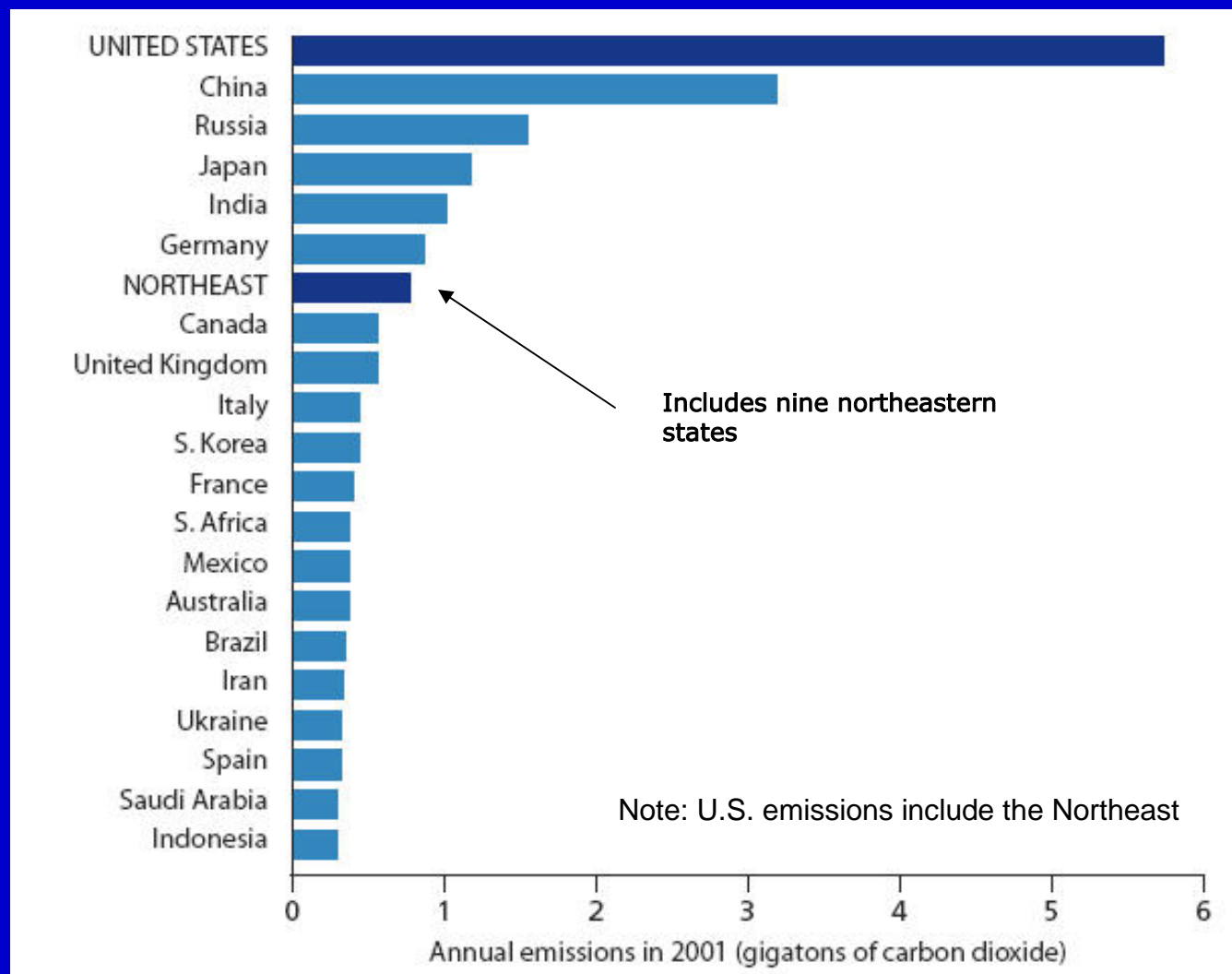
[No-Idling Campaign](#)

All households and businesses are invited to [sign-up](#), accept the challenge and begin taking actions today.

Senator Leahy says "A small state can lead the way in the effort to stop climate change. By taking the 10% Challenge, Vermonters can be part of the solution, and set an example for other states."

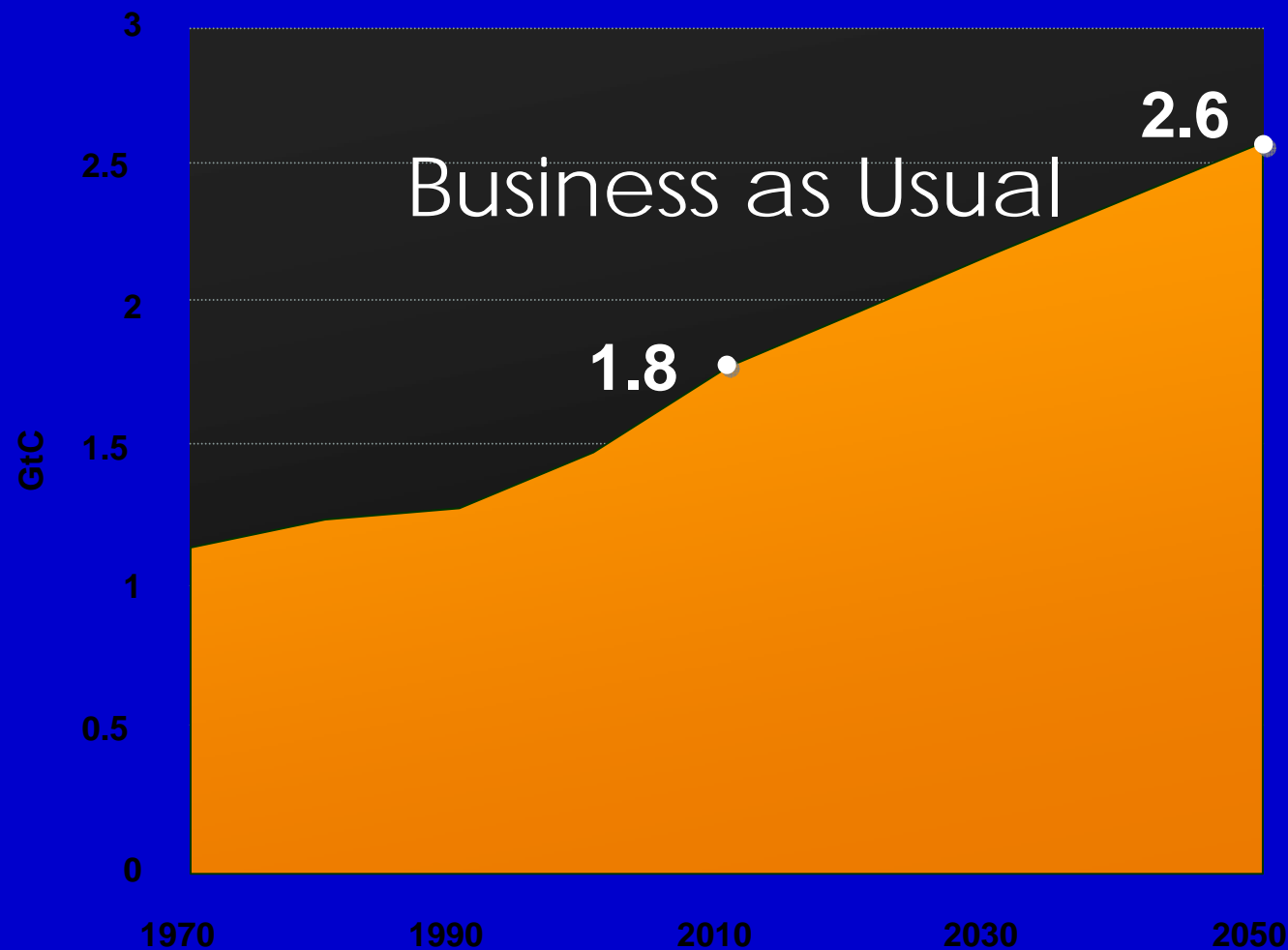
Copyright © 2006 10% Challenge Program. All Rights Reserved. [Privacy & Security Policy.](#)

Energy-related CO2 emissions in the Northeast compared with the major carbon-emitting nations of the world



Source: Emissions data for 2001 from Energy Information Administration (EIA), *International energy annual* (2003), and EIA, *Emissions of greenhouse gases in the United States* (2004).

