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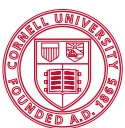
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Making Good Choices: What Local Policy Makers Need to Know About the Green Economy



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Introduction

By **Susan Christopherson**, Department of City & Regional Planning, Cornell University

The Green Economy, Green Jobs, Clean Tech – we’ve all heard these terms. We are excited about the promise they offer for an economy that generates new jobs and responds to the challenges of climate change. Behind the hype, the most important thing to know about the new Green Economy is that it will not really be new. It will be shaped by the agendas of existing businesses that grow, mine, manufacture, and distribute products and services. The public funds now available to support initiatives to improve energy efficiency and promote renewable energy will be channeled by the political agendas within, and competition among, states and localities.

What kind of Green Economy we get depends upon how well we sort through the strategic and tactical choices we must now make. For example, should we invest in large centralized “smart” electric distribution grids, or should we foster decentralized energy distribution through municipal systems? Should we invest in large transnational firms that manufacture wind turbines, or in small local enterprises that can decrease energy use?

To make wise decisions, we need *knowledge* of who supports one direction or another, and why. We need *information* about state and federal programs and resources intended to stimulate investment in “green” enterprises and we need *action steps* to help us move forward. These policy briefs were developed by Master’s degree students at Cornell University in a workshop course on “What Local Policy Makers Need to Know About the Green Economy” (Department of City & Regional Planning). The goal of the course was to develop skills in analyzing policy issues and writing for a policy audience. The participants in the course were charged with identifying key issues faced by local policy makers, and writing policy briefs that would help them understand concepts, determine their options and make effective local policy.

Industrial Wind Power: What Local Officials Need to Know

Many city dwellers have romantic ideas about wind power, imagining a few wind turbines sitting on a ridge will keep the lights on in their urban apart-

ments. In reality many thousands of wind turbines will be needed to provide a reliable supply of electricity and they will come with their own environmental costs – noise pollution, bird kills, and dangerous high voltage transmission lines to connect the turbines to a centrally-operated electricity grid. For small rural communities, all these concerns and many others are raised when the industrial wind power companies come to town. Kate McCarthy and Eric VanderMaas address these issues in their policy brief. Their goal is to help local officials understand whom they are negotiating with and what they need to know to get the best outcome. They recommend three actions - planning ahead with residents about their questions and concerns, developing zoning and wind ordinances, and working with a neutral third party who can help with negotiations and regulations. McCarthy and VanderMaas’ interviews with local officials in communities dealing with industrial wind power suggest that these strategies can help manage the process of deciding whether wind development is a good option for a particular community.

Grass Biomass: A Biofuel Strategy Right for Upstate New York

Koenig and Wellemeyer explain why a biomass approach oriented toward using a non-agricultural product (grass as opposed to corn) makes better sense for the kind of market and production capacity that exists in Upstate New York. The authors stress that, as with many appropriate green technologies, the use of grass pellets as a biofuel currently faces significant barriers. Chief among them, wood pellet stoves are not ideal for the burning of grass pellets due to their higher ash content. Grass pellets require specially designed stoves that are not yet commonly available. Because the grass is typically grown on small plots, it is difficult to realize economies of scale and so, current production costs exceed revenue. This creates another barrier to using grass pellets as a viable biofuel. In addition to the high cost of processing equipment, the state of New York does not recognize grass grown for pellets as an agricultural use. Non-agricultural product status makes it very difficult for small farmers growing grass for pellet-

ing to qualify for the lower tax rates on agriculturally productive land.

Despite these barriers, the authors find a number of factors working in favor of grass pellets as a bio-fuel. Koenig and Wellemeyer estimate that 1.5 million acres of New York state farmland does not have an active agricultural use and can be used to grow grass that can be processed into pellets. The average growing season for grass feedstocks for pelleting is 70 days compared to a 3 to 5 year average growing season for wood feedstock for pelleting. Grass pellets have other virtues, too. Grass does not displace other agricultural products (as does corn biofuel), has a lower environmental impact than other fuels, and is profitable for small farmers.

These benefits have created interest at the state level. For example, The New York State Energy Research and Development Authority (NYSERDA) has invested 1.6 million dollars in research on the energy and emissions outputs of wood and grass pellet stoves. If the right policies were in place, locally grown grass pellets could emerge as an alternative energy source.

In-Sourcing the Production of America's Energy Technology: Attracting Solar Industry Manufacturers to Upstate New York

Marc Ufberg focuses on the importance of manufacturing the energy efficiency equipment we install in our homes and businesses. He argues that a solar power market is only beginning to emerge. While current conventional energy rates are cheaper than solar power, solar power energy rates and conventional energy rates are projected to reach parity at 15 cents per kilowatt hour in approximately 2015. Despite this market opportunity, solar panel manufacturing is missing in New York State despite conditions that would seem to support successful manufacture of solar panels, especially in the Rochester, New York area. Rochester is important because solar power uses optics technologies that are a specialty in that city-region. In addition to deep technical know-how, Rochester also has a workforce possessing the appropriate skills and training needed for solar technology development and production.

Ufberg recommends tax incentives and low interest loans to manufacturers who are willing to invest

in solar panel plants in the Rochester area, citing the current market for solar power in the U. S. at \$30 billion. Ufberg anticipates that entry into the solar panel market will be difficult once it takes off in 2015.

Developing a Vibrant Local Food Economy in New York State Communities

Kroger and Zeltser look at the movement toward "local food" and whether it makes sense to locally produce more of the food we consume every day. Their answer is an emphatic yes! First, trading locally conserves energy. In addition, the authors found "small and medium sized farmers (those making under \$100,000) and food processors are more likely to invest their profits to support other local businesses and projects than large scale agro-industrial farms". This means that profits are reinvested in the local community. They also describe barriers to achieving a local food economy. For example, a dwindling number of food processors and the exclusion of small farmers from large scale food processing operations. In order to get their products to market small farmers frequently must resort to using a patchwork of multiple processors and distributors reducing their profit margins and raising their product prices.

Kroger and Zeltser suggest three ways that local governments can help small and mid-sized farmers develop local markets for their products. First, help farmers link to appropriately-sized financial and technical resources within a regional economic development plan that includes the agricultural sector. Second, educate the community on the value of local food and promote small and mid-sized farm products at community events and farmers markets. Third, create cooperative connections among farmers to help them reduce production costs. In this last endeavor, we can learn a lot from the history of the U.S. cooperative movement. Kroger and Zeltser provide many examples to inspire local officials who want to implement local food strategies.

Growing Green Jobs: A Guide to Local Energy Improvements

Cajina, Hess Pace, Patterson, and Randall tell New York consumers what policies and programs are in place to help them increase their homes' energy ef-

iciency. They focus on energy efficiency because it provides the best opportunity to create local jobs. Weatherization jobs can't be out-sourced, so investment in weatherization is a win-win for energy and for the local economy. Weatherization reduces pollution and energy use, allows consumers to realize substantial energy expense savings, and increase their property values while supporting the local economy with "green jobs". As the authors point out, weatherization generally provides a homeowner a savings of \$358.00 in their first year's utility bills; a large incentive for consumers to explore weatherization opportunities in their home and energy use. The authors explain that the primary barrier to retrofit a home for energy efficiency is its expense, about \$8,000 on average. The authors detail federal and state grants, loans and tax incentives available to homeowners to reduce upfront weatherization costs. They also identify New York state financial support available to contractors who are required to obtain Building Performance Institute Certification in order to meet state energy agency weatherization funding requirements.

The authors recommend the development of a revolving loan fund to foster green business start ups or provide expansion capital; creation of an energy conservation sustainability master plan; and establishment of Energy Financing Districts (EFDs). These action steps will help localities become eligible for state or federal aid for weatherization programs and start them on the road to a market driven energy efficient economy.

