

**Seventh Annual Regional Sustainable Development Forum:
Being a Part of the Climate Change Solution:
Individual Action for Collective Impact**

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Session 8: Renewable Energy and Energy Conservation

Presenters:

David Cash, Assistant Secretary for Policy, Executive Office for Energy and Environmental Affairs, Massachusetts

Jim Hunt, Chief of Environmental and Energy Services, City of Boston

Seth Kaplan, Senior Attorney and Director of Clean Energy and Climate Change Program, Conservation Law Foundation

Sam Krasnow, Policy Advocate and Attorney, Environment Northeast

Moderator:

Stephen Strong, Solar Energy Associates

David Cash:

There is a real opportunity now because oil is at \$100 a barrel, energy costs are increasing, pilot projects in certain states have shed light on how to make a great deal of change, different attitude of citizens who demand change, and the Patrick administration is dedicated to addressing these issues.

There is a need to harness the market. The market needs to be made to move in the direction that we want to go. Too many barriers exist which haven't allowed renewables to compete in the past. These barriers must be addressed to make renewable profitable in the future.

Many things are moving forward in the state under the Patrick Administration:

- Combined energy and environmental agencies from two departments into one, the Executive Office of Energy and the Environment. Makes a great deal of sense to combine these efforts.
- Joined RGGI (Regional Greenhouse Gas Initiative). Creates market for renewables. And auctioning 100% of the credits is a more productive way to do things.
- Executive Order: all new state buildings must have LEED Plus certification. All existing buildings must be retrofit by 2012.
- Progressive review process to the MEPA process and now includes a GHG inventory for development projects as well.
- DPU—decoupling energy sales from revenue to encourage advances in energy efficiency.
- Leadership in both the House and Senate have been working on large energy legislation to do a number of things:

- Unleashing energy efficiency
- Renewable Portfolio Standard--Provide greater long-term certainty for renewables
- Establish more stringent energy efficiency building codes
- Evaluate and incorporate biofuels—cellulosic ethanol—into plans. Biofuels task force addresses this.
- Working to develop a number of renewable facilities: Cape Wind, a number of biofuels plants, \$68 million dollars in coming years to develop solar under Commonwealth Solar; more info online at the DOE website.
- Growing clean energy sector:
 - Encourage clean energy industries in Mass: example of Evergreen Solar coming to MA.
 - Promoting growth
- Climate Road Map: conducting a very thorough study to establish attainable carbon reduction targets.
 - Establishes priorities and policies that will get necessary reductions
 - Target transportation, smart growth, energy, etc
 - Will create policies addressing each of these
- This has been a collaborative effort between the state and local municipalities, as well as the private sector. All taking advantage of this huge window of opportunity.

Q: How does the state ensure that developers comply with LEED?

A: We are at the beginning of this. The first full fledged project just began 2 weeks ago. The developer will be responsible for designing the monitoring and verification system to prove compliance.

Q: Describe energy decoupling in more detail.

A: Broad picture is that right now, when you pay your energy bill, you get charged by the volume of energy that you consume. Incentivizes utility companies to sell as much as possible. There is already a small amount of your bill that goes towards efficiency but still not in their interest because essentially reduces their revenue. Utilities see new clean energy economy coming and want to play in this game. Have been very much a part of the process.

Q: Have other states been able to decouple?

A: California has tried this 20 years ago, as well as various other states. More so with natural gas as opposed to electricity. Now there is a lot of activity.

Q: In the demand for new sources of kilowatts, will this administration continue the ban on incineration of solid waste?

A: On outside, seem to be progress in technology that reduces impact. New zero-waste strategy: recycling, various kinds of waste to energy technologies. Really trying to move in a direction of performance. If we can turn waste into energy that gets big environmental benefits, that is great. But need to set performance standards.

Q: Do you have any sense that these environmental efforts will affect state's ability to borrow money, bond ratings, etc?

A: If anything a positive effect because more that we rely on renewable, more stable energy prices are going to be.

James Hunt:

James distributed the City of Boston's Climate Action Plan Summary titled, "climate: change". Collectively, have made a lot of progress, working with City of Boston and Patrick administration. This window of opportunity is small but we must take advantage of it.

Hunt was pulled back to Menino's cabinet to tackle climate issues, even though aren't really the role of City government because don't control utilities. But want to focus on these issues in a different way and has had impact on state and federal attention to the issue.

Menino is one of the early signatories to the ICLEI campaign, as well as the USA Conference of Mayor's Climate Protection Agreement. Wanted to embrace Kyoto for own cities but also to show federal government that this was crucial.

Last year, Menino signed an executive order that moved Boston past Kyoto targets to embrace much deeper emissions cuts: 80% reduction by 2050. Boston represents 10% of energy consumption for all of Mass, if not more

Focus lies in buildings in particular, as well as energy efficiency and renewables. Mantra needs to continue to be efficiency: to be more efficient with the energy that we do use. Currently, 74% of GHG emissions are from City buildings and thus buildings have become a major focus.

Recommendations:

- City lead by example
 - All new construction to LEED Silver
 - Affordable housing should adhere to LEED standards as well, though don't need to be certified.
 - Working with the real estate industry, LEED standards were embraced for private construction. LEED is required by Boston's zoning under Article 37. Anything over 50,000sf must meet LEED Certified standards.

Energy Conservation:

- This is a key strategy. Have inventoried carbon emissions from 365 buildings owned by Cities.
- Have developed numerous combined heat-power systems
- Boston Energy Alliance: aggregated energy efficiency through private capital investment and support through the Kendal Foundation.