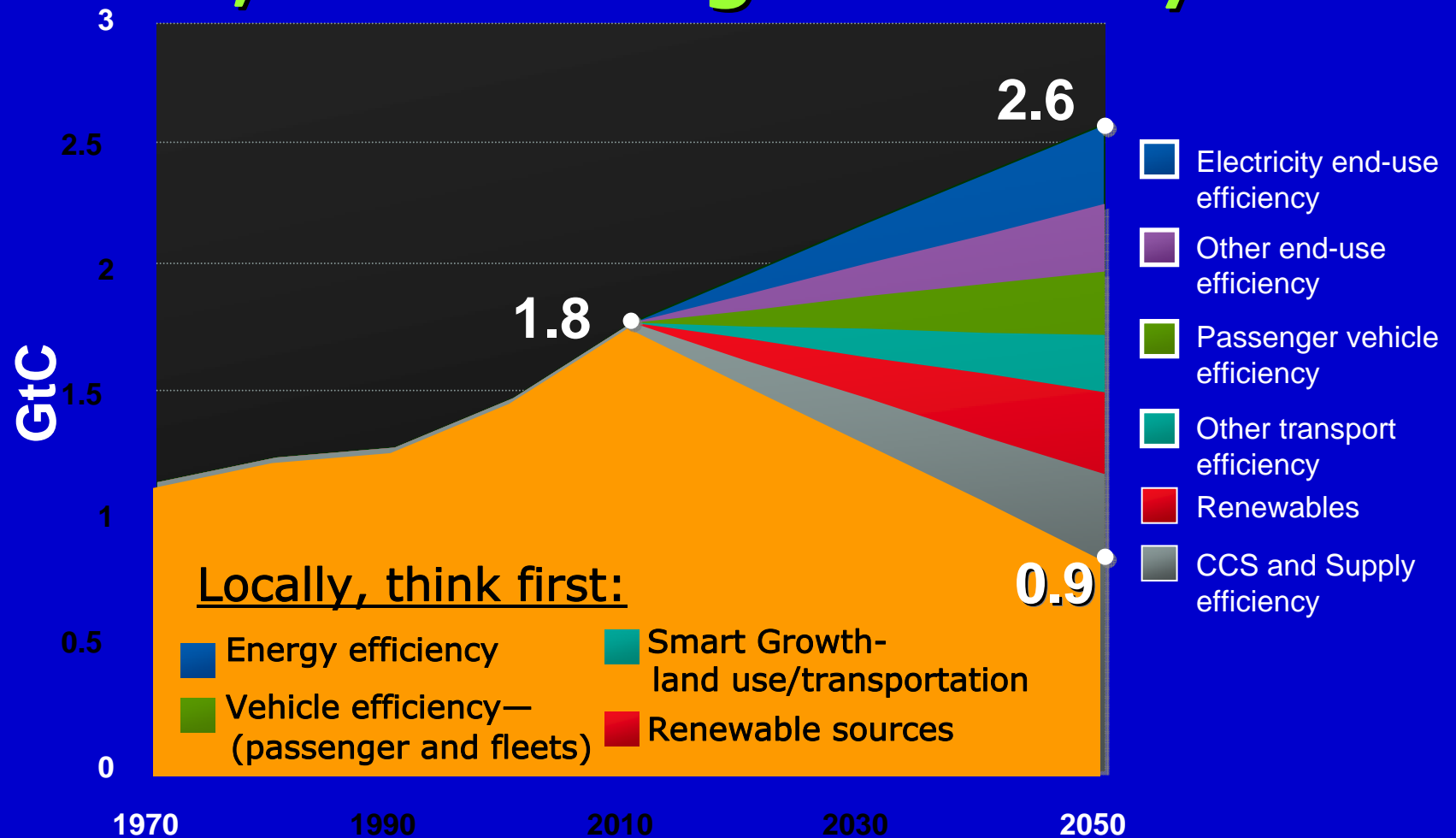
The Problem--U.S. Emissions



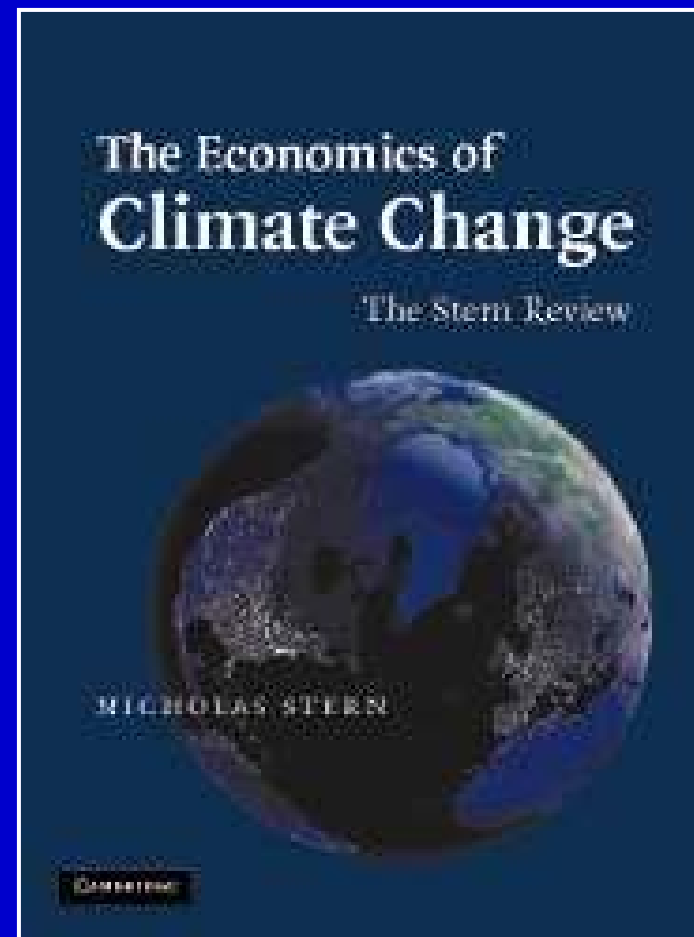
After Pacala and Socolow, 2004; ARI CarBen3 Spreadsheet

U.S. Stabilization?

Yes, and it begins locally....



Recent Stern report revealing...



Source: http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm

Growth: Development vs. Expansion

The word "Growth" is commonly
used to describe two very different
concepts:

Expansion and Development

Development = Expansion?

