

**OCL Study Session  
Green Jobs  
December 3, 2009**

**Presenters:** **Linda Dickerson Hartsock**, director, Center for Clean Tech Entrepreneurship; **Rob Simpson**, president and CEO, Metropolitan Development Association; **Dave Wall**, director of corporate and public partnerships, Onondaga Community College

**Linda Dickerson Hartsock—**

Energy and economy two defining challenges of next decade and will become increasingly interconnected due to population growth, dwindling resources and rapid industrialization of developing countries.

Scale of technological change and challenge over next 30 years is one of the most underestimated challenges confronting civilization. Solutions require transformation of world's entire technology base—as world need for energy continues to grow, need to create new clean energy infrastructure over next 30 years that's twice as large as current energy infrastructure. Need to speed up the timeline.

Green economy is not a fad—an imperative. Current energy mix: 40 percent petroleum, 23 percent coal, 22 percent natural gas, 3 percent hydro, and less than 3 percent other sources. Not sustainable future. Need massive scale-up of innovation, an entirely new economic revolution.

In New York State and region:

- \$16 billion in federal stimulus money coming to state will go to energy projects
- one of most aggressive renewable portfolio standards in country
- one of top 10 states in clean technologies
- new state energy plan to reduce electricity use by 15 percent below 2015 forecast and increase proportion of renewable generation to 30 percent of demand by 2015
- Climate Action Plan seeks to reduce GG emissions in state by 80 percent by 2050
- NYS expects to see \$1 billion dollars in economic benefits over next 20 years from roughly \$500 million state has committed to renewable energy funding
- actively making investments in this area and offering incentives

SU-IBM-NYSERDA—Most efficient green data center just opened; Cornell selected as a national energy frontier research center; GE building new advanced battery research center and production facility in Upstate NY; GM doing advanced hydrogen fuel cell research for new alternative fuel vehicles in Upstate NY.

NYS is leading the country in investing in new clean energy technologies. But private sector is lagging behind. Need strategies, early-stage seed funding, ie., for getting new technologies developed, deployed and marketed. Not translating innovative concepts coming out of colleges, etc., to the marketplace.

Clean Tech Center—Funded by NYSERDA. Statewide resource to develop clean technologies in CNY. Plant “seeds” for green innovation. Eight primary areas of focus relating to green jobs:

- Renewable energy—biomass, wind, geothermal, hydro, solar
- Alternative fuels—biodiesel, biofuels, clean fuels
- System integration—new forms of generation, distribution, storage
- Transportation—electric vehicles, fuel cells, hybrid electric, etc.

- Buildings and construction—new forms of energy construction materials, HVAC systems, intelligent green buildings, etc.
- Environmental systems—air and water quality, ie. Water is going to be the oil of coming century.
- Energy conservation—solar installers, energy analysts, insulators, recyclers, ie.
- Clean tech support services

Higher education research institutions in Upstate NY are tremendous assets. All are active partners in developing new energy economy. Some of country's top experts in our own backyard.

It's not about staying in the same place; it's about adapting to change. Places that are going to survive know how to adapt to change.

### **Rob Simpson—**

Community has been working to build green technology assets for at least 15 years. Fifteen percent of private-sector job growth over last five years has been in this sector. Strong growth opportunity for us. Trying to take limited resources we have as a community, limited ability to impact decisions, and target them where can be most effective. Focus on companies that stand to thrive in Upstate New York. Companies in innovation sector, in particular, are good candidates. Want to invest in areas where know going to be market growth.

Several key areas identified as “green tech” sector growth opportunities:

- Indoor environmental quality
- Green building materials
- Water filtration and sensing systems
- Solar industry

All have strong growth opportunities, significant growth in marketplace, and align well with region's assets.

Are using a proactive targeted economic development outreach strategy—targeting places where actual growth happening in markets. Identifying companies that are growing in those markets and that are looking to invest in other parts of the world. Working on building relationships with those companies, whether Dubai or California, of all sizes that show significant growth potential. Completely new approach for Central New York.

Need to do more than “business attraction.” Innovation and start-up businesses are a much bigger part of economic growth in a region. Already had some successes, including:

- German company building first R&D headquarters outside of Germany in Syracuse area. Will employ 300 people.
- Electric vehicle manufacturer coming to Syracuse. They chose Syracuse because of the local economic development effort. Sold them on key assets: readily available workforce, great site locations, automotive suppliers to fill their needs, etc. “And we sold them on this region's ethos—this culture of green and sustainability. That's very important to this company whose entire image and entire brand are built around sustainability.” Targeted effort, proactive outreach.

Higher ed is an integral part of region's economic development strategy. Biggest challenge we face as region is the disconnect between workforce development system (training providers), academia, and needs of business community. Problem of creating trained workforce in areas where don't have employers ready to hire, forcing trained employees to either leave or take on the expense of retraining. A new initiative—Strategic Compass—polled various sources and employers about workforce needs, availability of curricula, availability of training, etc., and pulled into one place the critical information needed to guide workforce development decisions. Just started 11 months ago.

How does our problem with suburban sprawl factor into selling image of "sustainability"? Clearly focused on a new path now. Major state-funded investments over last decade—most major state grants, economic development projects are downtown—COE, Connective Corridor, etc. residential redevelopment projects in center of city. That's the path community is on today that people who look at the city now can see.

#### **Dave Wall—**

Need to create workforce for those interested in investing in area. Need to show we have ability to adapt and adapt quickly. Programs for OCC's two-year students geared toward acclimating students quickly to workforce.

Some things OCC is doing:

- In May of 2007, signed President's Climate Commitment to become sustainable college. Addresses environmental stewardship, economic health, and social equity. Pushes us to consider how to infuse sustainability into curriculum to benefit students and culture of institution. Looked at operations. If going to teach it, had better live it.
- Partnered with ESF and SU in STEM education—science, technology, engineering, and math—to better prepare middle and high school students for OCC coursework.
- Pledged to reduce carbon emissions by 25 percent by 2021 and become carbon neutral by 2050.
- Got funding through NYSTAR, partnered with NYSERDA, to look at academic programs that would have most immediate and meaningful impact in creating green economy and jobs. Added two tracks on environmental technology, ie. Automotive technology program focusing on electronic systems of vehicles and what they're doing to environment. Partnered with national alternative training fuels consortium of West Virginia University for up-to-date training curriculum that gives students most up-to-date technologies on powering vehicles now and in the future.
- Architectural technology and design program—curriculum revised and added such courses as sustainable construction, residential energy performance, green-building rating systems, solar design, ie.
- Programs are all full, with wait lists. Students know the value and relevance of the courses.

- Established partnership with SUNY-ESF—students who are academically qualified and who completed lower-division OCC coursework can attend ESF at same tuition cost as OCC in selected green programs.

Looking at other academic areas relating to renewable energy generation—computer engineering science, biology, chemistry, math sciences. Looking at policy development relating to environmental protection. Looking at business and engineering coursework as they relate to research, design and consulting services opportunities. Mechanical engineering, electrical engineering, computer engineering—programs constantly evaluated so students prepared for new economy.

Look to provide students with critical-thinking skills so they can make decisions as members of larger global community. Want to ensure students have those skills when they leave us.

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