January 13, 2013
It’s High Time: Climate Change Solutions, A Public Forum

Federal Action Group Summary
Discussion Leader: Anne Kelly, Ceres
Minutes taken by Lexington Global Warming Action Coalition

Semantics: a Carbon Tax or a carbon fee: The word tax immediately turns off those who want no new taxes. Bob English, the defeated Republican congressman who did speak about climate change (and now works at George Mason University), says there are closet conservatives who believe in a carbon tax, but won’t call it that. An alternate possibility is a fee on carbon –based fuels, which must be returned to citizens. Citizens Climate lobby is lobbying for this. This is similar to a Cantwell/Collins bill which proposed a fee with dividend. Anne noted that the more the model is a fee (dividend) model, rather than a tax model, the more likely it is to get some traction. She noted that there needs to be a “safe on-ramp” for those who have traditionally been skeptical about climate change and opposed to a carbon tax. A tax is “forbidden” – there is no incentive to put it forward.

Revenue neutral carbon fee: give it back to the people: It rewards people for using less. There was a question of whether the government takes a cut; one response was that it can be used for research into renewables. The idea that it saves our climate, yet is revenue neutral, can help sell it to the America people.

The idea of using language to persuade people (e.g., fee not tax) was discussed. Biblical (Judeo-Christian) or Shakespearean language can give over to some of the conservative folks who do support climate change. The majority of conservative Christians do believe we need to care for each other and the planet and are behind protecting the climate. Bringing in Biblical references and language makes that a more acceptable idea.

Carbon reduction: participants talked about the urgency of taking carbon out of the air, given a possibility of a 6 degree rise in temperature in the near future. We need to be actively involved in removing carbon from the atmosphere.

What about people who would be displaced if we can switch to renewables? Do we need to buy out coal workers? At present there are about 17,000 coal workers left. Anne offered that this is talked about behind closed doors, but is an extremely sensitive subject for families.

What about objection that it doesn’t matter what we do because China and India are there, and are following our ‘bigger is better’ example? The point was made that we have zero credibility because we haven’t cleaned our shop. We in USA need to stand up to our responsibility. We haven’t considered the economic boom that could come with clean energy. If we lead, we set the standards.

Climate change is a moral issue. We need to be leaders in saving rather than killing. We can do this because we are a rich nation.
Is there consensus: Participants discussed whether there is a growing consensus about the need to deal with climate change, switch to renewables, and reduce carbon. What Republicans believe is difficult to know. Our Mass reps are on Board, but we need to think about New England delegation as a whole.

There was discussion about getting people to see the need for having our reps and the states address carbon reduction and increased use of renewable energy. It was suggested as less an issue of enlightenment than‘waging a war.” The idea of being a competitor to other states may motivate some people, and also thinking of it as an economic issue. The example was noted that EBAY wanted to set up offices in Utah, but told the state they would not locate there unless some renewable energy was available. Companies may be drawn to states that have renewable energy as an option. There is competition between states for business and those with renewable energy get customers. In this context the idea that one might get allies where you might not think you would.

Participants speculated on whether President Obama will come out for climate control because of his legacy. The idea of putting something together and delivering it to Congress or the White House was suggested. Obama needs to push the EPA carbon standards. People should write to or call the white house to emphasize the importance of promoting climate change, and also addressing it in the inaugural address. CERES has a letter that can be used as a model.
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STATE ACTION Group Summary

Discussion Leader: Shanna Cleveland, Conservation Law Foundation
Minutes taken by Lexington Global Warming Action Coalition

In addition to action individuals can take to influence statewide policy, the action group discussed some ways that people can act individually and at the community level that will mitigate global warming and hopefully bubble up to statewide policy.