Expansion makes a community bigger
(e.g. more people, infrastructure,
buildings, subdivisions, malls, *etc.*).

Development makes it better
(e.g. living-wage jobs, increased
income, more savings, and improved
quality of life.)

Development \neq Expansion

- Expansion can be beneficial
- Much expansion is not
- Many opportunities exist to *develop* without necessarily *expanding*.

Local Economy



Economic Development



New Business

Leakage



Energy-Related Leakage

Payments to:

Utilities, heating oil
and natural gas
producers, refiners,
distributors

Wealth Accumulation
for: stockholders in all
these companies



How many of these beneficiaries of Energy-Related leakage are in your community?

Energy Efficiency

The rapid-deployment energy resource

- Creates local jobs
- Saves millions of dollars

Example: Sacramento California

- Invested \$59 million to save electricity
- Enabling customers to save nearly as much
- Created 880 jobs
- Increased regional income by \$124 million

Green Energy is serious business

“The employment multiplier effect for efficiency exceeds any other type of energy production.”

Tony Usibelli, Energy Policy Director
Office of Trade & Economic Development
State of Washington

The Energy Efficiency and Renewable Energy Investment

- Investing in EE and RE . . .
 - Saves money for households and businesses
 - Keeps money in the local economy
 - Creates direct local jobs
 - Creates indirect local jobs (recycling \$\$ locally)
 - Produces environmental benefits (attracting and keeping businesses, knowledge workers, tourists)
- So....Why aren't EE and targeted RE programs more prevalent?

Vermont solutions . . .

- A political alliance between:
Economic Development practitioners and advocates
and
Energy Efficiency practitioners and advocates
- Burlington Examples
 - Marketing: Targeting the Right Message to the Right Audience/Constituency
 - Organizational Strength/Alignment

2006 Vermont State Law

25% reductions in GhG's by 2012, further targets by 2028 and 2050

[Suggested policy targets—Via cross-cutting strategies-- 6%/year ghg reductions through 2012]

Vermont Sources of GHG

• Transportation	46%
• Residential / Commercial Fuel Use	28%
• Agriculture	11%
• Industrial Fuel Use	06%
• Industrial Process	05%
• Waste	03%
• In State Electricity	01%

Source: Vt Climate Change Commission



What's in store for Northern New England?

- Boston's avg. temp. —————> Richmond, VA (3.5°C)
Atlanta (5.6°C)
- Increased strain on storm water management systems
- Warmer, wetter winters—reduced snowpack
- Vermont maple syrup already impacted —
10% loss in season since 1940
- Impact on cold water fishing and hunting