These policy briefs demonstrate the breadth of issues and questions that will arise as we move through the transition to a more energy efficient economy and transform our way of life to use more renewable sources of energy. They demonstrate how important it is to educate local policy makers about the new technologies, the policy options and incentives, and how to manage often contentious disputes that will arise over the value of taking one path rather than another. Not all products and policies portrayed as "green" will have good social and environmental outcomes. A good green economy means making wise choices.

Industrial Wind Power: What Local Officials Need To Know

By **Kate McCarthy** and **Eric VanderMaas**, Cornell University*

What is the issue?

In recent years, the ridges of upstate New York have caught the interest of wind developers, spurred on by federal subsidies that have helped make industrial wind farms profitable. For some upstate residents, hosting a wind farm is an opportunity to stimulate economic growth and develop “green” industry in their towns. Other residents have voiced strong concerns over such issues as noise, bird and bat fatalities, visual impacts, and the impact on their rural community life. Do wind farms actually contribute to economic development in towns in upstate NY? What tools are available for local officials faced with decisions about wind power in their communities?

This brief addresses these questions by 1) describing industrial scale wind development and its economic development potential, and 2) suggesting four actions for managing it. We also include a list of additional resources on industrial wind and the development process¹.

What is “industrial” wind power?

Unlike small wind turbines in people’s backyards, or community wind energy (turbines that are at least partially owned by local landowners and other community members), an “industrial wind farm” can range from a few, to a few hundred turbines. All power produced on an industrial-scale farm is sold to, and distributed by, the “grid” - an interconnected network for delivering electricity from suppliers to consumers (non-industrial wind may or may not be sold to the grid). A turbine’s classification as “industrial” usually depends on its size and how much power it can produce, but turbines generating over one megawatt (enough to power about 495 homes) are commonly considered “industrial.” These structures stand, in some cases, over 400 feet tall from their concrete base to the tip of the blade. Wind companies usually sign 20-30 year leases with private landowners to erect turbines.

Financial matters

For local officials considering industrial wind installations, the development process consumes significant time and resources. Taking a long term view



of the structure of financial agreements can help to yield a more balanced return for those efforts.

Building a wind farm requires a large initial investment by developers. To compound this financial burden, the land value improvements result in higher property tax assessments. Since developers would generally absorb any tax increases, they contend that the potential expense could challenge industrial wind farms’ short-term financial viability. In addition, NYS’s real property tax law, §487 provides developers with a 15-year shelter from real property taxes for industrial wind installations. Therefore, as an alternative to the routine payment of property taxes, towns, developers, and the county’s Industrial Development Agency (IDA) put together financial contracts like PILOTs (Payments in Lieu of Taxes) and host community agreements (HCAs). The advantage is that these contractual payments vary over time and are discounted from the standard property tax formula, resulting in a more developer-sensitive payment instrument. PILOTs and HCAs help the developers get started, while still providing the host municipality with revenue.

PILOT payments generally are “back-loaded”, starting off small at the beginning and growing over the life of the project, giving the developer a chance to recoup costs. Similar to taxes collected by a local government, PILOT revenue is split among the different public service providers and governments according to a standard tax formula. This can be problematic in places where a municipality’s share represents the smallest portion of a property tax bill, inadequately

reflecting the time and money the municipality has spent in the process of review, negotiation, and permitting. For this reason, some municipalities have designed a Host Community Agreement (HCA) to balance the small PILOT payments early in the process. With an HCA, the developer makes up front payments to the municipality which invests its resources to negotiate the development, and can negotiate to cover the wind farm development costs up front and distribute the revenues with respect to impact and involvement.

Economic development potential

The economic development potential of industrial wind farms can take several forms. First, as described, industrial wind development can reduce a community's property tax rate as well as diversify its sources of revenue, leaving more money in residents' pockets and the community less reliant on the more traditional revenue sources. Second, it can benefit individual property owners who lease their land and generally receive yearly payments for the turbine(s) on their land, increasing the community's net wealth. This assumes, of course, that the increased wealth of a relatively few landowners benefits their community as they spend and invest within it. Third, some claim that wind farms can be a draw for tourists and create a "multiplier effect" by creating demand for other services in the area. Because multipliers attempt to measure the "ripple effects" of development, however, these benefits are harder to measure.

An important economic development question is how many jobs are created by wind farms. Wind farms create few long-term jobs as compared with other types of economic development, such as regional retail. Most jobs are created during the construction phase, sometimes but not always relying on the local work force. For longer term day-to-day operations, estimates suggest that one job is created for every ten to twenty turbines installed. The exact number of jobs, and the required training will depend on the type of turbines and the location of the wind farm. While the regional economy may benefit as money earned from these jobs is spent in area businesses, the broader impacts, are uncertain. This is an important factor for local officials to consider when deciding if wind energy is a good economic development strategy for them.

Taking charge of the process

In order to proactively address wind development, local officials need to understand who is involved in the development process and what tools are available to guide how (and if) development happens. This may help officials manage or regulate development so that it supports, rather than undermines, local goals.

Understanding roles

Understanding the roles and constraints of each actor in the wind development process is essential. Like many general contractors, a developer works for a large wind energy company, often a multi-national firm (Aeon or First Wind are examples of such companies working in NYS). Developers assemble land leases, work on obtaining permits, and purchase and install the turbines. They are a bridge between a global industry (turbine and parts manufacturing) and a local project (the wind farm). While competing for turbines with other sites across the world, developers must also contractually "reserve" space on the electrical grid for their project. Failure to meet the capacity of the reservation or delivery date results in a loss of the "slot" – as well as penalties for the developer. The coordination of these many factors increases their risk.

Once a developer identifies a potential wind farm site, he or she works with private land owners to secure land through lease agreements or, in some cases, ownership and/or easements. Because developers compete for the best sites, this phase often involves "behind the scenes" site exploration and negotiation with property owners, sometimes leading a community to feel deceived once the developer emerges with a proposal.

When a wind farm is proposed, local officials have the important but challenging role of balancing the rights of private land owners with broader community goals. Industrial wind siting decisions commonly require additional hearings, negotiation between the developer and the municipality, site visits to other wind farms, and new zoning or wind ordinances. The not-always-transparent process of site exploration that developers use can sometimes create an atmosphere of distrust in the community. This sequence, as outlined, often means that local input comes late in the process. If a community assesses their potential as a site for wind development

and creates wind development guidelines, they can have a more active role earlier in the process.

How to manage wind development

Local officials can take several basic steps to engage the community, gather information, and strategically plan for the possibility of local wind development.

Working with community members early and often – Discussing how (and if) wind fits in with a community's future before a wind developer appears allows residents time to ask questions and voice concerns without pressure. Assessing a community's potential for wind development can help determine the urgency of this work (see the wind maps in the reference section).

Involving a neutral third party – Forming a team that includes a knowledgeable, neutral third party can help engage residents in conversations about wind development, developing wind ordinances, and how to negotiate effectively. While an attorney can be a key player, engineers, foresters, and mediators are also important members of such a team. In some communities these teams may be comprised of local residents who are willing to provide their services pro-bono.

Gather information about the developer – Wind developers take many different approaches to negotiation, working with communities, and dealing with environmental and conservation issues, making it essential to gather information about a developer's previous projects. This might include looking at financial statements, talking with local officials where the developer has worked, searching for newspaper articles about the company, and comparing the developer's approach with that of other developers.

Developing zoning and wind ordinances – Many prime wind farm sites lie in towns without zoning or comprehensive plans. While this gives landowners flexibility on how they use their land, it leaves towns without the ability to regulate wind turbine siting or other industrial development. Developing a comprehensive plan, a zoning code, and/or a wind ordinance can define things like setbacks and bonding for de-commissioning. Introducing such measures may be challenging in places without zoning, but will ultimately help deal with development on this scale.

Is it worth it in the end?

The volatility in gas and oil prices, continuing subsidies for wind power development, and advances

in turbine efficiency will likely increase wind's importance to upstate New York. This challenges local officials to balance growth and economic development with their community's concerns and long term goals. While wind power appears to have *some* economic development potential – the construction jobs, the few permanent positions, and the increased income for land owners and municipalities, the question of industrial wind farms as long-term and sustained economic development has not been settled in upstate New York. It is suggested that communities take a proactive approach that considers future goals, and whether wind, as a specific economic development strategy, supports that vision.