- Individual actions
  - Get home energy audit
    - The state has invested $6 billion in energy efficiency, and approximately $15 billion in rebates are available in rebates through public/private partnerships.
    - But these investments are worth nothing if individuals don’t act!
    - Businesses are eligible as well; if you own or manage a business, small or large, there are programs for you, too!
    - Groups that perform energy audits:
      - Mass Energy Consumer’s Alliance: massenergy.org
      - Next Step Living: nextstepliving.org
      - Mass Save: masssave.com
      - See also: http://www.mass.gov/eea/energy-utilities-clean-tech/energy-efficiency/
  - Get out of your car
    - Energy is currently the largest greenhouse gas emission sector
    - But transportation is the fastest growing sector
  - Buy locally produced food, goods, etc.
    - Locally produced goods do not have to be shipped via truck or train, which requires burning fossil fuels.
    - Additionally, creating market demand for locally produced goods diminishes overall shipping miles over time.
  - Support composting, and anaerobic digestion
- Local/Community
  - Urge your town to achieve Green Community status, if not already achieved
    - Achieving Green Community status is relatively easy and common sense
      - Requires
        - Meeting renewable energy generation permitting standards
- Energy efficiency standards

- Apply to participate in the Solarize Massachusetts program
  - Solarize Massachusetts is a program run through the Massachusetts Clean Energy Center
  - It allows towns to organize household interest in solar electricity generation to lower installation costs

- Encourage your town to purchase renewable energy, either through a direct supplier such as Mass Energy Consumer’s Alliance, or an energy aggregator, such as PowerOptions.
- Talk with your neighbors, both around the block and in the next town. There are lots of details and successes to make your community’s work more feasible!
- Introduce a resolution on Extended Producer Responsibility to reduce emissions related to waste management.

- Statewide
  - Demand real carbon emissions caps!
    - Massachusetts is part of the Regional Greenhouse Gas Initiative, a multi-state agreement for a carbon cap and trade program.
    - But the carbon cap needs to keep moving down, and we can’t lose sight of our goals
    - Call Gov. Patrick’s office at 617.725.4005 and ask for a carbon emission cap no higher than 20% lower than 1990 levels, or 72 million tons.
  - Ask the state to enforce the Global Warming Solutions Act
    - Massachusetts groundbreaking 2008 Global Warming Solutions Act required the state to set sector wide limits for carbon emissions.
    - Unfortunately, the state has yet to write the regulations to implement this important step to slow global warming.
    - Ask Gov. Patrick to set the regulations! Call at the number above, and say, “Governor, make sure section 3D of the Global Warming Solutions Act is effective, and require the Dept. of Environmental Protection to move forward with regulations for declining emissions for all sectors.”

- Transit Funding
  - This may be the year the legislature provides serious funding for transit systems in Massachusetts.
A coalition to support increased transit funding has formed, called “T for Mass,” including Conservation Law Foundation.

Call or write your state representative or senator and ask for serious investment in Massachusetts public transportation, from the Blue Line to the Berkshires. You can find your elected officials’ contact information at malegislature.gov.

- Support continued incinerator moratorium in Massachusetts
  - Massachusetts has a long-held moratorium on incinerators
  - However, some interests are pushing to create exceptions
  - Write a comment to support continued incinerator moratorium to this address: dep.swm@state.ma.us
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INVESTMENT ACTION Group Summary

Discussion Leader: Tim Smith, Walden Asset Management, senior vice president and the director of shareholder engagement related to environment, social or governance issues

Minutes taken by Lexington Global Warming Action Coalition

Investment related climate solutions:

South African campaign against apartheid was multipronged:

- Divestment
- Shareholder resolutions
- Citizen actions (pulling money out of banks involved in South Africa)
- Boycotts
- Civil disobedience

Fossil fuel interests are deeply connected to many current investment portfolios. It is difficult, but possible, to divest completely. Bill McKibben’s recent “Do the Math” tour has focused the spotlight on divestment. There have been some other breakthroughs, for example, all major fossil fuel corporations now acknowledge the reality of climate change, and shareholder resolutions related to climate are becoming more frequent and compelling.