Skiing and foliage season is a \$4.2 billion annual business



Vermont



Storm water—5-25% more precipitation

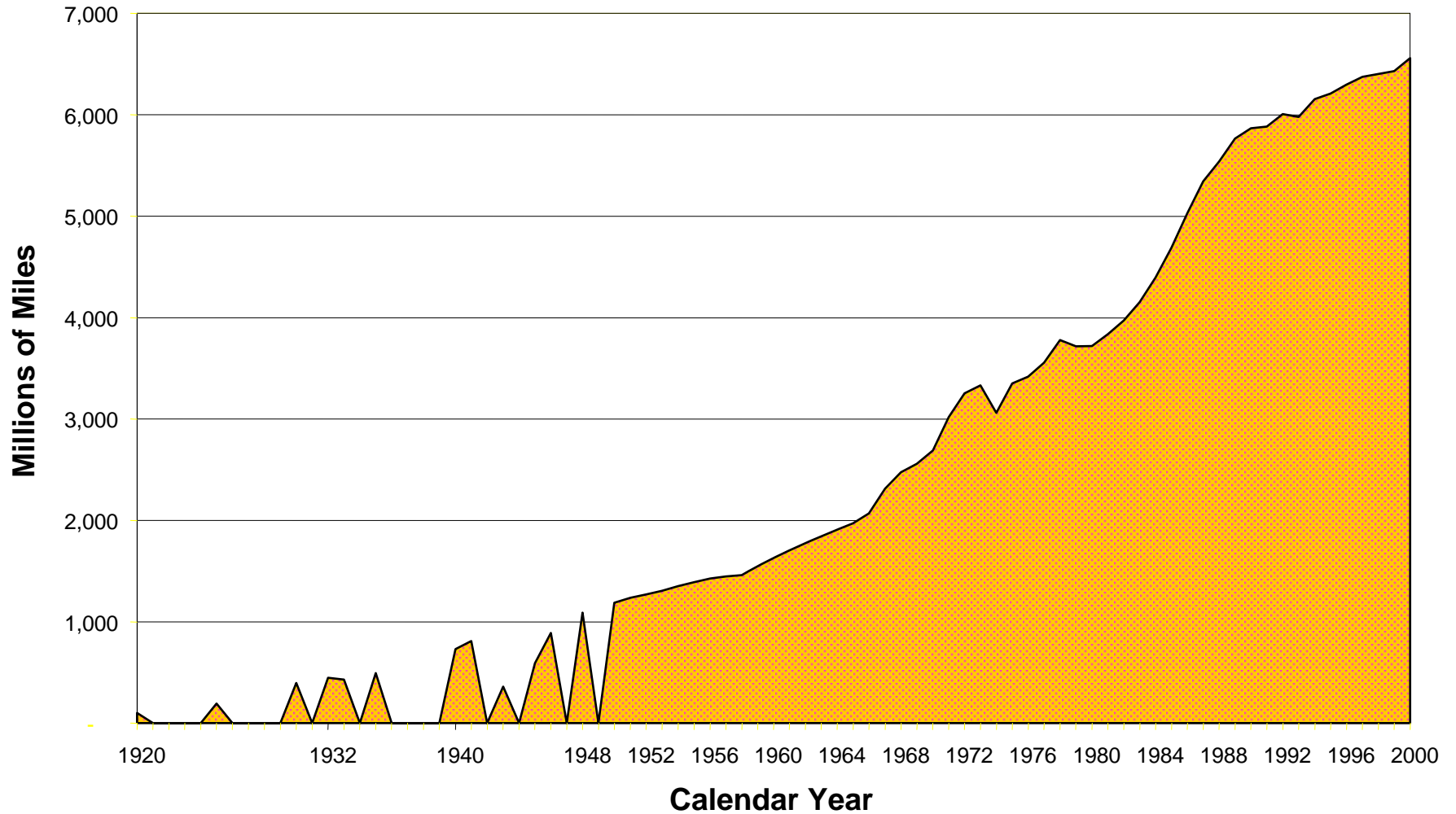


Syrup industry
\$226 million annually



\$383 million for
hunting and fishing

Vehicle Miles Traveled By Calendar Year Vermont



Source: VTrans

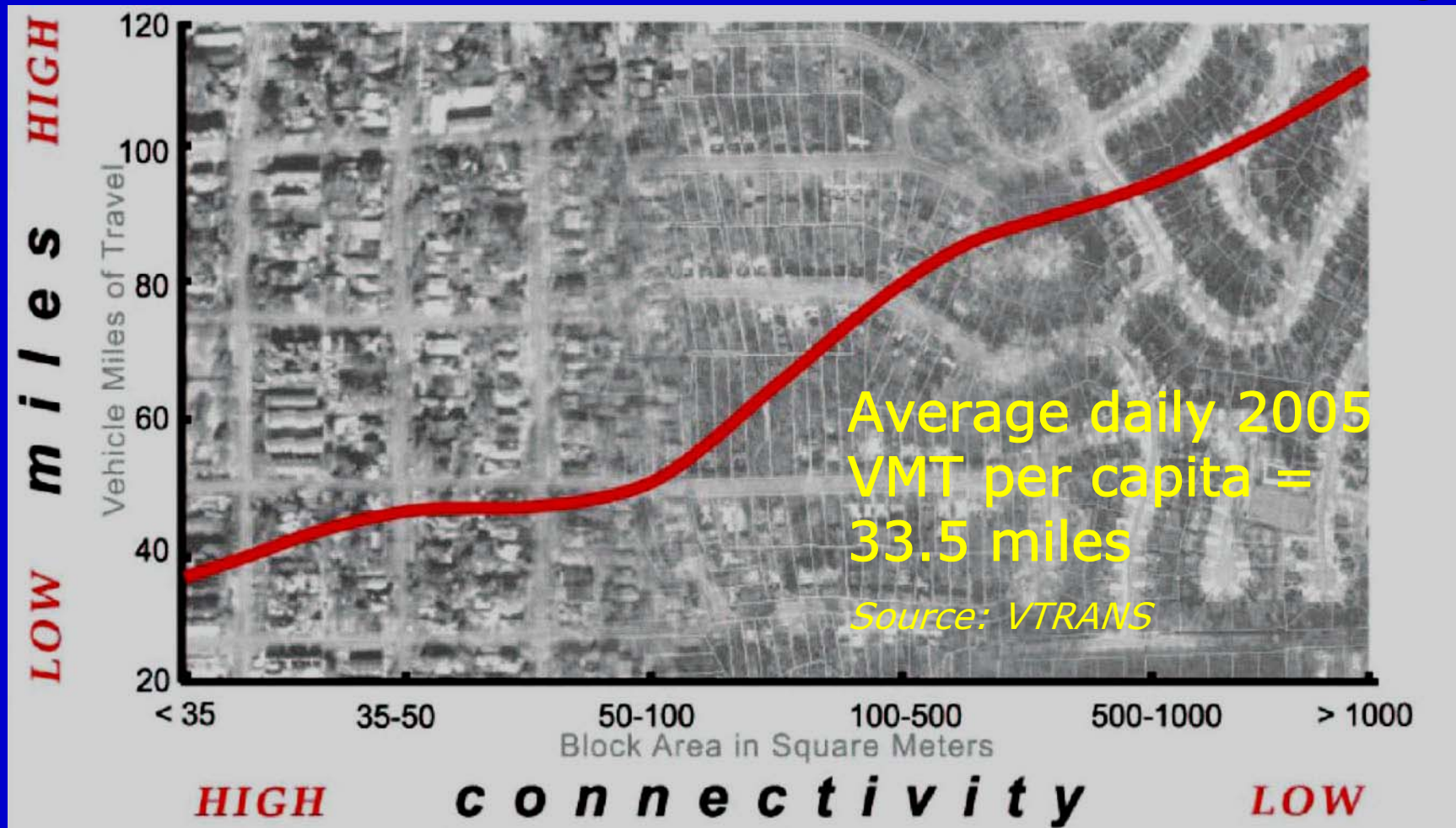
Dr. Epstein, Harvard Medical School reports that U.S. asthma and allergy rates are on the rise, due in part from increased temperature.

Pollutants from vehicle emissions are supercharging pollen production.



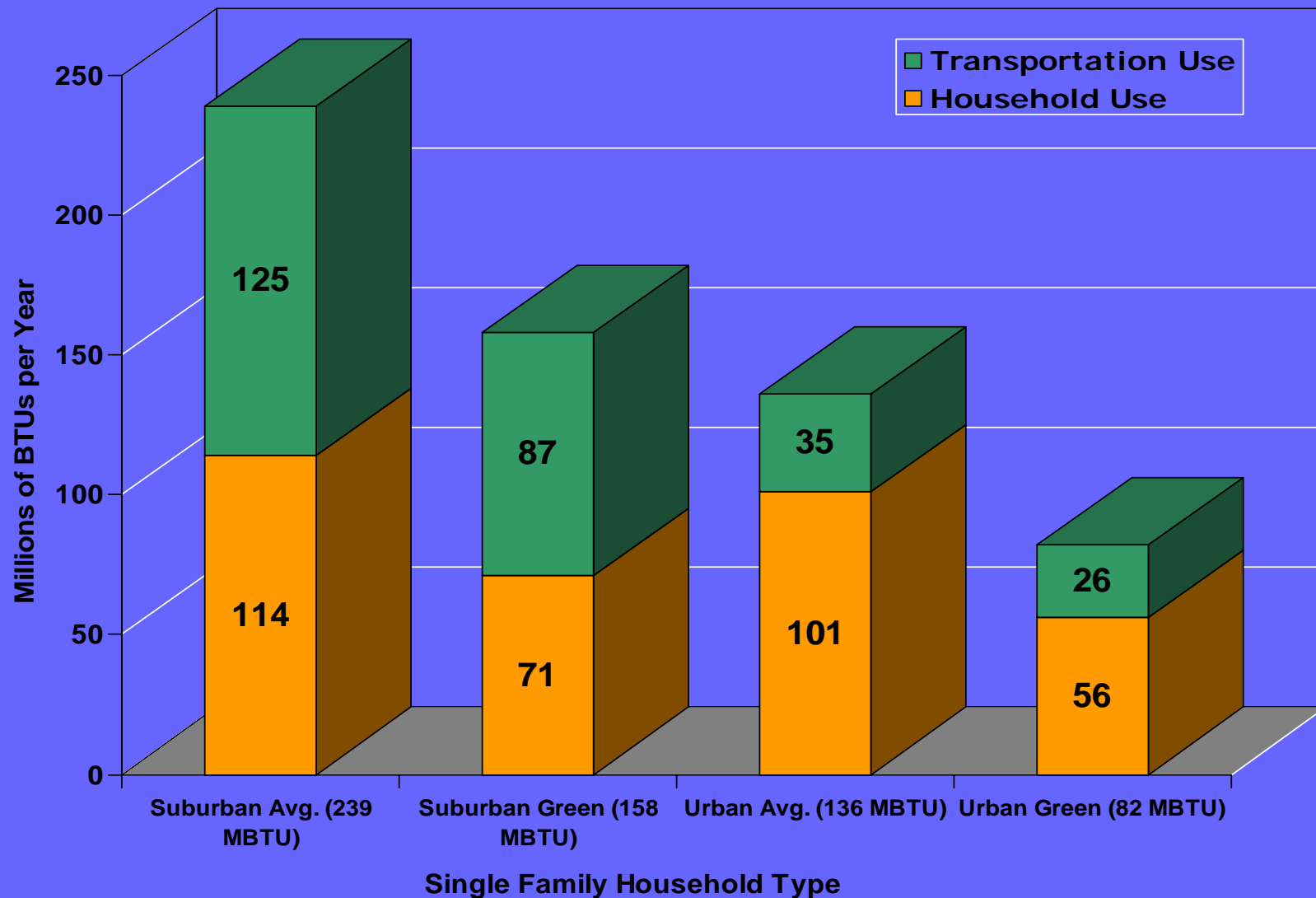
SMART GROWTH

Miles of Travel vs. Street Connectivity



D. Larry Frank, GA Tech.; Dr. Tom Schmid, Center for Disease Control

Average In-Town House Outperforms Even the Greenest Suburban House w/Hybrid Cars



Vermont Energy & Climate Action Network

Five founding members



Sustainable Energy Resource Group
"Where Efficiency Makes \$ense"



New England Grassroots
Environment Fund

Vermont Energy & Climate Action Network

- Five founding partners
- Our mission

To inspire, support, connect and align community-based energy and climate action initiatives, working to create a more secure, sustainable clean energy future in Vermont.