Keywords: wind; jobs; PILOT

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Additional Resources

NYS wind farm developer code of conduct: http://www.windenergyethics.com/pdfs/ag_codeofconduct.pdf

NYSERDA Small Wind Explorer: <http://nyswe.awstruewind.com/>

This searchable map of New York wind resources generates average velocity measurements and energy potentials for small wind projects.

Wind Resource Explorer : <http://windexplorer.awstruewind.com/NewYork/NewYorkWRE.htm>. This site contains interactive and static maps at elevations up to 100 meters above ground level.

Global Energy Concepts, LLC for NYSERDA. Wind Energy Development: A Guide for Local Authorities in New York (October 2002). <http://text.nysersda.org/programs/pdfs/windguide.pdf>. This document discusses benefits and impacts of wind energy installation.

Daniels, Katherine for NYSERDA. Wind Energy: Model Ordinance Options. http://www.powernaturally.org/programs/wind/toolkit/2_windenergymodel.pdf. Discusses wind ordinance models and makes specific suggestions about ordinance content.

Dixmont, Maine. Wind ordinance and ordinance primer Primer: <http://www.dixmontwind.org/home/wind-ordinance-primer>. The primer discusses the purpose of wind ordinances and suggests some considerations for their development.

Database of state incentives for renewable energy and energy efficiency. <http://www.dsireusa.org/>. State by state searchable database for incentives and policies that promote renewable energy and energy efficiency.

Office of the New York State Comptroller, Industrial Development Agencies in New York State. www.osc.state.ny.us/localgov/pubs/research/idabackground.pdf. This report discusses policies of IDAs and includes information related to their processes, authority and accountability.

Grass Biomass: A Biofuel Strategy Right for Upstate New York

By **Chris Koenig** and **Jonathan Wellemeyer**

Abstract

Given the steady increase in gas utility rates, homeowners in upstate New York are increasingly interested in finding energy alternatives for home heating. In this brief we discuss alternative options for Upstate's home heating energy needs. We argue that large-scale liquid biofuel production—such as ethanol—may be an inappropriate solution and that locally grown and produced grass pellets may be preferable.

Keywords

grass pellets; biofuels; home heating alternatives

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What is the Issue?

Given recent increases in gas utility rates, homeowners in upstate New York are increasingly interested in identifying energy alternatives for home heating. When considering renewable energy, wind turbines, solar panels or ethanol plants may come to mind as domestic energy alternatives. While these energy alternatives may be worth striving for on a national scale, other issues need to be considered in order for the green economy to be successful on a regional scale, including meeting immediate energy needs of consumers, lowering their costs, and moving towards a more renewable energy mix.

Given these considerations, we discuss why large-scale liquid biofuel production—such as ethanol—may be an inappropriate alternative solution for

upstate's home heating energy needs. Alternatively, we suggest that grass pellets are an affordable, available, renewable, local, and efficient way to heat rural homes. The journey of a grass pellet from growth in New York's fields to combustion in the home is chronicled, highlighting the pros and cons of choosing this home heating alternative for rural, upstate communities.

Biofuels Defined

Like “green” or “sustainable,” “biofuel” is a term that is commonly used but not always understood. Currently the world's energy sources are dominated by fossil fuels—coal, oil, natural gas, and their refined derivatives, which come from plant and animal matter that has been decomposing for millions of years. Biofuels, on the other hand, are made of living matter, or matter that has been dead and decomposing for a short period of time, like corn, switch grass, or animal fats. These feedstocks¹ can be processed into usable products that are burned for energy at the scale of the individual home, or even larger, central heating plants. The term “biomass” refers to all of the feedstocks that supply the production of biofuels.

The Case of Ethanol

Biofuel can be created from a number of different sources through a number of different processes. The most commonly discussed biofuel is ethanol, a kind of alcohol. While it can be made from plants, such as sugar cane, U.S.-made ethanol is most commonly made from corn. As an alternative or an additive to gasoline, ethanol can help to reduce the demand for fossil fuel in the transportation sector, and is therefore viewed by many as a positive step toward clean, independent, renewable energy sources.

Ethanol has its share of drawbacks, however. First, there are questions regarding its efficiency as a fuel

¹ Feedstocks are the different sources of biomass that are used to create biofuels. For example, switchgrass is the feedstock for grass biomass that is used to create grass pellets, the biofuel.

(especially the corn-based variety) and the effect it has on global food prices (by diverting corn from food uses to fuel uses). Second, producing corn-based ethanol requires huge swaths of flat land and the ability to produce corn on a large scale. As a consequence, ethanol production in the U.S. is best suited to large agribusiness firms in the Midwest where the necessary infrastructure (big farms operated by industrial farmers) already exists. Though large-scale ethanol production may be attractive from an economic development and general energy awareness perspective,, it is not appropriate for the small, individually owned farms that make up the majority of New York's agricultural landscape

While ethanol production may not be suitable for upstate New York, the region can still participate in and benefit from producing "green and renewable" energy from biofuel. In the case of grass pellets, rural communities will realize the benefits of both the production and consumption of grass pellets as a home heating fuel.

The Case of Grass Pellets

What are they?

A woodstove is a common fixture in many American homes. They are enclosed vessels that burn regular, unprocessed timber for heat during the winter months. Often this stove is supplemental to an existing gas or oil-burning furnace. Thanks to advancing stove and fuel technology, it is now possible to get more heat from wood by processing the timber into a wood pellet and burning it "completely" in a special stove. A "complete burn" emits very little soot and particulate matter because it is all consumed as fuel. A grass pellet is essentially the same thing as a wood



Wood pellets (L) and grass pellets (R). About ¼ - ½ inch in length

Source: *livingindryden.org*

pellet, but instead of processing timber, certain species of grasses are harvested and pelletized for home heating needs.

Grass pellets could play an important role in a biofuel strategy for upstate New York. Such a strategy needs to identify a product that can be produced at the correct scale for the size of upstate's smaller farms and one which has a potential regional market. Grass pellets are a good choice, as they can be accommodated by the growing capacity of the land, and are suitable for the heating of detached single-family housing. This product and its singular use is markedly different from the use of grass feedstocks to create liquid biofuel (ethanol), which is then used to supplement other forms of liquid fuels.

Benefits

Grass pellets are a cost effective, efficient, and relatively environmentally-friendly alternative home heating option. Grass pellets are cheaper than the alternatives. Seventeen pounds of pellets will produce the BTU equivalent of one gallon of oil. With the current (and rising) cost of delivered fuel oil or propane for home heating, grass pellets, at about twelve cents a pound, will cost \$2.04 for the energy equivalent of one gallon of oil – just over half the price of a gallon of fuel.

Grass pellets are also very efficient. The "energy out: energy in" ratio of burning grass pellets has been estimated at 14:1, compared to 2:1 or 3:1 for other biomass sources, such as corn-based ethanol. In addition, pellet stoves burning grass pellets produce 90% less greenhouse gas when compared to burning fossil fuels, and are 10 times lower than the EPA maximum emissions limits. The resulting ash is PH neutral and can provide a small benefit as fertilizer. And, local grass pellet use and production can potentially contribute to the economic development of rural communities and regions.

Challenges

While grass pellets show much potential, there are some associated challenges. Most home pellet stoves are designed for hardwood, with wood producing a very low ash content of 0-5%. Grass has a higher ash content of about 5-10% and can be problematic in typical wood pellet stoves². Grass stoves are available,

² For more information on ash content, see: http://www.grassbioenergy.org/downloads/Bioenergy_Info_Sheet_5.pdf
http://www.grassbioenergy.org/downloads/Bioenergy_Info_Sheet_5.pdf



High ash content from grass in a modern pellet stove

Source: *Cornell Crop and Soil Science*

but are uncommon because this feedstock is not yet popular in upstate New York. And, depending on the composition of the grass pellets, emissions during combustion may be similar to modern oil burning furnaces including NO_x, HCl, and SO₂. This raises the important issue of how the promotion of a renewable, yet not completely clean energy source should be approached.

