

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

New Jersey Draft Global Warming Response Act Recommendation Report January 9, 2009 Stakeholder Meeting – Terrestrial Sequestration and Agriculture Summary of discussion and written comments

FOCUS QUESTIONS

1. What do you foresee as major barriers/constraints to successful implementation of the recommendations in this area (Terrestrial Sequestration and Ag.)?
2. What measures (including incentives) would you propose to address or help overcome the barriers/constraints identified?
3. If you know of any program or initiative that has been implemented in other states that are similar to any of the recommendations, please share relevant information or lessons learned that might be helpful.
4. What energy efficiency practices would you consider to be the most cost-effective in greenhouse construction and operation? Which would you consider to be affordable for use in "retrofitting" existing greenhouses?
5. How can the state create incentives for the construction of regional anaerobic waste treatment facilities for use by the agriculture community? What price point would discourage the generators of animal manure and other organic agricultural wastes from using such a facility for disposal?

SUMMARY OF DISCUSSION AND WRITTEN COMMENTS

Forestry

- Support the Berkeley Triangle Plan to thin the Pine Barrens.
- Include the New Jersey Forest Service on the Science Advisory Council.
- Renew funding for the Garden State Preservation Trust. This is an agriculture concern in addition to being a forestry concern, because the PSPT funds the state farmland preservation program.
- Improve the state nursery, expand stewardship on state land and addressing forest health, namely gypsy moths.

- Two main active forest management approaches to addressing climate change are: mitigation through sequestration and adaptation to position forests to become healthier. Adaptive strategies include increasing resistance to insects, diseases and wildfires and increasing resilience for recovery after a disturbance .
- Forest management is a principal method whereby forests are regenerated, and incentives are necessary so that forest regeneration proceeds on a scale necessary to ensure the future sustainability of NJ forests .
- Explore the use of certain tree species, like poplars, that could increase carbon uptake.
- Issue recommendations (in relation to proposed NJ Forest Stewardship legislative amendment) that would support the state's green infrastructure on private lands including incentives as well as disincentives against reducing biomass .
- Farmland assessment should not use dollars produced per acre as the criterion for allowing woodland to qualify. A better qualifying criterion would be active management in accordance with a sustainable forest management plan .
- Study engagement in carbon markets to promote and fund urban and community forestry. Look for successful models. Rutgers University and University of Vermont are undertaking such a study.
- The widespread leasing of land is the result of agricultural land tax assessment. Landowners get a huge tax break for leasing their land to a farmer. An equal tax incentive could be offered for the same lands to be managed as stewardship forests.
- The GSPT must either be re-funded or an 'outside the box" solution be provided to allow the continuation of open space preservation programs in NJ. Use of carbon credits for forest preservation is one such out-of-the-box solution. Recognizing that most of NJ's forests are privately owned, often in small parcels, the approaches used in other situations may not be particularly productive.
- Afforestation should be pursued where reestablishment of large forest blocks is facilitated, in denuded riparian areas, and on easily eroded soils that were historically forested.
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Soil preservation

- Establish an impervious surface limit.
- An impervious surface limit on preserved farms would be good mechanism for soil preservation because preserved farms have access to taxpayer dollars.
- Promote soil health as a policy objective. Promoting long-term soil health will require the maintenance of institutional structures that are immune from short-term funding pressures and political constraints.
- Research on impact of invasive earthworms on soils is needed. It is believed that invasive earthworms consume the organic layer (leaf litter/humus). Soils with low organic content freeze more readily than organic-rich soil. Frozen soil acts as an impervious surface, leading to runoff, erosion, and reduced sequestration potential. Research funding is required to investigate this emerging problem. Biological controls may be appropriate.

- Residential landscape practices (removing organics) lead to soils with low organic content, which are prone to freezing. Frozen ground lead to impervious surface. Conflicts between municipal policies constrain options for green landscaping practices. Example: one local agency encourages mulching, another agency (health department) will issue a fine.

Wildlife – deer

- Afforestation is not economically viable because of the necessity for deer fencing. The deer management approach must be completely revamped and replaced with new paradigm. Deer must be commoditized.
- Hunting is not sufficient to control deer populations. Hunting is down, butchering costs are up.
- Make it illegal to feed deer. Deer seek winter refuge in areas where people feed them; these are areas that are closed to hunting. This contributes to the increase in the deer population.
- We are using the wrong metric to assess the impact of deer on forests. Use vegetative growth as a metric, not number of deer. The number of deer doesn't matter; what matters is the impact of deer on the forest regeneration.
- Under the Trust Resource Doctrine, the State has control over deer management.