Town Energy and Climate Action Guide



Vermont Energy & Climate Action Network
March 2007

Steps and Approaches

What is the best structure for your Community Energy and Climate Action Committee?

- Ad hoc committee
- Subcommittee of Planning Commission or Conservation Commission
- Independent committee of Select Board

Models

- ICLEI
- Clean Air—Cool Planet
- Task Force/10% Challenge
- Association of Conservation Commissions
- Global Action Plan
- Vermont Earth Institute --Discussion Courses
- Sierra Club—Cool Cities
- Advocacy Group

Conservation Commissions: Vermont's Preferred "Vehicle" for Local Energy Conservation

- Resource conservation matters
 - (i.e., energy conservation), served well by grassroots conservation commissions
- Form subcommittee (i.e., energy conservation committee)
 - to strengthen the specific effort by inviting and empowering a greater number of interested parties

What can Conservation Commissions do?



- Powers & Duties
 - Advise planning commission, zoning board of adjustment, development review board, district environmental commission regarding permit applications
 - Advise community on matters affecting the local environment or natural resources
 - Encourage through educational activities the public's understanding of local natural resources and conservation needs

Source: Association of Vermont Conservation Commissions, 2007

Brattleboro, VT

[Ad hoc, select board later]

- Location Efficient Mortgages
- Roads
 - Adding roundabouts
- Safe Routes to School
- Anti-Idling Campaign
- Public Transit
 - Bee-Line Ridership up 30% in six months
 - Running on Biodiesel (B20 blend)



Hardwick, VT 2005 Pop. 3,230

[Committee: Ad hoc, plus select board]

- **Goal:** 3% reduction in electricity use and 35% town-wide participation, inspired by EVT
- Formed Hardwick Energy Action Resource Team
- **Grassroots** community spirit
- Partnered w/Chamber and Schools
- Town-wide outreach (i.e., events and Farmers Market, Rotary)
- **Energy audits** of commercial buildings and schools
- Classroom programs—energy, history of Hardwick Electric, logo contest

Hinesburg, VT

2005 Pop.-4,425

[Select board, ad hoc committee formed]

- Sustainability and Energy Planning Committee
- More than 2 dozen volunteers
- Established six project priorities
 - Hinesburg Light Switch—CFL exchange 6,000 bulbs
 - No-idling at schools
 - Promoting use of transportation alternatives
 - Greenhouse gases assessment of municipal buildings using EPA—Community Energy Challenge
- Safe Routes to Schools
- Park & Ride Lot
- Innovative proposed zoning bylaws for density

Coming Soon...

Hinesburg



Light Switch



TURN ON's to using CFL's:

- ↑ \$\$ave! Use up to 60% LESS electricity!
- ↑ Decrease Greenhouse Gasses!
- ↑ Excellent quality of light - now in variety of styles, colors and "warm" light!



TURN OFF's - Incandescent Bulbs

- ↓ Higher energy costs
- ↓ Must replace up to 10 times more frequently.
- ↓ Higher total cost compared to CFL's

Community Challenge

A Community Challenge to:

- Increase Energy Efficiency
- Decrease Energy Costs
- Increase Life of Light Bulbs
- Decrease Greenhouse Gasses

REPLACE

Your Old Incandescent Light Bulbs With Compact Fluorescent Bulbs

The Challenge:
Change 5,000 bulbs in Hinesburg !!

We'll keep track & report back on community energy savings.
Discounted Incandescent Bulbs Will Be Available!!

KICK OFF EVENT

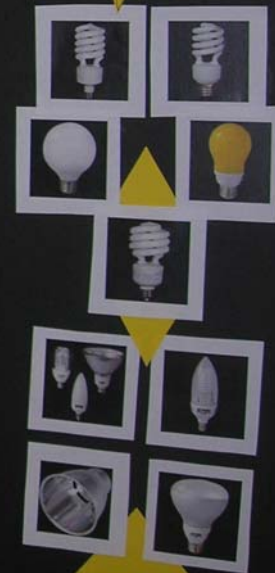
Watch for Details!

Green Up Day
Saturday, May 5th
Hinesburg

HINESBURG LIGHT SWITCH

A PROJECT OF THE HINESBURG SUSTAINABILITY AND ENERGY PLANNING TASK FORCE
COOPERATING WITH EFFICIENCY VERMONT AND THE 10% CHALLENGE

MANY NEW STYLES!!



Make it fun...

Hinesburg Energy Committee engages hundreds of residents by launching Light Switch project on Green-up Day



Montpelier, VT 2005 Pop—8,003

[Ad hoc committee formed, then Mayor and Council, 2 years old]

- Climate Action Plan, ICLEI membership
- Energy Town Meeting—March 2007--
- Established twelve subcommittees
- Hinesburg Light Bulb promotion at Town meeting—
- Safe Routes to Schools
- Way to Go! Montpelier
- Greenhouse gases assessment of municipal buildings using EPA—Community Energy Challenge

Miscellaneous Efforts

- **Waterbury**--installs new wastewater pump— *saves \$40K/annually*
- **Williston**—Builds new rescue facility—employs LEED criteria
- **Burlington**—used less electricity in 2004 than in 1990 by investing in energy efficiency
- **Manchester**—swaps out 40K CFL's

Burlington, VT

2005 Est. Pop-38,531
[City council and Mayor appointed task force]

1998--Task Force formed

[Broad-based government and non-profits]

2000--Climate Action Plan

[adopted unanimously by City Council]

2000—Alliance for Climate Action

2002--10% Challenge

- voluntary, multi-layered marketing program
- 3 sectors—[energy use, transportation, solid waste]

Burlington, VT

- Emissions calculator tools
- Business outreach and recognition
- Special events and press conferences
- “Beat the Heat”—a 50 minute play
- Advertising in weekly newspapers
- Collaboration with several partners
- No-idling campaign in schools
- B-20 transit buses
- Mow Down Pollution—mower swap
- Way to Go! Commuter Challenge
- High Performance Schools Standards—Design/development
- Shared education/presentations/resources with others

Burlington, VT

10% Challenge Participants

Businesses=140±

Households=1,500±

2002-2005 Households Results

- Reporting total--10.7 million pounds CO₂
- Average pledged reductions =
9,700 pounds CO₂/household/year
- 3 million pounds pledged over 3 years

Burlington—A history of smart choices...