The Journey of a Grass Pellet

Each step of the lifecycle of a grass pellet presents economic and renewable energy benefits as well as challenges.

Growth and harvest

Benefits

In New York State, there are large areas of land with marginal soil ill-suited for profitably growing row crops for human or animal consumption. When these areas are abandoned or left fallow, they become mixed-grass meadows. If this grass is not mowed, woody species move in and remove the land from productive use. New York State has approximately 1.5 million acres of farmland that does not have an active agricultural use and fits this description. The land on these farms could support grass production, with land owners benefiting from the sale of the grass to produce pellets for home heating.

There are two types of native, high yielding grasses that can be grown for biomass production - switch grass and reed canary grass, although other grass

mixtures can be used. If fertilizer is desired for increased productivity, animal manure can be spread in the spring or after harvest. The grass is then left on the field and baled at the same moisture as normal hay, with no further drying necessary if the grass will be used for producing pellets..

A distinct advantage of using grass as a fuel source over other biomass feedstocks is its relatively short regeneration time. While the growing season for grass feedstocks is just 70 days, the growing season for a feedstock of hardwood trees is 3-5 years, and fossil fuels take 70 million years to develop!

Grass pelletization is essentially taking a waste product, inputting labor and mechanization, and yielding fuel for heating. In addition to the growth potential of grass from an energy land-use perspective, there are also a number of environmental, societal, and economic benefits that come about by using grass as a biomass feedstock. To read more about these benefits, see http://grassbioenergy.org/downloads/Bioenergy_Info_Sheet_2.pdf



Wild-type reed canary grass.

Credit: *Cornell Crop and Soil Science*

Challenges

Production and shipping costs present a major challenge to the profitable harvesting and selling of grass pellets. The revenue from a small plot of land will often fail to exceed the costs of production and shipping. In addition, hiring contractors to mow a grass field can be costly, especially if they have to take expensive equipment into a field that is not maintained or that has unpredictable terrain. Farm communities in which all parties have an interest in grass pro-

duction can leverage cooperatives or land banks to decrease the shipping costs and various other costs associated with growth and harvesting.

In order to be profitable, farmers need to secure an agricultural assessment to pay a lower tax rate on their agriculturally productive land³. Unfortunately, New York State doesn't make this easy. First, growing grass for pellets is not currently deemed eligible for a tax break. Second, the land must be seven or more acres used for the preceding two years to produce crops, livestock, or livestock products for sale. Third, the annual gross sales of agricultural products generally must average \$10,000 or more for the preceding two years. If an agricultural enterprise is less than seven acres, it may qualify if average annual gross sales equal \$50,000 or more. This criterion makes it difficult for landowners to justify growing a crop for energy on smaller plots of land to gain. These requirements for agricultural assessment do not preclude people from growing grass, but it provides more incentives to use land for food or livestock production. However, incentivizing the use of land for energy production, like food production, will then cause food growth to compete with energy feedstock growth. This is a counterproductive strategy. Using a new assessment category and tax-rate for biomass lands will achieve both goals of local food production and a reduced tax rate on lands growing grass for biofuel.

Pelletizing: Production and facilities

Benefits

As with any light manufacturing facilities that are proposed in a community, residents will benefit from job creation and increased tax revenue. For example, the New England Wood Pellet manufacturing facility in Schuyler, NY employs over 20 full time employees at the plant and generates over \$10 million in annual purchases of goods and services for the local economy. This plant only pelletizes wood feedstocks, but a slightly lower economic impact can be assumed for a grass pelletizing plant. Many facilities that pelletize wood also pelletize grass, and often a mixture of both. For example EnviroEnergy, LLC in Unadilla,

NY uses shared equipment to pelletize both grass and wood feedstocks. This plant also uses wild-type perennial species such as goldenrod to produce pellets. Goldenrod is known to many people as a weed and it requires even less input at growth than switchgrass or reed canarygrass.



Inside the pelletizing plant at EnviroEnergy, LLC,

Credit: Enviroenergyny.com

In addition to centralized pelletizing facilities, there are also mobile pelletizing technologies that can be bought or rented and run on-site to save money on shipping—critical savings for smaller, independent farmers or landowners. This technology has been active in parts of Pennsylvania.

Challenges

Despite the 150 million acres of underutilized farmland across the state—all of which is suitable for grass production--there are relatively few pelletizing facilities. Because of the low value of the grass input, shipping is not cost effective and ultimately raises the price of the finished product at market. There is room in the pelletizing market for competition and possibly government stimulus.

The cost of start-up however, is fairly expensive. An estimate for the purchase and set up of all the equipment necessary to start up a pelletizing business might be about \$150,000 for used equipment and \$400,000 for new equipment, yet production costs for pelletizing can be as low as \$25/ton of harvested grass. Cooperatively-owned equipment among neighboring farmers in a central location is a viable alternative.⁴

³ An agricultural assessment is a different type of assessment criteria used for tax purposes. If assessed as agricultural, the landowner will usually pay lower taxes than if it was assessed as residential or other land uses. More on agricultural assessment.

⁴ For more information on grass pelletizing technology and suppliers visit R.E.A.P Canada and www.reap-canada.com/links.htm#densification

Local policy makers may have other questions about the public costs associated with grass pelletizing: (1) When will this facility be energy neutral? That is, when will energy produced in product offset the amount of energy used to produce the pellets? (2) How much energy will this plant be using from the grid? Do we have the supportive capabilities? (3) How will the shipping of product in and out of the facility affect the physical infrastructure and taxpayers of the town? Who pays? (4) What will the increase in bulk delivery be in the next 10 years to and from this plant? These are all important questions that will be answered differently by each locality.



A look at how the raw material is delivered to the plant for processing

Credit: Enviroenergyny.com

Conclusions

Competition for state and federal monies for energy research and development is stiff, and grass lacks a political lobby. In order to jumpstart both the research and development of growing and pelletizing at the production end, and the purchasing of grass-friendly stoves at the consumption end, we need subsidies and assistance for startup costs. New York State Energy and Research Development Authority (NYSERDA) has recently invested \$1.6 million to research emissions and energy outputs from both wood and grass pellet stoves (for more information, visit: www1.eere.energy.gov/wip/sep.html). There is also momentum in St. Lawrence County and other North Country jurisdictions to develop the role of renewable forest and grassland biomass resources as a part of upstate New York's energy mix.

Grass biomass is still an emerging technology and market in the U.S., but it has significant potential to meet home heating needs in upstate New York. New York State can play an important role in creating this viable and emerging market through research and development grants and stove replacement programs.

Local policy makers can be on the lookout for signs of this emerging market: the creation of new agricultural cooperatives interested in grass growth and harvest, the siting of pelletizing plants, and the planning of exposition events around their counties that demo grass pellets and related technologies. Growing grass biomass uses unproductive farm land to create another source of renewable energy which will warm local homes. This is a stark contrast to other renewable energy investments, such as wind, where the host community may not even use the clean energy locally, as much or all of it may be fed into the regional grid. It is crucial that governments provide this emerging market with whatever financial, infrastructural and policy-making support they can. Without this kind of help, upstate New Yorkers carry all the risk and upfront cost of abandoning traditional methods of home heating in the region by making the switch to grass.

For more information on grass biomass, visit grassbioenergy.org/

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In-Sourcing the Production of America's Energy Technology: Attracting Solar Industry Manufacturers to Upstate New York

By **Marc Uffberg***

Abstract

Promoting renewable energy projects and re-training workers has attracted \$22 billion in stimulus money. While the media has championed the use and installation of renewable energy technologies, little has been said about *where* those technologies are being manufactured. This policy brief examines the case of solar power and where solar panels are manufactured. Most solar panels are manufactured abroad; virtually none are manufactured in New York State. Should this be a cause for concern? What can policymakers do about this situation? How do we determine whether offering incentives to renewable energy manufacturing companies is a good idea?