Wildlife – other than deer

- Include wildlife and plant species adaptation strategies in the adaptation plans. (MD, VA)
- Seek federal funding for wildlife adaptation strategies.
- Geese must be included in wildlife management plans. An increase in wetlands will lead to a decrease in geese populations.
- Switchgrass can reduce bird and wildlife habitat if the stand is too dense.
- Convene a working group to address adaptation of natural communities as an intrinsic and important aspect of the state's response to global warming .
- Plan for scenarios that, at the minimum, include sea-level rise, changes in precipitation and weather patterns, changing forest types, and increasing invasive plants and animals and pest insects .
- Create a central clearinghouse for research and publications on actual and projected climate change effects to inform state, federal and non-profit land managers and regulators .
- Develop an amendment to the state's Wildlife Action Plan that sets out recommendations for the state's biology and regulatory programs to aid adaptation of natural communities

Greenhouses – energy issues

- Potential energy efficiency measures for greenhouses: floor heating, cogeneration, automated controls for greenhouse energy control, improved lighting technologies, shade curtains, geothermal heat pumps for heating and cooling, waste heat recovery, recovery of water runoff from greenhouse roofs, geothermal heat pumps for greenhouse heating and cooling (there are rebates for geothermal installations for this sector.)

- There are demonstration projects for greenhouse energy efficiency technologies at the Rutgers Eco-Complex.
- There are energy efficiency measures in existence that are well-known in the industry, but that are not implemented widely.
- Updated research on energy efficiency practices for greenhouses is needed. Existing research is 20 years old.
- Waste heat recovery: Greenhouses that are located in urban areas can take advantage of urban heat sources, such as sewer system wastewater. Don't think of greenhouses as strictly a rural activity.
- The Societal Benefit Charge can only apply to electricity. Perhaps we make the SBC apply to heating oil to incentivize alternative fuels
- The practice of measuring energy efficiency in unit input versus unit output is inappropriate in greenhouses. Energy efficiency in greenhouse should be measures in unit input per unit area. The units are not comparable.[do I have this backwards?]
- Conversion from fossil fuel boilers to biomass boilers for greenhouse heating: Can be an effective way of using agricultural biomass for heating greenhouses. Problem: permitting fees for biomass boilers can be prohibitive (example: a \$25,000 permit fee for a biomass burner, versus no fee for the old system, which did not require a permit.) Pelletizing mills are necessary to densify grasses to be used as biomass boiler feedstocks. Provide federal and state funding for switchgrass growth and boiler conversion.
- Creation of a state program for energy tax deductions or credits available for greenhouse growers to make technical changes that address energy use and efficiency will be critical .

Greenhouses – siting issues

- Clarify the definition of “disturbed sites”. Define forest as “undisturbed”.
- The proposed provision on greenhouse siting on disturbed land is good.
- Don't build greenhouses on preserved farms. Preserved farms are funded with taxpayer dollars; if greenhouse are permitted to be built on these lands, there is a danger that public support for farm preservation programs will suffer.
- It is current practice for farmers intending to build a new greenhouse to develop a farm conservation plan (with assistance from USDA-NCRS) that includes measures to protect soil and water and other resources as well as conserving energy .

Greenhouses – other issues

- There is marketplace demand for winter greenhouse tomatoes. Encourage local production of greenhouse tomatoes and other vegetables. Other states and countries are shipping them into New Jersey; we should support NJ-based businesses..
- Don't craft regulation in such a way as to discourage spring and fall production.
- High tunnels are not greenhouses. Don't lump them into the same category for greenhouse regulations.

- Emphasis on greenhouses is misplaced with regard to agriculture and GHG reduction . Comparison with field crop energy use inaccurate as this is distinctly different production system. Report fails to specifically identify and quantify the GHG emissions of the NJ greenhouse industry.
- Use "best management practices" instead of " agricultural management practices" as more correct terminology .
- Food miles and local-versus-imported products are major concerns that should be addressed. Mandating practices for greenhouse growers is ill advised. Without appropriate justification they may create disincentives for growers to continue producing in NJ .
- State should fully fund and support projects like Rutgers Food Innovation Center and similar idea tanks to create locally produced products and businesses that will reduce demand for exotic goods out of season