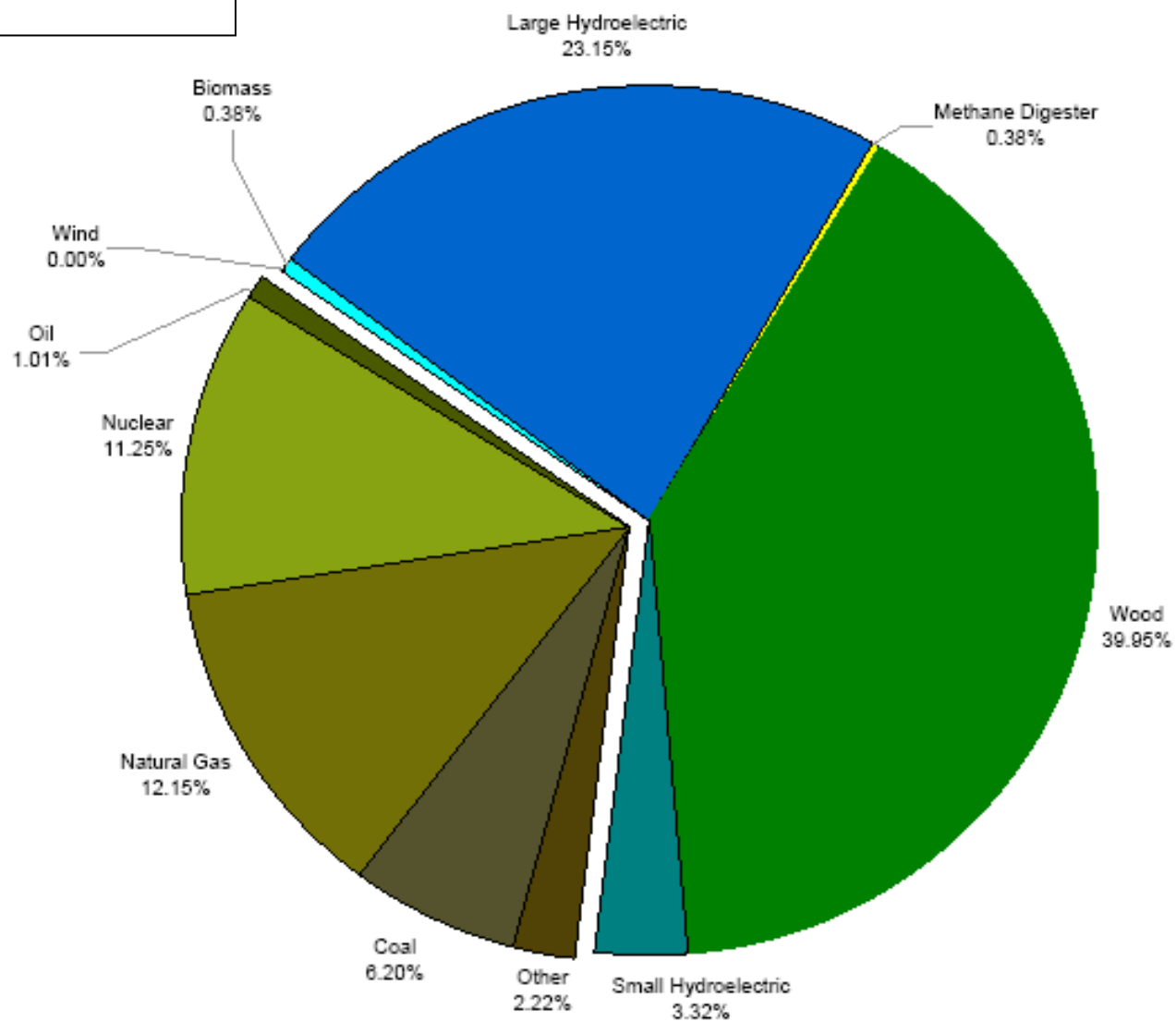


Municipally-owned power plant fueled by renewable resources; and \$11M local investments in energy efficiency programs.



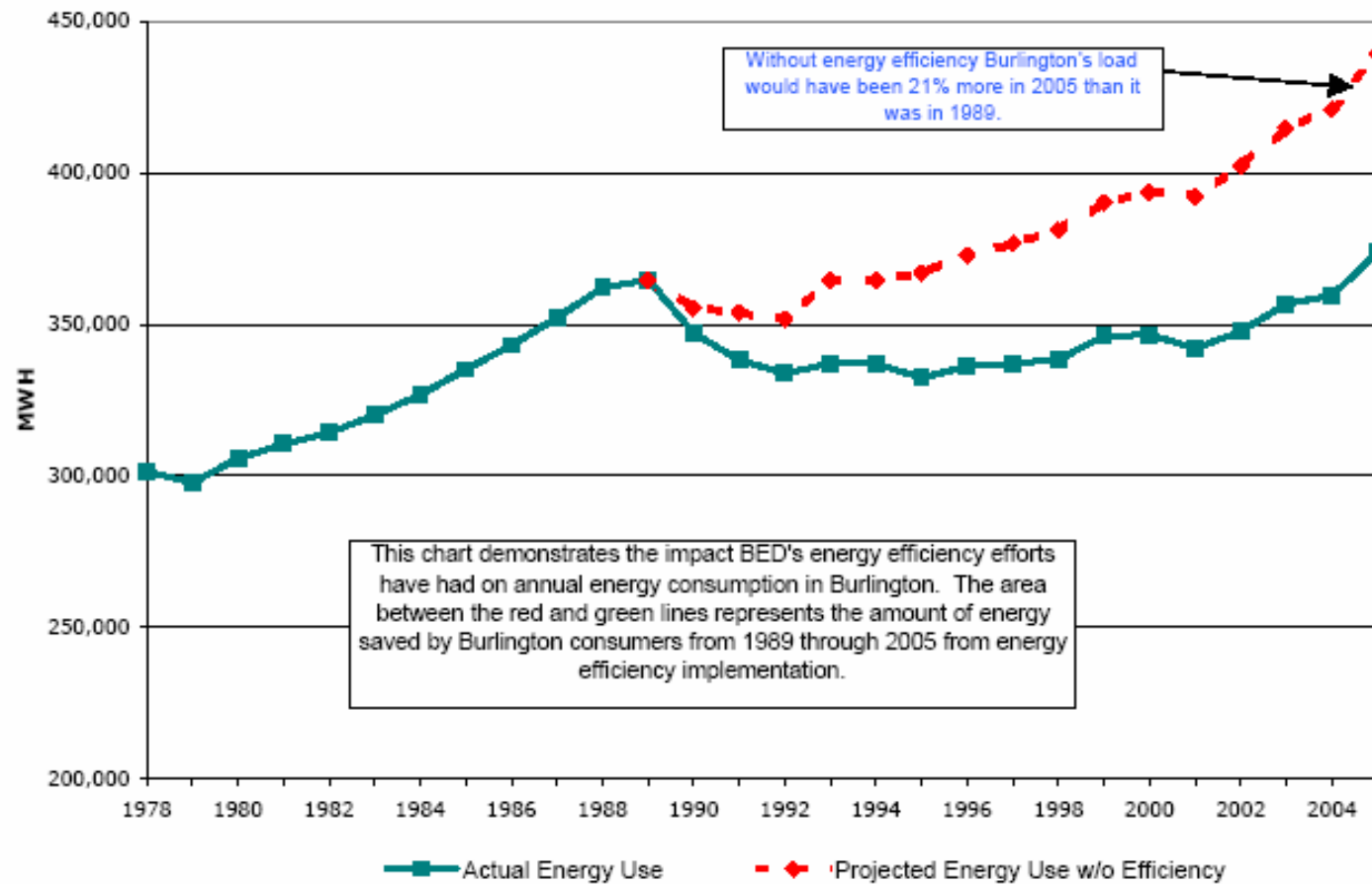
67% of BED power
is from renewable
sources

Sources of Power by Fuel Type
BED FY2006



Note: No power is directly contracted from nuclear or coal plants. Power displayed as nuclear or coal is a result of system or contract purchases that default to the New England residual mix.