What about divestment from fossil fuel stocks?

Pros:

- No direct benefit is derived from dirty fuel profits (moral stand)
- Discussion surrounding the question brings to light the harm done by burning fossil fuel and raises use of fossil fuels as a moral issue. 350.org is fostering this discussion through their divestment campaign at colleges/universities, faith congregations, and local and state pension funds. (See: 350’s [http://gofossilfree](http://gofossilfree))
- Large retirement funds (like CA state funds) could make a financial impact on fossil fuel companies.
- The image of fossil fuel companies is tarnished as the climate risks they foster are revealed to more people (both present and future investors and employees). Brand identity is challenged. (i.e. good executive candidates may choose not to work for them, or contracts may not be awarded to companies with questionable reputation)
- If enough people request fossil fuel free mutual funds, investment advisors will start to provide them.
- Eventually insurance costs and the negative impact of climate change will reduce the profits of fossil fuel companies and many people will want to divest; renewables will become more profitable investments.

Cons:

- Divestment by individuals and colleges/universities, unless on a massive scale, would not be a financial problem for large fossil fuel corporations. (70% of stocks are owned by institutions.)
• Stockholder power for change through voting/writing stockholder resolutions is lost. Religious groups have been fairly effective by offering stockholder resolutions. Even if a resolution is not adopted, every stockholder gets a copy of the resolution with supporting arguments. All members of the company's board are required to think about the issue.
• Fossil fuel investments are very profitable.
• There are few totally fossil free mutual funds available.
• Trustees do have a legally binding fiduciary responsibility to their institutions. They can be held liable if investments don't yield amounts necessary to fund the organization now and in the future. (But a broader view of benefits to the organization includes sustaining a livable planet)

What are other options?
• Select investments based on the carbon emissions of company. Green Century has an investment option that excludes fossil fuel. Other choices: Trillium, Pax World Fund, Walden Asset Management.
• Adopt a positive rather than negative strategy: Choose investments in renewable energy companies. In recent years these companies have rather volatile, in part due to erratic government subsidies. But investors could choose some renewable stocks (say 10%) as a portion of their portfolio.
• Look at "best of class" funds that eliminate some fossil fuel investments (say coal or coal and oil)
• Divest from some fossil fuel stocks and hold ones where you can be an active in shareholder resolutions.
• Read The United Nations’ “Principles for Responsible Investment”  http://www.unpri.org

Question: How do you find out what companies are doing?
• Check out shareholders’ resolutions:  
• Find out about the climate impact of a company. A climate risk profiles for companies were developed using data from Trucost,  
• Look at company reports. Many now feature a “carbon disclosure” section. If not, ask. Look at long term goals. Do they include continued exploration for and development of fossil fuel reserves?
• Check out Industry Initiatives on Ceres website:  http://www.ceres.org

Tim’s advice: It is not easy (to change the investment culture). A carbon tax would be the cleanest way to change consumer habits. If the negative cost (health, environmental) of fossil fuel is considered, it becomes a less attractive investment. (Mindy Lubber notes: The economic costs of Hurricane Sandy and this summer’s historic drought eclipsed $100 billion, an amount equal to the combined annual profits of just three big oil companies, Exxon, Chevron and Royal Dutch Shell.) Carbon pricing has fairly broad support, including from Exxon Mobil.

A comment related to this topic-- Divestment from fossil fuels compares more closely to divestment from tobacco interests or gun manufacturers in that the product of the company is itself harmful. Companies could manage to withdraw from South Africa without losing their business, but the fossil fuel companies (at least at the present) depend on oil, coal, and natural gas for their existence. We need to prove the harm caused by the products of fossil fuel companies.
**Question:** Is it possible to divest from fossil fuel stocks and still maintain a good income? A participant gave the example of divesting from fossil fuels many years ago and finally finding an investment advisor who helped her do well without them.