Renewable Energy:

- 11.7% of City's electricity purchase comes from green power

- Not a huge opportunity to develop renewables in the City but exploring options
- Using purchasing power (200 mill KWh) in city

Solar Boston Initiative

- Assess barriers to solar in the city, use aggregating power, to have solar be a key part of energy picture in Boston. Great potential for solar in the city
- Working with the state as part of this, looking at zoning issues
- Bringing together private and public sector partnerships
- Mapping effort to identify ideal locations and then bring property owners to the table.

Q: Speak about bulk purchase and solar installation program?

A: Have had a series of stakeholder meetings. Bulk purchasing option includes setting up separate 501c3 to work with providers of solar to do bulk purchasing.

Q: Thinking about the work force for installation?

A: Yes, want to promote economic development and green economy. See this as deeply connected to creation of good, living wage jobs. Will spur markets in the City.

Q: Speak to material reduction side of things, recycling, etc.

A: There is a new recycling program. Right now, terrible recycling rate. The infrastructure exists but recycling rate is ~17%. Ran pilot program in a pilot neighborhood of single stream recycling, resulted in 50% increase. Also looking to improve business recycling program.

Q: Why is Boston just going PV solar and not solar thermal when it is more efficient?

A: Doing both PV and solar thermal. Solar thermal has a great payback and great for Boston. Have received grant money specifically towards solar thermal.

Seth Kaplan:

A theme here is that the damn has broken. Have to craft solutions as big as the problem of global warming. In the state government, there has been a lot of pent up energy and excitement to bring new ideas to the table. It's also time to create a market for this new energy path. A great example of technology forcing regulation is car emissions: when standards were mandated in CA, forced the auto industry to achieve them.

Have to confront the reality of where the emissions are coming from. In the North East, the transportation sector is the largest contributor but isn't always given enough attention. It deserves a higher level of attention.

We are on a trajectory to at the very best, reduce our emissions by about 10% in the next 10 years. That is if we follow through with everything that we have set in motion (RGGI, etc). This is not nearly enough and we are heaping an incredible burden on our children and our future.

19% of CO₂ that is emitted today will be in the air in 1000 years. Need to recognize this. And CO₂ emissions are increasing faster, temperatures are increasing higher, and sea level is rising at catastrophic rates, all greater than predicted in the IPCC report.

Transportation Sector:

- Fundamental driver is the individual driver
- Vehicle technology can be expressed as either miles per gallon (MPG) or VMT
- Clean fuel option
- Even if we are able to increase the efficiency of our cars significantly, and adopt low carbon fuel standard, the VMT still pulls the CO₂ emissions upwards. VMT is a huge factor, and must be considered. It is always counteracting the other advances.
- Need to break the correlation of wealth leads to increases in driving. Decouple these concepts.
- Population density is the main driver in VMT emissions. Encourage urban development and smart growth.

Electricity Sector:

- Understand the correlation between efficiency and renewables
- More efficient we are, lower number of renewables we need to reduce CO₂
- Efficiency is crucial and lowers the need to call upon the other tools
- One of major developments is creation of new forward capacity market. It is the first regional electricity market in the country which allows demand side (efficiency, etc) to compete on a comparable level with generation.
- 40% of resources that are qualified to bid are on the demand side.
- Measurement and verification component grew out of energy efficiency programs that have been in place in NE states for last 20 years
- All but NH are moving towards this aggressively
- We have the capability to build the markets were they are need, creating strong incentives for new market, to remove barriers that may exist now

Every component of the economy and society is facing a paradigm shift which promotes energy efficiency and energy saving in all sectors: utilities, real estate, private, public, etc.

Q: Want to understand forward capacity methods better and how they work?

A: Forward capacity market requires utilities to bid in, promising to supply X amount of delivered capacity by either putting power into the system or reducing amount of energy needed...saving energy is cheaper than making energy so allows efficiency to compete.

Q: How do transportation emissions compare to building emissions?

A: Per capita emissions in Boston are far lower than more suburban or rural areas. Developers can really work to connect their developments to public transit and address both building and transportation improvements. This is the fundamental role of the urban developer.

Sam Krasnow:

Have about a 10 year window to get a handle on global GHG emissions. But if look at state level, have to start right now to get as far as we can as fast as possible.

Two different scenarios:

- Electric load continuing to increase at 1% annually. To get to 75% reduction, huge pressure put on siting, transmission, etc because cant develop renewables necessary.

OR

- If can reduce load, can bring total load to plateau, and then reduction. This means that renewables can be achieved. Could reach 96% reduction by 2050.

Utility Sector Energy Efficiency:

- Seen as subsidy model
- Taken out of the mainstream
- Change this to incorporate it into the mainstream and seriously invest in EE
- Cost for electric generation has been ever increasing, coupled with larger demand results in a greater cost for energy overall
- Much cheaper to promote efficiency (\$.03 vs \$.09 for electric generation)
- As of now, seriously under-invested

Key Players from New England:

- Patrick Admin, and others
- EOEEA
- Utilities
- Enviro advocates, energy efficiency advocates
- Low income service providers

Mass Energy Bill Key Pieces

- All efficiency resources that are cheaper must be procured
- Improve stakeholder oversight through a new EE Advisory Council
- New Dep of Pub Utilities is looking into decoupling

Q: What is the biggest bang for the buck on energy efficiency right now?

A: Lighting and motors

Q: How can an energy company make money through selling less?

A: As of now, recover cost of distributing energy. Set rate per unit of energy. Multiply rate by projected sales. If sales are higher than projected, keep extra. Under decoupled, look at difference between actual and projected, and if have serious savings through efficiency, recoup savings. If are over, give it back. That keeps it equal. To make money, if have set target but actually help customers save more, will receive financial reward.

Q: Are any policy incentives addressing rehabilitation of existing buildings vs new buildings?

A: Prefer adaptive reuse of buildings, have very strong historic preservation in the city.
Have very vigorous zoning code.