Agriculture, other than greenhouses

- The agricultural measures in the plan are technically feasible. The challenge is to make them economically feasible and economically sustainable. Institute funding mechanisms to support them.
- Most farmers are tenant farmers, that is, they don't control the land that they farm. So it is hard for them to make the investment. Need longer-term state leases to farmers to make it worth their investment.
- Sequestration from organic farming exceeds that from traditional farming. Consider the recommendations in the Rodale Institute Report, May 2008 on the potential of organic agricultural practices to sequester CO₂. This is a thirty-year study.
- See the Iowa greenhouse gas response plan for many agriculture recommendations for carbon sequestration.
- The PA Farm Bureau registers CO₂ savings with the Global Emissions Exchange. GEX aggregates them, and sells them on the Chicago Climate Exchange.
- Use market-based mechanisms to incentivize behavior.
- Create a two-tiered ranking system in the Farmland Preservation Trust. The farmland preservation program should not rank projects for potential funding based on prime soils if they know that the intent of the farmer is to regrade the land and pave it for greenhouses. Implement a two-tiered ranking system: one based on soil quality for land farmers, and a second based on soil quality for greenhouse farming. This would reduce degradation of prime soils that results from greenhouse siting. For greenhouse farming projects, location to markets, travel routes, utilities and be weighted higher for greenhouse farming in order to centerize these actives on non-prime soil lands. Might even brownfields be considered for greenhouse siting?
- Use of biochar (charcoal created from the burning of biomass) in soils has two benefits: (1) biochar can improve soil quality; and (2) biochar can sequester carbon. Biochar projects might qualify as offset projects.
- Add new section to highlight agriculture's potential as a carbon sink and provide NJ farmers the same opportunities to sell carbon credits as farmers in the Midwest.

- Mandating farmers to use minimum tillage, no tillage, and cover cropping practices may disqualify those farmers from receiving financial and technical assistance from U.S. Farm Bill because the federal programs assumes voluntary participation .
- In general, the state will find best results with a combination of market-based incentives and disincentives.
- Not only should the state support cover crops (during winter), but add incentives for time the field has a crop growing or for the diversity of species over a multi-year period.
- Cover crops are an excellent idea but they are not always possible. This is especially true of NJ farmers many of whom grow cool season crops that are in the fields well into November and December. It is too late in the season to establish a cover at that time of the year. The recommendation should not penalize them for this situation.

Regional anaerobic waste treatment facilities

- Create co-ops of dairy and/or other livestock producers to co-op manure. This is the only way to collect enough manure to make these facilities profitable.
- Transportation cost and regulations are concern for these facilities
- Food waste and wet leaves are good for anaerobic digester. Facilitate siting of projects so you can get manure, food waste, etc all together. Germany is running projects with “green chop”.
- Do a RPS carve out for waste gas to electricity as a class two resource.
- Regional anaerobic digesters could be offset projects. However, if it is eligible for the Renewable Portfolio standard, you can *not* use it as an offset. Caveat: If the project is eligible for the RPS, and the “offset” is *not* sold as a Renewable Energy Credit, it *can* be used as an offset.
- Is it feasible to site these facilities at landfills? Success would depend on economics, feedstocks, incentives.
- Horse stall and dairy barn bedding and waste can be a feedstock, either for compost or as feedstock for an anaerobic digester.
- DEP is doing a rule on animal waste. Smaller livestock operators will need outlet for their waste.
- Methane abatement pilot project seems good in theory but implementation issues must be addressed such as streamlining regulations to make regional digester work. Who should be the principle responsible party for the digester? Will it be the state, the county, or an independent entity? These issues need appropriate responses .
- Permitting issue for centralized manure collection must be addressed.

Outreach and education

- Do outdoor projects, not just classroom projects. That is, design experiential learning activities that dovetail with environmental goals and meet curriculum standards. This can be implemented today.

- Many farm practices exist because of family farming methods and traditions that get passed on. Education is necessary to encourage buy-in for new practices.
- Outreach is required to educate perspective project developers about funding opportunities that can be provided through the voluntary offset market.
- The Rutgers Extension Agent program s is a good educational model.
- There are incentive available for sustainable practices in the agriculture sector. Outreach is required to publicize the availability of these programs.
- Fuels for Schools and Beyond is a project using biomass boilers with local feedstocks. (PA)
- Pilot projects and demonstration projects that show that changes is possible can empower communities and contribute to a cultural shift. Example: urban forestry. (NY Million Tree Initiative)
- Management of open spaces (GSPT acquired/supported) can maximize carbon sequestration, as well as many other public goods. There needs to be funding and support for the community organizing effort necessary to "adopt" and manage these parcels .
- Need to educate consumers on the impact their buying habits have on GHG emissions. Efforts are under way in Europe to quantify the carbon footprint of packaged foods and make it available on the label. This is a possible action item for NJ.

Green remediation

- EPA Green Remediation Reports has examples of green remediation.