Interfaith Center on Corporate Responsibility [http://www.iccr.org](http://www.iccr.org)
Trucost: [http://www.trucost.com](http://www.trucost.com)
[350.org](http://350.org)
This is a good time for Solar and Wind energy.

- **Solar Energy**
  - Solarize Mass. program encourages small-scale solarization projects.
  - Many companies are teaming together on solar projects.
  - Leasing of solar panels is more often an option now, making home solarization more affordable for many.
  - Net metering in Massachusetts encourages consumers to send the unused clean energy they have generated to the grid, receiving credit toward their energy bill.
  - Individual towns that have been very successful with this program include Arlington and Wayland.
  - Lexington as a state-designated Green Community (in 2010) could make clean energy even more affordable for the community by initiating an RFP for bulk purchase of materials for solarization projects.

- **Wind Energy**
  - More wind-power projects – new turbines in Gloucester, Scituate, Lynn, and Ipswich, and Cape Wind will soon to be under construction.
  - Onshore wind is the most affordable although we still need offshore.
  - Studies of health impacts from noise and flicker of turbines show negative effects on nearby residents are almost negligible.
  - Avian kill by turbines averages 1-1-1 (bird per turbine per year-within Audubon guidelines).

- **Transportation**
  - Demand for electric cars is growing, and these will eventually replace hybrids.
  - Efficiency goal is at 52 miles per gallon.

- **Green Building**
  - Going beyond the standards of above-ground insulation and efficiency components to meet stretch code standards, new construction should include below-ground insulation.

- **Carbon limits**
  - Levels should be set at $50 per ton.
• Taxes should be more on carbon emissions than on income.

A more organized approach to energy efficiency and green energy will result when politics catches up with the science.

Contact Information for the Mass Energy Consumers Alliance, a Nonprofit Organization: www.massenergy.org; info@massenergy.org
284 Amory Street, Boston, MA 02130; phone: 800-287-3950.

Switch to New England GreenStart or New England Wind on energy bill (depending on the desired level) at www.massenergy.org/nstar or call 800-287-3950.
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Food Action Group Summary
Discussion Leader: Sonia DeMarta, founder of Lexington Farmer’s Market
Minutes taken by Lexington Global Warming Action Coalition

• Local food is desirable, not just because it is fresh and hopefully organic, but because it also helps us live more self-sufficiently and cut way back on miles traveled to get the food to us. We should not need to buy frozen food grown in Thailand or China. We can always freeze food grown in our own gardens or at local farms. Many businesses are bringing local food to a wider market.

• The price of food is growing more precarious due to unknowns associated with droughts, weather extremes, and gas prices for transportation. Before modern-day transport and refrigerated trucks Americans had to be self-reliant. There will always be food items such as bananas, citrus varieties, grains, or avocados that cannot be grown in the Northeast, but we need to find ways to adapt to changing world conditions.

• Local food is brings people together. Those who grow food and buy food, particularly at farmers markets, talk to each other. There are cooking co-ops, trading meals among CSA members, classes on various topics, such as making cheese, canning, beekeeping, and dinners centered on local foods. Children who have the experience of growing their own food will eat food they wouldn’t normally eat.

• Local food helps us tune in closer to nature and the seasonality of food availability.

• Food waste is expensive! We waste water, energy, and chemicals. It contributes to climate change pollution through production, packaging, and transporting discarded food. Nearly all food waste goes into landfills, where it decomposes and releases methane, a heat-trapping greenhouse gas that is 21 times more potent than CO2. In the U.S. we waste around 40% of all edible food. In our households, composting is a non-gas-producing means to turn unused food scraps into into healthy soils.

• Eat less meat. We eat just shy of 200 pounds per person per year. The main sources of greenhouse gases from animal agriculture are:

  • Deforestation of the rainforests to grow feed for livestock.
  • Methane from manure waste. – Methane is 72 times more potent as a global warming gas than CO2
  • Refrigeration and transport of meat around the world.
• Raising, processing and slaughtering of the animal.

