

OCL Information Session
Energy Planning for Central New York
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Presenter: Chris Carrick, energy programs manager, CNYRPDB; also heads Oswego County Green Team

As a nation, we consume 25 percent of world's energy while we represent only 5 percent of world's population. Energy usage strongly tied to economic growth and economic output. We produce about 20 percent of world's economic output, but economy centered last 60 years on producing autos and other industry tied to fossil fuels. Decrease over last year echoes downturn in economy.

Energy sources in U.S.—86 percent of energy comes from fossil fuels; 6 percent for renewable. In NYS, we have a better energy mix—19 percent renewable energy, 53 percent from fossil fuels. A little greener than other states, largely because of reliance on hydroelectric power. 18 percent of electricity source is hydropower.

Wind provides 2 percent and is growing. A lot of potential, although some controversy with large-scale wind farms. Emerging consensus that wind power, combined with natural gas, can displace fossil fuels. Combination would push our reliance on coal power even lower.

NYS per capita energy consumption among lowest in country, largely due to public transit in NYC and overall industry mix. Reliance on financial/insurance/real estate. And greener mix of power (hydro and gas).

Gov. Paterson has "45-by-15" Program—to produce 30 percent of electricity through renewable sources by 2015 and reducing energy consumption by 15 percent by 2015.

Syracuse and DeWitt among signatories of ICLEI's Cities for Climate Protection—provides blueprint for cities to follow to implement solutions and reduce emissions. Adopt emissions reduction target and develop action plan and implement policies, monitor and verify results. NYSERDA's Focus on Local Government pilot program is currently assisting DeWitt, Oswego and Oswego County do baseline energy inventories (government use) this year and then identify NYSERDA programs that can help them reduce energy use.

Some federal funding streams coming online to fund sustainable community planning through HUD and DOT. NYSERDA looking at several. Sustainable communities grant through HUD, ie. Federal government getting on board is encouraging; local governments had been taking the lead without them.

Brattleboro, Vt., to San Diego have climate action plans or regional energy strategies. Moving beyond general policy statements—political posturing—to actionable items.

One tactic is property-assessed clean-energy (PACE financing) bonds, to help businesses and homeowners finance alternative technology or efficiency projects without up-front costs. Municipality floats bond, pays for installation of technology, homeowner finances through property taxes.

Local-level planning—Auburn is emerging as energy leader. Public power authority looking to advance several projects, including geothermal project at city hall, hydroelectric facilities, city landfill gas-to-energy project, etc. Leadership makes the difference.

How to start reducing energy costs?

- Energy conservation (night setback thermostats, insulation, weather stripping, reduced travel, lights off, ie.)
- Energy efficiency (technologies that improve the work output of a unit of energy, including LEDs, CFLs, Energy Star appliances, ie.)
- Renewable energy

Residential energy use accounts for one-third of total U.S. energy consumption. In residential use, where does heat go? 35 percent walls; 25 percent roof; 15 percent drafts; 15 percent floors; 10 percent windows.

Variety of NYSERDA incentive programs—for homeowners, businesses, new construction, existing buildings, etc.

What some municipalities are already doing:

- Energy disclosure laws—in which property owners would be required to disclose energy profile of their property before selling it. Could be as simple as providing copies of utility bills to requiring an energy audit like a home inspection. Informs consumer what their total housing cost will really be—increases recognition of importance of energy costs.
- Requiring green building standards for new construction. Municipalities requiring LEED standards for own buildings. Some requiring LEED for private commercial buildings. Setting of standards one thing local governments can do.

Buildings account for almost 40 percent of energy consumption (21 percent residential, 18 percent commercial). Industry accounts for 33 percent, transportation for 28 percent. Transportation is biggest dilemma due to sprawl. Can make fuels more environmentally friendly, cars more efficient, but the travel miles keep on going up.

In offices, more than 20 percent of total electric usage in offices comes from plug-in equipment. Big opportunity to save. Energy Star appliances help. Also turning off computer at night, ie., and unplugging other appliances like fax machines, printers, copiers, scanners, coffee machines, speakers, etc.