Keywords

photovoltaic; renewable energy; solar panels; optics; Rochester

What is the Issue?

Photovoltaic modules, also known as solar panels, are devices that convert the energy of sunlight into electricity. While estimates by the energy research firm Clean Edge place the current U.S. market for solar panels at \$30 billion dollars, the real breakthrough for solar energy will most likely come around the year 2015. For many states in the U.S., electricity costs end-users 7-10 cents/kwh, while the current cost of solar power is approximately 25-cents/kwh. By 2015, solar and conventional energy rates are projected to converge at the 15-cent/kwh mark.² This would be a tipping point, as demand for solar power is expected to skyrocket once price parity is reached. If solar panels are not being manufactured in the United States by this point, we will have missed the boat.

While incentives exist to support the installation of solar panels in people's homes, a recent study by the Renewable Energy Policy Project shows that there are four times as many jobs created in manufacturing solar panels than in assembling and installing them

on-site.³ This represents a significant economic development opportunity for the American economy and creating green manufacturing jobs

Rochester: A Potential Photovoltaic Hub in New York State

There is a natural fit for manufacturers in places in Upstate New York that specialize in photo-optics because the production of solar panels involves the use of optics technologies to improve the concentration and conversion of sunlight into solar energy. One possible location for manufacture is Monroe County. Not only is Monroe County home to several companies world-renowned for their research in optics, it is also home to two leading schools of engineering (Rochester Institute of Technology and the University of Rochester) that specialize in optics and electronics. If Upstate New York is to produce solar panels for the American market, however, local officials need to market their resources and capacities. Foremost among those resources is a labor force skilled in optics technologies.

Executives of solar panel companies have repeatedly identified the local talent pool as a key determinant of where they ultimately choose to set up manufacturing operations. In addition to the two major local engineering facilities, as well as a nationally-acclaimed Materials Science program at Alfred University 50 miles south, local community colleges also play a significant role in creating this workforce. Monroe County Community College can also be an important factor in attracting businesses, because it offers courses in the skilled trades that specifically pertain to renewable energy manufacturing. This is a resource that should be exploited by local officials. It is not uncommon, for example, for local officials to work out an arrangement whereby state or local funds are used to pay for worker re-training when a new business comes to town with needs that can't currently be met by the existing workforce. If the training is for a skill

that is transferable among firms (rather than firm-specific), it is a solid, practical investment in human capital. This means that in addition to the top-notch talent companies can harvest from the universities, they will also be able to staff their plants with home-grown machinists.

The existing industrial base in Rochester is perhaps the ultimate trump card. With optics giants like Kodak, Bausch and Lomb, and Xerox, and over 100 small and medium-sized photonics firms in the region, there are an inordinate number of engineers in the Rochester area. Many Rochester engineers have knowledge of thin film technology, which is integral to the development of next-generation PV systems. Concentrating photovoltaic (CPV) systems are making inroads in solar power thanks in large part to Rochester's optics base. The Fresnel lens, for example, manufactured in Rochester by Reflexite Display Optics, is fast gaining ground as one of the leading ways to achieve lower-cost CPV. The Rochester Institute of Technology has six laboratories, which together comprise the NanoPower Research Labs, where the use of nanostructures and III-V semiconductor materials is researched for use in CPV systems. To the southeast in Ontario County, the Center of Excellence in Infotonics does nanostructure research and development, working on solar technology on six-millimeter wafers. Proximity to all this makes it easy for companies to hire engineers and to obtain information on new technologies and market developments. This type of concentration of firms in the same industry (also known as "business clusters") has been proven to increase productivity and drive innovation across all firms in the regional industry.

Incentives for business: What is the actual impact?

The laundry list of incentives that can be offered to prospective companies is endless: sales tax abatements, property tax abatements, low-interest loans. But in offering incentives, it is important to determine what impact they will have on the greater community. One way to make such a determination is to perform an economic impact analysis, which uses tools such as economic multipliers to track the ripple effect of a given boost to local economic activity. These tools clearly show that if manufactur-

ers use inputs (e.g. machinery, equipment) that are manufactured locally, the impact on the community is far greater than when they purchase their inputs from outside. Thus, one consideration in doling out incentives is to assess to what degree the incentives can do double and triple-duty by helping out other local businesses, as well. The ultimate guide should be a comprehensive fiscal analysis: if tax revenues increase overall, even after accounting for the tax breaks given to new companies, then the case can be made that local wealth is increasing. Of course, any decent financial analysis must be comparative in nature; local officials should only give a final thumbs-up if they feel that there is no alternative course of action that would be better for the municipality's future.

There is no shortage of companies that relocated to areas that offered them attractive financial incentives, only to close up shop shortly thereafter, never repaying their loans or tax breaks. Of course, no business can guarantee longevity and success, but it is important for local officials to do due diligence regarding the seriousness of a company's **local commitment**. If the CEO of a solar panel manufacturer mentions that his or her spouse's ultimate desire is to be in a warm-weather climate, Monroe County officials should think twice about making large tax concessions. By the same token, local officials should ascertain whether the executives are themselves personally invested in the local venture. If they are personally invested, their bond to the new manufacturing site, and in turn to the area, will be much stronger.

Another consideration for local officials must be the **quality of jobs**. When companies receive tax breaks **and** pay poor wages, **taxpayers pay twice**: once for the direct subsidy, and a second time for publicly-funded services (food stamps, housing assistance, etc.) that are needed by low-wage workers to make ends meet. Also, poorly paid workers with experience are likely to leave the region if tempted by offers of higher wages. It is critical to verify that new business arrivals will create well-paying manufacturing jobs. Current estimates by goodjobsfirst.org put the national average wage needed for a worker to provide a family of four with basic amenities at \$22 per hour.⁴ This is something that local officials must

inquire about beforehand; once it is too late, taxpayers will be the ones who suffer.

The Sun is Shining . . . And the Clock is Ticking

When it comes to manufacturing solar panels, the clock is ticking. In a few years time, the industry will already be mature, and entry for newcomers will be more difficult. Monroe County represents a natural fit for solar panel manufacturing, with its nearby educational facilities, its skilled workforce, and its pre-existing industrial base specializing in optics. In their haste to attract companies, though, local officials must not forget key concerns. First, before deciding to offer economic incentives, officials should have an economic impact assessment performed by an agency of government independent from influence by special interests, so they can gauge the true benefits that will result from the manufacturer's arrival. Second, local officials should weigh the seriousness of the manufacturer's commitment to the area. It is not enough for the CEO to believe in solar energy; they should look forward to living in Monroe County (recently ranked the 6th 'most livable city' among 379 U.S. metropolitan areas),⁵ sending their children to local schools, and show an interest in the local recreational and cultural resources. Finally, officials should engage in frank discussion about the compensation that will be offered to workers. If local officials extend themselves and open the community's wallet to attract a firm that pays minimum wage, they are doing a favor for the entering corporation, but not their own constituents.

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Notes:

- ¹Zeller, Tom (2009)
- ² <http://www.cleantech.com/reports/reports-trends2009.php>
- ³ Singh, Virinder (2001)
- ⁴ http://www.goodjobsfirst.org/accountable_development/researchers_guide.cfm
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Developing a Vibrant Local Food Economy in New York Communities

By **Ruth Kroeger** and **Yelena Zeltser**

Abstract

A well connected local food system creates new jobs in the agricultural and processing sectors, increases tax revenue and contributes to vibrant local economies in New York State. The lack of appropriately scaled local processing and distribution infrastructure, however, creates challenges for small and medium-scale producers. Local governments have an important role to play in bringing together actors from across the food production sector to develop innovative solutions to this problem. Through a series of case studies, we show how local governments can build a strong local food economy by promoting local and regional products, coordinating existing resources, and assisting with development of business infrastructure for local producers.