Total Energy Use (MWH) for the City of Burlington



Retail Products Program includes Smartlight for Residential and Commercial Customers....



Residential Smartlight Program

- Lifetime Savings: 5,772 mWh
- Cost to implement: \$350K to date
- Annualized mWh savings to date: 1,189

~ \$131K savings in utility bills/year

Commercial Smartlight Program

- Lifetime Savings: 11,055 mWh
- Cost to implement: \$285K
- Annualized mWh savings to date: 3,548

~ \$461K savings in utility bills/year

Financing Method: 1990 municipal bond and monthly energy efficiency fee in bills (i.e., ~\$0.20/month for leased CFL bulbs)



Commitment to LEED Design



Campus buildings



Science Museum



Affordable Housing

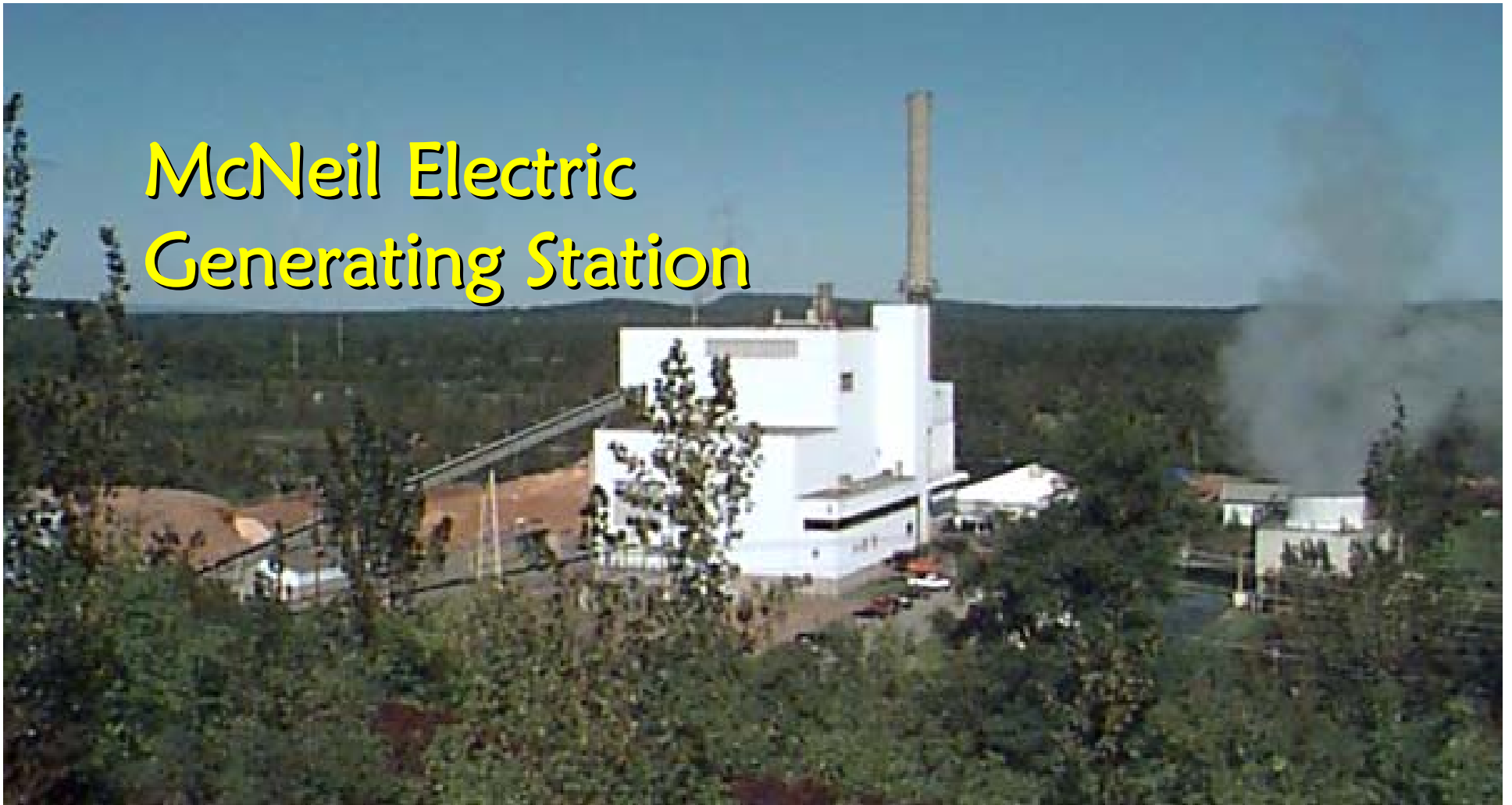


Waterfront Housing--40 unit rental--LEED Certified

Avg. savings per unit \$400/year.

Est. annual project savings=\$18,000 (electricity, natural gas and water)

McNeil Electric Generating Station



- Voter approved world's largest wood-fired plant 50-MW plant
- Operating since 1984



1998 Ice Storm

*...wood-fired electric
generating station helps
mitigate urban wood
waste problem*



Community Energy System

A community-wide eco-industrial park approach
i.e., No Waste

Benefits to:

Environment - 50,000 tons CO₂e

Local Economy – fewer \$ leaking out for non-renewable fuel purchases (every 120K gallons oil displaced, \$100K+ stays in local economy)

Heating Communities
with Renewable Fuels



The Municipal Guide to Biomass District Energy



Natural Resources Canada
Ressources naturelles Canada



United States
Department of Energy

Municipal guide
helps to increase
awareness. . .





'Solar on Schools'

Promote Education - Protect the Environment

Cleaner Buses



Transportation Demand Management— Incorporate TDM in plan and bylaws – creating partnerships w/business

- Maximum parking vs. minimum parking demands
- Infrastructure improvements (i.e., loading docks, bike racks, showers)
- Participation/promotion of Way to Go! Commuter Challenge
- Purchase or lease vanpools
- Promotion of rideshare
- Use of company vehicles for carpooling
- Subsidized transit passes
- Adjusted work week/hours
- Incentives for employees to live closer to work

Business Outreach

- Direct assistance
- Emissions estimates
- Clearinghouse for services providers
- Testimonials
- Awards Recognition