Renewables have both economic and environmental benefits:

- lower cost than fossil fuel imports
- renewable and unlimited “local” fuel
- more stable price
- jobs
- financial incentives
- improved reliability
- environmentally friendly

NYS has portfolio of energy sources—NYS recognized nationally as a leader in adoption of renewable energy technologies. Among the mix:

- We produce more hydropower than any state east of the Mississippi.
- We rank 15th in US for wind power resources; 7th in installed capacity. Outperforming our ranking for resources. Windiest state in the Northeast.

Wind Power—

Seen tremendous growth in large utility-scale wind power. 2009 was record year for the industry. Decreasing cost of wind power and escalating cost of conventional helps. Grants and incentives available. Career opportunities. Onondaga County doesn't rate as highly as Madison or Northern Oswego in terms of available wind sources, BUT there are opportunities here and elsewhere in region for "**community wind power:**"

- Areas that are too small to make large-scale projects cost-effective but still have potential for smaller-size projects. Same size turbines but only 5 or so clustered together.
- Europe and Midwest have done this. None east of the Mississippi yet, but working on project in Fabius. Others are under way throughout state.
- Opportunity for community ownership of the asset. Goes long way to reducing community resistance to the technology.
- Community wind farms produce more jobs, build economy. Tremendous economic development opportunity for the region.

Technology and equipment continue to evolve. Small turbines have much broader possible application to communities. Shouldn't be confused with large turbines in terms of effects on community. Can be used for farms, businesses, homes. School districts looking at wind systems. Sodus School District. Popular in Iowa, Minnesota and other Midwestern states.

Residential tax credits, business tax credits in place as incentives. Another incentive: NYS law requires utilities to provide net metering—selling back excess electricity generation to the grid, etc.—for certain scale biogas, photovoltaic, wind systems. Also federal incentives.

Solar—

- Can it work in NYS? Yes. Need the policies to support. Technology growing rapidly. In 2008 solar grew by 63 percent over 2007. Largest capacity-growth is in nonresidential sector—big-box stores, ie. But in terms of overall number of installations, residential is leading. Rank 6th in country by installed capacity.
- Municipalities starting to get interested in photovoltaic. Town of Hempstead got NYSEDA grant to install PV at its town hall, ie. Fayetteville-Manlius School District just got \$500,000 to put PV on high school and middle school. Payback can be very long, though.
- Various incentives and financing mechanisms for municipalities in place. But cost is still greater than wind. As technology improves, again, cost will improve. Playing field is not level among different technologies. Right now there are more PV (solar electric) systems than small wind even though PV costs two to three times more than wind because planning and zoning regulations make wind power more difficult. Can encourage small wind industry by removing a lot of local land-use zoning obstacles. DeWitt, Pompey, LaFayette are interested.

Other types of renewable energy:

- Biomass—Use of organic matter (crops, trees, waste, ie.) for energy. Produces biofuels (liquid fuels) and biopower (electricity). We have a lot of potential in our region and state for this technology.
- Biodigestion—using bacteria to break down manure and other waste to produce bio-gas. Expensive technology right now. Farmers are raising cows and milk; don't necessarily want to take on electricity producers as well. Regional biodigester approach is one possibility—collecting

waste from several farms and into central processor (piping or trucking) to produce energy. Spreads out the risk. Cayuga County taking a lead position on this to produce electricity for county facilities and nursing home. Very big in Europe.

- Landfill-Gas-to-Energy— Using methane for electricity generation, heating, cooking. Have potential in NYS. EPA has program to encourage this. Both this and biodigesters are double bonus because they use methane, which is a highly potent greenhouse gas.
- Bioenergy—Under-utilized forests, timberland and cropland that could be producing grasses or willow to produce electricity.
- Biodiesel—A lot of potential and in use on farms already. EPA is barrier in terms of commercializing. Has to meet strict standards.

Conclusion: Need to focus on energy efficiency as first step, especially in buildings and facilities. As a region we have a lot of opportunities for renewable energy. Have a mix of resource types. That's the future—moving from centralized fossil-fuel based system to regionally based, diversified system, with not just one large system but several smaller-scale systems. Both economically and environmentally beneficial.

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