Keywords: processing; economic development; food infrastructure

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The Local Food Economy as a Wealth Generating Enterprise

New York State has a long and proud history of agricultural production and the agricultural sector continues to generate employment and income for communities across the state. The New York Apple Association, for example, estimates that the 694 family farms producing apples in NYS provide 10,000 direct agricultural jobs, 7,500 indirect jobs from handling, distribution, and marketing, and thousands more from agricultural supplies, finan-

cial services and apple processing.⁵ Since the turn of the 20th century, however, the NYS agricultural sector has positioned itself as an export industry, specializing in a narrow range of nationally competitive products – namely apples, dairy, meat, and some varieties of produce. Many small farmers have either scaled up or gone out of business, and the 22 million acres of productive agricultural land in the state that existed in 1910 had shrunk to just over 7 million acres by 2008.⁶

While traditional models of economic development emphasize economies of scale and exports, we argue that a critical component of wealth building in a community occurs when local dollars go to support local businesses and products. Growers in New York State produce over 1 billion pounds of apples every year and could easily supply New Yorkers' yearly apple consumption of 600 million pounds, yet we import apples from other states.⁷ The loss in local market share is costly for local producers and the communities where they live, work and pay taxes. If demand for apples and other food products was met with homegrown, rather than imported, products, the profits from these transactions could be captured locally, preventing the drain of wealth from the region.

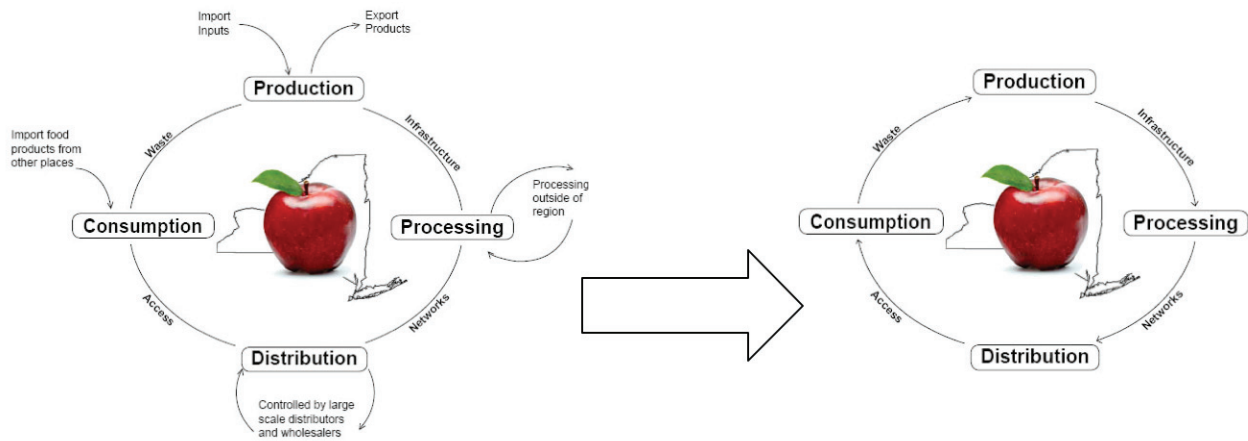
What is a Local Food System?

The food system is the chain of activities in which food products move from production to processing, distribution and consumption. In a local or regional food system the production occurs in geographic proximity to the consumers in order to capture all the added value generated by these processes within the particular community. Keeping the resulting income cycling through the local economy generates ripple effects in related sectors and promotes local economic development.

⁵ New York Apple Facts. New York Apple Association. Accessed 12.17.09

⁶ Lyson, Thomas. "From Plow to Plate: The Transformation of New York's Food and Agricultural System Since 1910". In *New York State in the 21st Century*. Editors Thomas A. Hirschl and Tim B. Heaton. 1999. Praeger Publishers: Westport, CT. and 2009 USDA Statistical Bulletin

⁷ Peters, Christian, Nelson Bills, Jennifer Wilkins and David Smith. (2003) *Fruit Consumption, Dietary Guidelines, and Agricultural Production in New York State – Implication for Local Food Economies*. College of Agriculture and Life Sciences, Cornell University, Ithaca, NY.



Because small and medium sized farmers and food processors are more likely to invest their profits to support other local businesses and projects than large scale agro-industrial firms, their growth and success has significant implications for local economic development. In the following brief we look at the economic development potential of local food systems in upstate New York and suggest ways to increase the profitability of small and medium-sized farmers. Local policy makers and officials have a key role in creating a viable local food system, particularly by supporting the development of processing and distribution infrastructure for small and mid-sized (those making under \$100,000) farmers.

The Missing Pieces: Barriers to a Local Food System

Many of the challenges to a local food system stem from the mismatch between the scale of local production and those of most remaining processing and distribution facilities. Table 1 illustrates the dramatic reduction in NYS produce processors since the Second World War. The loss in all manner of food processing infrastructure has accelerated in the last thirty years. For example, there are only 36 USDA certified slaughterhouses left in New York State, down from 101 in 1980.⁸ The high cost of building USDA-certified facilities discourages new butchers from entering the market. A small producer who raises 20-50 grass-fed beef per year has extremely limited slaughtering options, since mainstream facilities are designed to process over 500 heads of cattle per hour and most small scale facilities have year-long waiting lists. Uncertainty about access to spots at the slaughterhouse prevents local producers who would like to expand their business from doing so.

Table 1: Processing Facilities in NYS⁹

| | 1947 | 1994 | 2007/08 |
|--------------|------|------|---------|
| Apples | 55 | 17 | 5 |
| Tomatoes | 61 | 3 | * |
| Green Peas | 42 | 4 | 1 |
| Snap Beans | 52 | 5 | 1 |
| Cabbage | 22 | 6 | 2 |
| Cherries | 43 | 4 | 3 |
| Corn | 30 | 5 | 1 |
| Raspberries | 27 | * | 1 |
| Strawberries | 28 | * | 2 |

* No data

Conventional fruit and vegetable distribution networks similarly favor large-scale suppliers with a consistent product throughout the year, something small or mid-sized produce farmers simply cannot provide given the NY growing season. More and more retailers are requiring that produce be GAP (Good Agricultural Practices) certified. One of the requirements for certification is separate washrooms for leafy greens and root vegetables - an expense smaller producers can't afford. Lacking appropriately-scaled food processing infrastructure, smaller producers struggle to profitably make and distribute value-added products. Many must go through multiple middlemen and distributors, significantly reducing their profit margins. Part of creating a vibrant local food economy is rethinking how we process and distribute local food products.

⁹ Lyson, Thomas. "From Plow to Plate: The Transformation of New York's Food and Agricultural System Since 1910". In *New York State in the 21st Century*. Editors Thomas A. Hirschl and Tim B. Heaton. 1999. Praeger Publishers: Westport, CT. and Associated New York State Food Processors, Inc. Directory 2007-2008. Vol. 50. Spencerport, NY.

⁸ USDA's National Agricultural Statistics Service, *Livestock Slaughter Annual Summaries* for 1980 and 2009.

Strengthening the Local Food System: The Role of Local Governments

Despite current limitations on local governments' financial resources, we believe local officials and policy makers can actively promote the development of local food economies. We propose three key strategies for New York State officials: (1) include the agricultural sector in regional economic development plans and projects; (2) raise awareness and educate consumers about local food; and (3) work to create networks among the different actors in the local food system and build their capacity for collaboration. It is important to recognize that small and medium sized farms have somewhat different priorities. Although both types of producers will benefit from increased availability of resources, small scale producers are more likely to benefit from development of direct markets, while mid-size operations can take advantage of various processing and distribution options. We present a number of case studies that demonstrate how town and county officials can innovate to achieve these three goals.

Food and Agriculture as an Economic Development Strategy

Agriculture and food manufacturing are important to economic development and local governments can support small farmers and food processors in the same way as any other small business. Linking food growers and manufacturers to financial and technical resources, providing tax breaks, and actively marketing local agricultural products are all steps local governments can take to create and maintain small and mid-sized agricultural businesses in their areas.

