



Lowell Center for Sustainable Production

One University Avenue, University of Massachusetts Lowell, Lowell, MA 01854

MINUTES

A ROUNDTABLE DISCUSSION TO ADVANCE CLEAN TECHNOLOGIES IN THE 495/METROWEST CORRIDOR

December 3, 2008

On December 3 2008, over 30 people from government, business, labor, and academia participated in the 495/MetroWest Corridor Clean Tech Roundtable. The Roundtable was sponsored by the Lowell Center for Sustainable Production (the Lowell Center) at the University of Massachusetts, Lowell, Senator Pam Resor, Senator Karen Spilka, Representative Pam Richardson, Senator-Elect Jamie Eldridge, Representative Tom Sannicandro, the 495/MetroWest Corridor Partnership, and the MetroWest Chamber Of Commerce. It was hosted by the Bose Corporation in Framingham.

The Roundtable was part of a series of three regional roundtables held throughout the state as part of the Lowell Center's *Clean Tech Initiative*. The goals of the Clean Tech Initiative are to make the case for orienting our economy around all clean technologies, identify technologies in which Massachusetts is poised to lead, and recommend policies and actions to achieve this leadership. The Initiative's initial report, *Clean Tech: An Agenda for a Healthy Economy*, identified five fields in which Massachusetts already possesses leadership:

- clean energy,
- green buildings,
- emerging materials (such as bio- and nano-based materials),
- materials reuse and recycling, and
- safer alternatives to toxic chemicals.

Information on the Clean Tech Initiative, the initial report, and notes from other regional roundtables and attendees, can be found at <http://sustainableproduction.org/proj.tech.abou.shtml>

The purpose of the Roundtables is to learn about strengths, challenges, and opportunities for growing the clean tech economy in the regions and state; to raise awareness about the importance of clean tech to the environment and economy; to gain information to that will inform key policy makers and activists; and to help create partnerships that will ultimately help move the clean tech economy forward. This Roundtable covered the area in the 495/MetroWest corridor. The other two Roundtables were in Western Massachusetts and the Merrimack Valley.

The meeting opened with a welcome by host Jack Bailey of Bose, and remarks from several of the co-sponsors: Ted Welte of the MetroWest Chamber of Commerce spoke to the resiliency of the region, its ability to constantly innovate and the role the region can play in bringing about the next wave of innovation in clean tech. Senator Spilka summarized key legislation passed in the last session and said this roundtable is one step to help identify policies, investments, partnerships, and other tools to help businesses in the region develop and maintain leadership; it's a great region for businesses to stay and grow. Senator Resor added that its important to take action now in order to stay competitive with Europe, which has already been taking steps and setting the criteria for green business; this economic downturn actually provides a good time for businesses to start making the move into clean tech. Paul Matthews, Executive Director of the 495/MetroWest Corridor Partnership, referred everyone to the report by Framingham State College, "2008 Economic Indicators for the 495/MetroWest Region," which summarizes the region's status and makes recommendations relating to competitiveness and economic

growth. It can be found at <http://www.arc-of-innovation.org>, along with resources on innovative water reuse practiced in the region by EMC, Intel, and Wrentham Village Outlets. Representative Richardson closed the session by reiterating the importance of these issues and reminding everyone to keep in touch with their legislators about their needs.

Joel Tickner, Project Director at the Lowell Center for Sustainable Production and Associate Professor at UMass Lowell, introduced the Clean Tech Initiative and its origins. UMass Lowell has a history of technology and a commitment to local economic development; the Lowell Center for Sustainable Production researches sustainable forms of production and performs strategic engagements to get there. The Clean Tech Initiative comes out of discussions on where to take economic development, and was inspired by the European model. Germany is taking the lead on reorienting its economy around clean technologies, particularly energy and green chemistry. Germany is the largest per capita exporter in the world; manufacturing is doing well, even with their high labor costs. How can Massachusetts look at its economy the same way? Lots of attention is being paid by the state to renewables, but we are the leading place in the world on toxics use reduction, our recycling jobs exceed those in the clean energy field, we have a huge concentration of architects and designers working on green building, are one of two states working on the green aspects of advanced nano-materials and have leading research on bio-based materials. Given all this as well as our leadership in innovation and manufacturing, key industry clusters, strong institutional support, export ties and more- how can we bring it all together to build the clean tech economy? Joel introduced Amy Perlmutter, consultant to the Lowell Center, to facilitate the discussion to address these issues.

In summary, the participants identified the region's strengths as including existing leadership in clean tech, strong statewide economic leadership, a large manufacturing sector, an educated workforce, and a high quality of life. The region is challenged by its infrastructure, including congested roads and limited water, zoning that restricts placement of wind turbines, a lack of state leadership in creating certain incentives for clean tech development such as water reuse, and a lack of appreciation as well on the state level of the role of manufacturing in the regional and state economy.