Meat production also uses a massive amount of water and other resources which would be better used to feed the world’s hungry and provide water to those in need. It takes 100 times more water (up to 2,500 gallons) to produce a pound of grain-fed beef than it does to produce a pound of wheat. Around 45 percent of the world's land is either directly or indirectly involved in livestock production. As forests are cleared to create new land for grazing animals or growing feed crops, the earth’s capacity to sequester greenhouse gases (trees are especially good at this) diminishes. Fertilizers used in farming are responsible for a significant share of the warming that causes climate change.

• Carbon is a key ingredient in soil organic matter (57% by weight). Plants produce organic compounds by using sunlight energy and combining carbon dioxide from the atmosphere with water from the soil. Soil organic matter is created by the cycling of these organic compounds in plants, animals, and microorganisms into the soil. Well-decomposed organic matter forms humus, a dark brown, porous, spongy material that provides a carbon and energy source for soil microbes and plants. (Ohio State University Fact Sheet)

Try organic butter from grass fed cows. Not as toxic as typical butter.
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LOCAL ACTION Group Summary

Discussion Leader: Mark Sandeen, Chair of Sustainable Lexington
Minutes taken by Lexington Global Warming Action Coalition

Key Points:
- Find ways to involve all members of our community in climate planning
- Start setting sustainable goals before design starts on new buildings and infrastructure
- Important to find ways to break down barriers to local action
- Reach out to other members of community (not choir), e.g. LWV event on 2/26
- Encourage adoption of solar energy
- Priorities:
  - Buildings – 60% of Lexington’s energy budget
  - Climate Adaptation and resilience Planning
  - Solar energy for on town property and residential homes
  - Retrofit existing buildings
  - Plant trees

Mark Sandeen’s intro
- Summary of where we use energy
  - 40% of all energy nationwide used is consumed in buildings, 60% in Lexington
- Sources of our greenhouse gas emissions
  - Electric power generation creates 33% of nation’s CO₂ emissions
  - 26% of nation’s CO₂ emissions come from transportation
- Need to update design standards for our infrastructure to fit the current and future reality.
  - Storm water and sewer infrastructure
  - Roads
  - Buildings
  - Electric Grid
- Local Action Sectors
  - Buildings
  - Energy
  - Water
  - Transportation
  - Food
  - Waste
  - Land Use & Natural Environment
  - Community

Possible actions
- Ask town to integrate climate planning into town projects at outset
- Develop guidelines for greening historic buildings
- Improve electricity delivery reliability
- Reduce flooding and sewer overflows
• Explore potential of electricity aggregation for lowering costs and emissions
• Encourage local food options and lower consumption of carbon intensive food
• Reduce solid waste generation in town— Relook at “pay as you throw”
• Freecycling—we throw stuff away, but there is no “away”
• Reduce Vehicle Miles Traveled – Improve Walkability and Cycling options

**Group comments**
Is there a need/way to quantify energy use in town?
   This is in-process. Sustainable Lexington is data driven.
We need to help people reduce energy use at an individual level.
Most important factor is adaptation.
Everyone should do an energy assessment; it's free and there are many credits available to make it affordable.
Why don't more homeowners do energy assessments?
   There seems to be psychological blocks.
   How do we move people forward to make change?
   People are more likely to take action, if a neighbor has taken action.
Need to reach out and engage broader community, e.g. LWV event on 2/26.
Encourage people to apply for Solarize Mass.
Buildings and energy consumption: there wasn't enough planning for green design of new school.
   Townspeople had little input.
Upcoming election, March 4: call officials running for re-election and let them know where you stand
There is a need for us to show how everything is connected, so that projects are not developed separately by individual constituencies, but the whole plan is integrated.
Tell stories of success—success is contagious.
Climate Change Solutions