Case Study: Agricultural Development in Jefferson County, New York

Jefferson County is a model for local governments trying to link agriculture to economic development. The county's agricultural development corporation provides agricultural businesses and entrepreneurs with a wealth of information and support to enable them to locate in Jefferson County. Their website provides loan and government grant information, links entrepreneurs to resources to help them implement their ideas, presents the economic development plan for the county's agricultural industry, markets local products,

and more. The county has a revolving loan fund available to production agriculture. It also provides grant writing assistance to farms and ag businesses, runs an ag workforce training program, and offers Empire Zone Benefits to ag manufacturing.

As part of the planning process, governments can compile resources and make them available in a one-stop-shop that gives producers easy access to information about existing initiatives, funding sources, and training programs. Connecting producers to Cornell Cooperative Extension (CCE) resources and funding Extension agriculture economic development educators in every county will support producers' economic viability and ability to grow their business, contributing to a vibrant local food economy.

Examples of steps local officials can take:

- Take advantage of available funding from the NYS Department of Agriculture and Markets to develop a town or county Agriculture and Farmland Protection Plan in order to protect agricultural land from being converted for other uses, and make it available for tax abatements.
- Incorporate agriculture into existing, and future, local economic development plans and initiatives and provide the same sorts of tax-breaks for new farmers and agricultural businesses that other small business start-ups receive. Work with the state Industrial Development Agencies and the Empire Zone program to allocate investments for agricultural economic development.
- Provide local producers with technical expertise and access to resources by promoting and funding CCE farm business management educators in your local area.
- Compile an easily accessible database of local farmers and food processors as well as information on funding sources and other resources for local food producers.

Creating Producer-Consumer Connections

Local governments can play a role in promoting direct relationships between local food producers and consumers. Events promoting regional foods, farmers markets and community education about local food products are all elements that contribute to a vibrant local food system.

Case Study: Chenango-Madison Bounty - Connecting Producers to Consumers

Chenango & Madison Bounty is a non-profit organization initiated by the Chenango Agricultural Development Council that is using the power of the internet to assist with the critical producer-consumer connection. The organization serves as a year-round intermediary, receiving orders from customers and communicating them to local producers in their network who offer products under their individual brands. They also act as a distribution hub, assembling and delivering orders directly to consumers and small, local retailers. The organization now accepts Electronic Benefits Transfers (EBT) – formerly food stamps – as a form of payment in order to widen their customer base and make local product accessible to all segments of the population. Chenango-Madison Bounty distributes over 900 local products from 90 producers to over 90 customers per week in Madison and Chenango counties, building connections between producers and consumers and keeping local wealth circulating in the economy.

Consumers value knowing where their food comes from and how it is produced. Promoting awareness of local products connects consumers to producers and encourages them to support the local food system. Cities and counties can encourage these relationships through ‘Local Food’ events, consumer education initiatives and farmers markets. Local officials can also make sure that EBT and other assistance allows low income consumers access to local food options. Tompkins County’s CCE, for example, funds a low income CSA program through yearly Harvest Dinners on the Farm. In addition, local governments can change their own purchasing policies to include a portion of locally sourced food. Albany County now includes local provisions in their procurement policies, serving as an example to large scale institutional purchasers of food such as schools, universities, prisons and food banks that sourcing of local food on a larger, institutional scale is possible.

Examples of steps local officials can take:

- Host and/or sponsor ‘Local Food Weeks’ or other programs such as marketing campaigns, agritourism and consumer education initiatives that raise consumer awareness of local farms and products.
- Promote farmers markets and CSAs that directly connect producers and consumers as focal points of the local food system. Work with community organizations and local farmers to develop and site markets within local jurisdictions.
- Work with state agencies to make local food accessible to all segments of the population through EBT technology at farmers markets and CSA programs for low income families.
- Amend purchasing policy for the local jurisdiction to encourage local city or county institutions to purchase directly from local producers wherever possible.

Building Relationships and Creating Capacity

Local governments can help strengthen the processing and distribution capacity of small scale operations. Often, lack of access to processing and distribution facilities prevents small and medium-sized producers from growing their businesses. Creating connections between farmers allows them to share resources such as cold storage, produce washrooms, or transportation equipment. They may also decide to cooperatively invest in processing infrastructure to add value to their products and grow their business.

Case Study: La Marquette Commercial Kitchen Incubator

A \$5 billion industry in New York City, food manufacturing provides over 19,000 jobs and supports over 30,000 more.¹⁰ The City supports food processing as an economic development tool. In August 2009, for example, it announced it would invest in a 4,000 square foot commercial kitchen in La Marquette in East Harlem to provide shared commercial workspace for food processing startups.¹¹ The City also solicited proposals for a private company to operate and manage the space. A partnership between the New York City Economic Development Corporation and La Marquette, a city-owned retail market property, the Kitchen Incubator provides talented entrepreneurs the space and equipment they need to start up and develop, with the goal of having them expand to their own space and become a viable new business that supports the development of a local food economy.

¹⁰ Speaker Quinn, NYCEDC Announce New Kitchen Incubator at La Marquette in East Harlem. New York City Council. Office of Communications. August 4, 2009

¹¹ Ibid.

Case Study: Red Tomato Alternative Distribution Network

Mid size producers are often too big to sell at a local farmer's market, but lack the scale and transportation capacity necessary to sell to grocery retailers. Red Tomato is a non-profit organization based in Massachusetts that connects close to 40 producers with over 25 markets in the North East region. Red Tomato consolidates and subsidizes the distribution costs that small-scale farmers cannot absorb and still make a profit. The organization does not provide storage or transportation, but serves as a logistics service between the farmers and the buyers. Sharing resources such as storage and transportation equipment with similar producers allows farmers access to new markets and increases revenues, in addition to creating a strong regional identity for local products.

Business incubators and certified community kitchens provide farmers and local entrepreneurs the processing infrastructure necessary to create value-added local food products, grow their business and create jobs. In addition to investing in incubator processing facilities, local governments can link farmers to food manufacturing entrepreneurs and create a mutually beneficial, economically productive relationship.

Examples of steps local officials can take:

- Organize networking events such as fairs and conferences to connect similar producers to one another or connect local producers with local processors or distributors.
- Connect producers with non-profits and entrepreneurs interested in investing in small-scale processing infrastructure and distribution through a web-based hub or print directory.
- Start a revolving loan fund that would provide capital to local producers for initial start-up costs for processing and distribution infrastructure. Such funds could be capitalized through the Rural Business Enterprise Grant of the USDA Rural Development Program.
- Where financially feasible, invest in certified kitchen incubators or other shared processing facilities that could later be turned over to private sector management or a producer cooperative.

Transforming the Way We Think: The Key to a Local Food System

The viability of different strategies will depend on the local context and what is already happening in a particular region. Programs that work in rural counties may require adjustments in more urban ones. Some strategies are more adapted to small farms while others will have more success for medium-sized farms. Counties with more financial resources will be able to invest more capital into local food infrastructure than poorer counties. It is also critical that projects be community-driven and supported by key players in the local food system rather than run only by staff members.

Our case studies demonstrate that local alternatives to the conventional food system exist. In coming together and communicating their needs, people from across the food system can develop creative strategies to collaborate, take advantage of existing resources and support each other's goals. The role of local officials and policy makers is to facilitate these connections. Policies and programs that support cooperation, coordinate existing resources, serve as business development incubators for local processors, and promote local and regional products can build a viable local food economy that supports regional economic health and vitality.