Opportunities to grow the clean tech sector in the 495/MetroWest region include business expansion in LED lighting, connecting the strong information technology sector to new industries, developing businesses around water use reduction, educating businesses and the potential workforce about clean tech, and providing education and assistance to businesses regarding partnership building, business opportunities, and available resources. More details are below:

Existing clean tech and overall economic leadership, coupled with an educated workforce, and high quality of life, are among the **strengths** of the 495/MetroWest Region:

- Existing Clean Tech Leadership
 - There are lot of examples of businesses in the region that have adopted sustainable practices, such as EMC, Intel, Genzyme, Staples, and Evergreen Solar
 - There is an active community of solar installers and new energy technologies such as fuel cells
- Strong Economic Leadership
 - A new Northeastern study showed that manufacturing is a big part of the economy in the state and region, in terms of both employment numbers and payroll
 - The payroll in the region is close to \$17 billion, and increase of close to 6% between 2005 and 2006
 - Manufacturing jobs accounted for close to 25% of the regional payroll in 2008
- Educated Workforce
 - There is a large, sophisticated, highly educated workforce comprised of scientists, engineers, retired software engineers, etc. that create synergies with each other
 - 82% of the students from MassBay Community College stay in the region
- Quality of Life

- The mix of urban and open space and proximity to Boston make this a desirable place to live and work

The **challenges** faced by the region in developing a clean tech include infrastructure, zoning, education, and needed incentives from state and federal government:

- Infrastructure
 - Water availability and wastewater treatment are limiting factors for manufacturing and business growth
 - Roads can be congested and transit services are still developing
 - The cost of retooling for manufacturers is expensive, particularly in energy efficiency
- Zoning
 - Municipal by-laws for wind-turbines are based on cell tower zoning, and hinder the placement of wind turbines
- Education
 - Applied math and science skills are lacking
- State and Federal leadership
 - Federal and state incentives are important but lacking
 - Manufacturing is not a high priority to state officials
 - Massachusetts has fallen behind in the world in solar photovoltaic manufacturing, Germans are now leading, and only 20% of PV is manufactured in the US. New policies recently adopted by the state may help Massachusetts regain leadership
 - While policy helps drive the market, this has to be balanced with potential for costing businesses more money or discouraging them from coming here

The **opportunities** to grow the clean tech economy in the 495/MetroWest region include specific areas of clean tech; education, training and assistance to businesses, students, and the workforce; and state leadership on policies and programs that create markets for these industries, particularly manufacturing:

- Business Opportunities
 - Light Emitting Diodes (LEDs) are the next revolution in lighting, and Massachusetts has a number of well-positioned companies: Color Kinetics (Burlington), Luminus Devices (Billerica), and Lightolier (Fall River).
 - The IT expertise that exists in this region can help meet the software needs of a new Smart Grid
 - Brains and broad-based manufacturing expertise can be tapped to emulate the German model of high-end manufacturing
 - More manufacturing processes and technologies that reduce water consumption need development
 - Reach out to small companies and office parks to help them adopt clean technologies, and link them with capital and other resources
- Education
 - Information technology skills are important to all areas of clean tech, and this sector should be educated regarding opportunities to enter this space
 - Education and training can be provided to companies on best practices and business opportunities
 - MassBay Community College is looking for input to develop a clean tech curriculum
 - Skills that will be needed in the future should be identified, and businesses, voc techs, and workforce development groups brought together to train the workforce for these jobs
 - Find and retain high quality teachers in math and science
- Business Assistance
 - The European Union is a major market for Massachusetts- engage companies here that face European environmental regulations and help them with supply chain management, information technology, and more

- Major companies supplying European markets with cleaner products are looking for companies to become part of their supply chains- link Massachusetts companies with these larger companies through the Green Chemistry and Commerce Council at UMass, Lowell
- Work with existing manufacturers, not just new enterprises, especially smaller ones that may need more resources
- Develop a package of all the state's resources in clean tech, and market these to existing and relocating companies
- State leadership
 - Greater engagement is needed from the state towards manufacturers
 - Create examples of how state/manufacturer partnerships have been successful, such as efforts by the Office of Technical Assistance to reduce the use of toxic substances by manufacturers
 - Provide independent third party testing as a carrot for companies who develop clean technologies
 - Provide loan guarantees and credit to small businesses
 - Develop policies and incentives that require water reuse, water reduction, and rechargeable water supplies to help spur development and use of new technologies
 - Find a way to shorten the payback of energy conservation efforts to spur more activity in this area