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US Energy Use by Sector

Figure 1. Energy Consumption in the United States
Source: 2007 DOE Buildings Energy Data Book, Tables 1.1.3, 1.2.3, 1.3.3
Greenhouse Gas Emissions

- Electricity generation produces 33% of US greenhouse gas emissions
- Transportation produces 26% of all US greenhouse gas emissions

US Greenhouse Gas Emissions - 2010

Source: EPA, US GHG Inventory 2012
US Electricity Use by Sector

- Buildings use 73% of US electricity
- 93% of US coal consumption is used to produce electricity
- Buildings consume 68% of US coal

Source: EIA, Electric Power Annual 2007

- Transportation uses 0.2% of US electricity
Fossil Fuel Use by Sector

• Buildings consume 38% of US fossil fuel
  – Buildings directly consume 13% of US fossil fuel
  – Buildings consume 25% of US fossil fuel use via electricity

• Transportation uses 33% of all US fossil fuel

Source: EIA, Annual Energy Review 2009
US Water Usage

Buildings are responsible for 46% of US water usage

(11% direct + 35% indirect)

Population doubled 1950 – 2000
Water use more than tripled in same period

This trend is not sustainable

36 states expect water shortages by 2013


Source: www.epa.gov/watersense/water_efficiency/
Lexington Residential Energy Use

Heating and cooling account for 66% of our residential energy use

NE Residential Energy End Use
Source: EIA 2005 Residential Energy Consumption Survey
Local Action Sectors

- Buildings
- Energy
- Water
- Transportation
- Food
- Waste
- Land Use and Natural Environment
- Community
Local Action - Buildings

• Encourage Highly Efficient Buildings
  – Energy Efficiency Assessments
  – Air Sealing & Insulation
  – High Efficiency Heating & Cooling Systems
  – High Efficiency Lighting
  – Stretch Energy Code
  – Guidance for Greening Historic Buildings
Local Action - Energy

• Renewable Energy
  – Solar Energy Task Force for Town’s energy
  – Solarize Challenge for residential systems

• Electricity
  – Enhance Reliability and Resilience of Grid
    • Strengthen and underground lines
    • Quick resumption of service after weather events
  – Explore alternatives such as aggregation
    • Cleaner and lower cost power
Local Action - Water

• Storm water infrastructure
  – Decrease flooding from extreme storms
  – Eliminate combined sewer overflow events
  – Upgrade design standards adopted in 1961
  – Adopt sustainable rain water practices
  – Natural recharge of aquifers

• Water supply infrastructure
  – Develop backup sources of water
  – Regional cooperation
  – Reduce consumption
Local Action - Transportation

• Reduce Vehicle Miles Traveled
  – Encourage Walking and Biking
    • Add trails and paths
  – Public Transit
  – Behavior Change

• Support Alternative Fuel Vehicles

• Reduce vehicle emissions

• Encourage Anti-idling
Local Action - Food

- Lower consumption of GHG intensive foods
  - Partnerships with schools, health care orgs
- Encourage local food options
  - Farmers Market
  - Support Community Supported Agriculture
  - Educational opportunities for residents
  - Community service opportunities
  - Busa Farm
Local Action - Waste

• Reduce Solid Waste Generation
  – Repair, Repurpose, Reuse, Freecycle
  – Time to reconsider Pay as you throw?

• Recover 90% of all waste generated
  – Composting / anaerobic digestion of food waste
  – Recycle construction and demolition debris

• Reduce waste collection GHG emissions
Local Action – Land Use

- Preserve open space & farmland
- Protect wetlands and forests
- Protect habitats and migration routes
- Encourage tree planting
- Healthy streams
Local Action - Community

• Quality of Life
  – Prosperous, healthy and productive community
  – Increased resilience to climate change

• Community Engagement
  – Climate Action Resilience Planning
  – Incorporate climate change into formal planning

• Public Health & Safety
  – Cleaner air, cleaner water, healthier residents

• Emergency Management Planning
  – Improve reliability of communications