Public Outreach



Bus Signs



Press Conferences



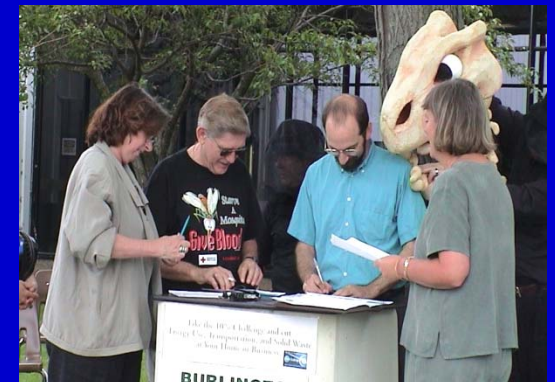
Business Cards-Tips



Business Posters



Events





10% Challenge
ALLIANCE FOR CLIMATE ACTION

140+ Participating Employers

RETAIL and SERVICE

Airflyte Productions
Ben and Jerry's – Church St.
Ben and Jerry's—Corporate Office
Borders Books and Music
Brattleboro Savings and Loan
Brattleboro Food Co-op
Brick Box Company
Brown & Roberts Hardware
Café Piccolo
Chittenden Bank
City Market
Doubletree Conference Center
Comfort Inn
Conant Custom Brass
Cornell Trading
Ecco
Fresh Market
Gardeners Supply
Greener Pastures
Gregory Supply Company
Good Vibrations
Good News Garage
Holton Home
FCPX
Fleming Oil Co.
Healthy Living Market
ICSS
Indigo
Intervale Compost
King Arthur Flour
Kit Cornell
Lake Champlain Chocolates
Les Emballages De La Beauce
Mr. Mike's Pizza
Merola's Market
Mirabelles

Muddy Waters
Murphy Sullivan Kronk
Nick and Morrissey Develop.
O'Sullivan Asset Management
Penny Cluse Café
PF Bailey and Associates
Propeller Media Works
Putney Food Coop
ReCycle North
Seven Days Newspaper
Seventh Generation
Smuggler's Notch Resort
Speeder and Earls
Stephen and Burns Salon
Sugarbush Ski Resort
Super 8 Motel
Sustainable Sourcing Inc.
Swish Maintenance Limited
The Body Shop
The Lamp Shop
The Outdoor Gear Exchange
The Sheraton Hotel
The Ski Rack
Venus and Crew LLC
VT Energy Contracting & Supply
Vermont Federal Credit Union
Vermont Pub & Brewery
Vermont Studio Center
Whistle Stop Antique
Wyndham Burlington

FAITH-BASED

Ascension Lutheran Church
Burlington Friends Meeting
Interfaith Church Coalition
Temple Israel
Unitarian Universalist Church
VT Interfaith Power & Light

SCHOOLS/COLLEGE

Austine School for the Deaf
Hobart and Williams Smith College
Otter Valley Union High School
Quaid College
Rock Point School
School for International Training
The Gailer School
The Putney School
Vermont Commons School
Waldorf School of Saratoga Springs
University of Vermont Env.Council

ENVIRONMENTAL/NGO's

National Wildlife Federation VT
NWF NE Natural Resource Center
New Eng. Grassroots Environ. Fund
South Ends Arts & Business Assoc.
Vermont Campaign to End
Childhood Hunger
Shelburne Farms

GOVERNMENT

Town of Brattleboro
City of Burlington
Town of Charlotte
City of Keene, NH
Town of Middlebury
Town of Richmond
Town of Underhill
Town of Williston
VT Buildings and General Services
Vermont Natural Resources Council

MANUFACTURING

Burton Snowboards
Huber and Suhner, Inc.
IBM, Essex Junction, VT
Rhino Foods

...and 1,500+ Participating Households

Sugarbush Resort



- Shuttles--promoting carpooling
- Biodiesel pilot project
- Green Team—Public Outreach
- Supporting local conservation groups and initiatives



FACT: 5% of U.S. air pollution is from lawn care equipment.

Mow Down Pollution Program

....A partnership between government and a VT business

Engaging households, also inspires them to do more.

MOW DOWN POLLUTION Lawn Mower Exchange Program

Now that you have turned in your used gas-powered lawn mower and agreed to sign up for the 10% Challenge (application attached), you are entitled to purchase a new NEUTON® Cordless Electric Mower and Mulching Kit for only \$269. The NEUTON® is described in the attached catalog. To participate, follow the ordering instructions below.

THERE ARE THREE EASY WAYS TO PURCHASE YOUR NEUTON®...

1. Bring this coupon to our retail showroom – 127 Meigs Road in Vergennes, VT (Call 1-866-977-1200 for directions).
2. Order on the web – visit www.mowdownpollutionvt.com to place your order and enter coupon code **10pc-037** at check out.
3. Place your order, toll free, over the phone. Call 1-877-271-5992 and mention the coupon code **10pc-037**.

WHAT WILL YOU GET?

- A new NEUTON® Cordless Electric Mower
- A NEUTON® Mulching Kit
- Free delivery by FedEx to your home in Vermont

A \$402 value for only \$269, plus VT sales tax

Sponsored by Country Home Products, 10% Challenge, Vermont Agency of Natural Resources, and your regional Solid Waste District.

This coupon may only be used once.
Limit one mower per Vermont household. Act quickly, limited offer.

Coupon Code:
10pc-037



Alternative fueled vehicles



AFV & More Show and Parade in Burlington



Way to Go! Commuter Challenge

....encourages everyone to use cheaper, healthier and more earth-friendly transportation alternatives



Sign-up--May 7-11, 2007



Burlington Mayor Kiss Proclaims 2006
Way to Go! Commuter Challenge



Ben & Jerry's—Scoops at
Way to Go event



Engaging families and children at
IBM—Kids Day event

2007 Way to Go! grows to statewide outreach



2007 individual participation boosted 70% over 2006—thanks to volunteer committees and local involvement

RECOGNITION—"Workplace Commuter Challenge Award"

*~boosted 2007 business participation
three-fold*



....for employee participation in Workplace
Commuter Challenge program, encouraging
everyone to avoid driving solo

Leadership and Lessons Learned

- Need to have a vision
- Project champion(s)
- Changes in leadership
- Connect multiple strategies
- Recognize the power of one
- Connect message with saving time, saving money, improving health

Leadership and Lessons Learned

- Electric rate structures work against EE investments
- Energy efficiency is not sexy
- If No public utility, make friends and promote EE and renewable business
- Expect delays and some defeats

You Can Make a Difference

- Walk, cycle, take transit, or ride share
- Become more energy efficient at home and workplace
- Reduce, reuse, recycle
- Get Involved--Help raise awareness about the problem of climate change
- Develop a school climate action plan
- Encourage your family, friends, community, citizens and businesses to accept the 10% Challenge
- Link your community website to 10% Challenge website (www.10percentchallenge.org)

Vermont Resources

- 10% Challenge Program.....www.10percentchallenge.org
- Sustainable Energy Resource Group.....www.serg-info.org
- Vermont Natural Resources Councilwww.vnrc.org
- City of Burlingtonwww.burlingtonelectric.com
www.cedo.ci.burlington.vt.us/legacy
- Efficiency Vermontwww.efficiencyvermont.org
- International Council For Local Environmental Initiatives.....www.iclei.org
- State of Vermont.....www.vtclimatechange.us
- VT High Performance Schools Initiative.....www.vthps.org

For more information contact: Debra Sachs, 10% Challenge, 585 Pine Street, Burlington, VT 05401
dsachs@10percentchallenge.org or www.10percentchallenge.org

Massachusetts Resources

- Alliance to Save Energy.....
<http://www.ase.org/content/article/detail/2563>
- Massachusetts Association of Conservation Commissions.....<http://www.maccweb.org/>
- Northeast Energy Efficiency Partnership—[NEEP] NE Protocol for High Performance Schools Design Standards
<http://www.neep.org/HPSE/index.html>
- Massachusetts Climate Action Network [MCAN]
www.massclimateaction.org
- ICLEI—Northeast Regional Capacity Center
<http://www.iclei.org/index.php?id=1854>