Resources for Further Reading

Jefferson County Agricultural Development Corporation:

<http://www.comefarmwithus.com>

Chenango Madison Bounty: <http://www.chenangobounty.com>

Red Tomato: <http://redtomato.org>

Northeast Center for Food Entrepreneurship at the New York

State Food Venture Center: <http://www.nysaes.cornell.edu/necfe/index.html>

Food From New York: <http://www.foodfromnewyork.org>

Nelson Farms: <http://www.nelsonfarms.org/index.aspx>

New York Industrial Retention Network: <http://www.nyirn.org>

Small-Scale Food Processors Association of NY: <http://www.nyssfpa.com/index.html>

Guide to Small-Scale Farming in NYS: <http://www.smallfarms.cornell.edu/pages/resources/businessmanage/guide.cfm>

Rural Business Enterprise Grant Program: <http://www.rurdev.usda.gov/rbs/busp/rbeg.htm>

Growing Green Jobs: A Guide to Local Energy Improvements

By **Ana Cajina**, **Kate Hess Pace**, **Anika Patterson**, and **C.J. Randall***

Energy Improvements: the Basics

Insulating walls, floors, and ceilings; replacing older windows with low-energy, double-glazed windows; upgrading inefficient appliances; and sealing air ducts can reduce total energy use by up to 40 percent. While more than 500,000 homes and rental units in New York State have been weatherized since the 1970s, there are still an additional 1.5 million households in the state eligible for weatherization assistance. Energy improvements to homes, businesses, schools, and government buildings create local jobs, reduce carbon pollutants, and lower utility bills.

Creating these 'green' energy improvement jobs – ranging from low-skill, entry-level positions to high-skill, high-paying work – can help upstate New York increase employment in a number of sectors, from manufacturing to construction. How can local policymakers encourage green job development in their community? The purpose of this brief is to help officials learn how programs in energy efficiency can operate at the local level. It addresses the variety of training opportunities, guides policymakers through the resources available to promote energy efficiency and makes recommendations so local officials can take action.

Energy Improvements: Homes

Families who weatherize their homes can expect to save \$358 on their first year's utility bills and for every \$1 invested in weatherization \$2.10 is returned in energy-related benefits. The average cost to retrofit a home is high, averaging \$8,000, and is a barrier for low- and middle-income households. However, there are incentives to help pay for energy improvements. The Federal government has established a 30 percent tax credit on the first \$5,000 spent on weatherization; the New York State Energy Research and Development Authority (NYSERDA) grants up to \$5,000. New York State's Weatherization Assistance Program (WAP), aimed at low-income renters and homeowners, is the largest residential energy conservation pro-

gram in the United States, providing \$4,500 in energy improvements to households with incomes at or below 60% of state median income. NYSERDA's Home Performance with Energy Star® Program is aimed at homeowners of various incomes, providing loans up to \$20,000 (\$30,000 in Con Edison service areas) at an interest rate as low as three percent in terms as long as ten years.

Because the process of obtaining funding for retrofitting can be complex, a simplified process for all the steps of completing a retrofit is essential. The program administrators – working in conjunction with the utility, energy auditors, and contractors – can streamline the process. Local contractors can benefit from having a mentor to guide them through the process of working with NYSERDA and other agencies that provide financing for weatherization and retrofitting projects. Ideally, this comes through market research on the amount of energy-efficient technologies and services in the area, as well as research on local demographics, housing stock, and economic activity.

Ken Schlather of Tompkins County Cornell Cooperative Extension has developed a county-by-county, town-by-town guide for all of New York State detailing the benefits of energy improvements based on census data. The program allows users to customize variables such as average household size and investment needed to calculate benefits as diverse as job years created, annual energy savings, and tons of CO2 saved.

Energy Improvements: Green Entrepreneurship

New York State funds a number of programs that provide specialized training in energy efficiency construction. NYSERDA, for example, has partnered with community colleges through the SUNY GREENS program to provide training and accreditation. Sullivan County Community College is using its NYSERDA financing to offer courses in solar and wind systems; Tompkins Cortland Community

College is providing training in weatherization, residential heating, plumbing, and air conditioning systems. Alfred State is using state funding to revamp its renewable energy curriculum.

Community college students are not the only ones who can benefit from these programs. Contractors with basic training in weatherization and retrofitting can obtain the Building Performance Institute certification (BPI). As an incentive, NYSERDA will reimburse local contractors 75 percent of the \$10,000 cost of obtaining the BPI certification. Homeowners receiving state funding for weatherization are required by NYSERDA to have their retrofitting and weatherization done by a BPI-certified contractor.

Economic development offices at the county level can contribute to growth in the green economy by developing a revolving loan fund for green businesses in need of start-up or expansion capital. Green investments can also help revitalize the manufacturing sector in New York State. There are already companies in New York creating the products needed for weatherization: Ultrafab in Farmington, just south of Rochester, manufactures weather stripping; Syracuse's Comfort Windows manufactures and installs Energy Star® windows from Buffalo to Albany, and Owens Corning's Bethlehem, NY plant manufactures insulation. McGraw-Hill Construction research predicts the market for nonresidential green building retrofits projects will grow to between \$10.1 and \$15.1 billion by 2014 and that green buildings will comprise a 20-30 percent share of the U.S. retrofit and renovation market in five years, up from its 5-9 percent stake today.

Energy Improvements: Local Government

Local governments can support local businesses and bring about significant improvements in environmental quality in the region by developing sustainability master plans. As a major landowner, employer, building manager, and consumer of goods and services, each local government in New York State has the opportunity and capacity to increase the resource efficiency of government facilities, to practice "restorative redevelopment" and to build and buy green. By fostering collaboration and integrating environmentally sustainable practices into local government policies, procedures, and operations,

a sustainability master plan promotes responsible management and effective stewardship.

Following the federal government's lead, communities from Berkeley, CA to Babylon, NY have classified CO₂ as a pollutant, thus taking the first step toward regulating building emissions and increasing energy efficiency. A number of communities in New York State have adopted policies to ensure that energy efficiency programs will create a positive economic impact in their communities. These policies are intended to not only reduce utility bills for consumers, but also to create local jobs.

Some examples of these initiatives include:

- Energy audits - A number of communities have discussed the benefits of making energy audits mandatory as this creates a market for energy efficiency construction. In New York State, NYSERDA has incentivized this with a low-cost (\$100 to \$400, depending on current electricity usage) audit for industrial and commercial facilities, State and local governments, not-for-profit and private institutions, colleges and universities, K-12 schools, and non-residential facilities.
- Energy Financing Districts (EFDs) – These were first developed by local governments as a way to finance residential and commercial clean energy projects. Babylon, N.Y. did this by following New York Property Tax Law § 102 (15) and (16) which allow for the establishment of "special districts" for improvements such as weatherization.
- Property Assessed Clean Energy (PACE) loans – Financing is repaid over a number of years through a "special tax" or "assessment" on the property tax bill of those property owners who live in the EFD and who choose to participate in the program. In addition to lower utility bills, benefits of EFDs include low-interest loans for homeowners and tax-deductible interest payments. Participating cities include Berkeley, CA, Albuquerque, NM, Ann Arbor, MI and Babylon, NY.

Energy Improvements: Resources

The Rapid Deployment Energy Efficiency Toolkit has been designed by the Department of Energy with states and localities in mind. It includes key considerations in program selection and budgeting, such as reasonable program costs, energy savings, and jobs to expect from each program; the toolkit has comprehensive planning and implementation guides as well as marketing and timeline templates. http://www.epa.gov/RDEE/documents/rdee_toolkit.pdf.

The State has launched a new web site to assist those seeking to enter the new green job sector. The site – www.greencareer-sny.com – is designed to make it easy for individuals, businesses and workforce professionals to find the State's local training programs and green job opportunities.

Local Businesses and Governments may benefit from partnering with organizations such as the Upstate Green Business Network. <http://www.ceinfo.org/ugbn/index.php>

The Center on Wisconsin Strategy has an excellent guide to starting up a city-level energy efficiency program. <http://www.cows.org/me2>.

NYSERDA's site has a wealth of information for New York State residents, contractors, and officials. <http://getenergysmart.org>

Existing and future PACE program details, toolkit, and legal analysis. <http://www.pacenow.org>

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