

Farm Technology Review Commission

2010 Annual Report of the Farm Technology Review Commission to Governor Patrick and the Massachusetts State Legislature

May 2010

This document was prepared by the Massachusetts Farm Technology Review Commission

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EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS



Department of Agricultural Resources

Farm Technology Review Commission

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Dear Governor Patrick and Members of the General Court:

The Farm Technology Review Commission (“FTRC” or “Commission”) respectfully submits this report pursuant to Chapter 310 of the Acts of 2008, the Dairy Farm Preservation Act (“the Act”).

The ability of agriculture to adopt new technologies is important to ensure that it remains economically viable and environmentally sound. Over the past few years, farms in Massachusetts have been actively diversifying their operations to remain viable. The Green Communities Act and programs such as the Massachusetts Farm Energy Program have allowed agricultural operations to be at the forefront of a new era of renewable energy and energy conservation. Within the year we expect to see anaerobic digesters generating electricity on farms by combining agricultural by-products with municipal organic waste. In addition to providing an important organic waste management tool, farms will also help the state meet its solid waste management goals and serve as a valuable energy producer.

However, as farms diversify their operations, regulatory challenges – environmental, public health, and taxation - are presented. Often the regulatory framework is not flexible or swift enough to adapt to the new technology. Since December 2009, the Commission has started the process of reviewing regulatory barriers and challenges to the adoption of technologies on farms. By focusing on three distinct areas – Revenue and Taxation, Regulatory Issues, and Energy, the Commission will identify the barriers and recommend solutions to any problems.

I am delighted to be able to present this first report which outlines progress, objectives, and recommendations of the Farm Technology Review Committee. The talent and experience of the members of this committee are considerable and an important asset to the sustainability of the Commonwealth’s agricultural identity and future.

Sincerely,

Scott J. Soares
Commissioner
Department of Agricultural Resources

CC:

Farm Technology Review Commission; Commissioner Laurie Burt, MassDEP;
Commissioner John Auerbach, MDPH; Commissioner Navjeet K. Bal
Dairy Farm Revitalization Task Force Members

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Executive Summary

The Farm Technology Review Commission (“FTRC” or “Commission”) was created as a result of the 2008 Dairy Farm Preservation Act¹ (the “Act”) with the recognition that existing regulations and statutes can negatively impact the agricultural industry by preventing the adoption and implementation of new technology. Although this commission was brought into existence by the Act, the scope of the Commission’s work is not limited to just dairy and energy related issues, but broader technological needs.

The Act creating the Commission outlined several areas of focus, particularly related to energy. Specific tasks for the Commission include:

- Studying ways to promote energy conservation, collaborative purchasing, purchasing and selling of energy, energy saving technology, and alternative options for sustainability and growth; and
- Analyzing current regulations and statutes to ensure such regulations and statutes are not impediments to the adoption of farming technology

The Commission also decided to consider a list of twelve (12) recommendations generated by the Dairy Farm Revitalization Task Force (“Dairy Task Force”). While some of the recommendations have been fully or partially implemented, several have yet to be addressed. Among these recommendations are several areas of taxation regulation for study; the preemption of municipalities from regulating agriculture; the re-establishment of a Dairy Commission; and the exemption of silage leachate from state waste regulations if disposed of using Natural Resources Conservation Service (“NRCS”) standards. A summary of the status of the recommendations is presented in Table One.

To most effectively address these recommendations and its statutory obligations the Commission decided to concentrate on the following areas:

- **Revenue and Taxation:** To review and address taxation-related recommendations made by the Dairy Task Force, including the exemption of multi-purpose equipment vehicles from sales tax
- **Regulatory Models and Barriers:** To explore the intersection of environmental and public health regulations with standard agricultural practices and to review and analyze regulatory barriers
- **Farm Energy:** To review and promote energy conservation, collaborative purchasing, purchasing and selling of energy, energy saving technology and alternative options for sustainability and growth

¹ Section 11 of Chapter 310 of the Acts of 2008, The Dairy Farm Preservation Act

Recommendation	Outcome
1. The ability of farmers to use viability funds on farms with Article 97 restrictions	APR Improvement Program (AIP): In FY2010, 10 farms participated with \$550,000.00 in grant funding. FY2011 applications are due on June 30, 2010.
2. Establish a state tax credit to include all excise taxes on animals, machinery, and equipment	Section 2 of the Dairy Farm Preservation Act. Voters of a city or town may approve a referendum. 8 towns have passed referenda to date.
3. Milk waste generated on a farm shall be treated in the same manner as other animal waste	MDAR executed MOA regarding MHW management with DEP and established pilot program. One year anniversary April 1 st , 2010.
4. Farm Wide Net Metering for Agriculture	Net metering took effect on December 1, 2009.
5. Regulatory Issues concerning small temporary slaughtering facilities	<i>DPH review of pilot program for mobile poultry processing. Extended pilot for another year. Slaughtering issues remain to be addressed for four-legged animals.</i>
6. Pre-empt municipalities from regulating agricultural activities	<i>Extent of recommendation is viewed as currently too strongly stated. Issue is under review and recommendation will be forthcoming by Commission.</i>
7. Grants or Low Interest Loans to farmers for capital improvement	<i>To be reviewed and includes an action item to find alternative funding mechanisms for the Linked Loan Program established and defined per the Act</i>
8. Exempt multi-purpose equipment from sales tax	<i>Under review to determine criteria that could be used to expand the exemption for agriculture</i>
9. Estimated income tax	<i>Provisions do exist for farmers in the law which allow them to opt out of estimated payments and pay tax return instead by March 1st of the following year.</i>
10. Amend GL c. 59 Sec 8A to allow corporations the same excise tax exemptions as other persons	<i>Statutory change with expected resistance by municipalities</i>
11. Re-establish a Dairy Commission	<i>To be reviewed and will be followed by Commission recommendation</i>
12. Silo leachate exempt from state waste regulations if disposed of pursuant to NRCS BMPs	<i>Under review as part of regulatory review group; recommendations to follow</i>

Table One: Status of Dairy Task Force Recommendations (*issues addressed by FTRC in italics*)

Revenue and Taxation

The three specific taxation related issues raised by the Dairy Task Force were addressed over the course of the first few meetings of the Commission. The issues included the following:

1. **Sales Tax:** The Dairy Task Force recommended exempting multi-purpose equipment vehicles from sales tax. Unlike farm equipment that is for exclusive use on the farm and which is exempt from sales tax, a multi-purpose piece of equipment, such as a truck, purchased for use *primarily* on the farm, *is* subject to sales tax. The application of the modifier "*primarily*" is an issue which has been unsuccessfully advanced by other sectors. Exploring options to allow for a targeted credit for a specific agriculturally related activity, such as preservation of open space or waste management by anaerobic digesters, might be more productive.

The FTRC also identified a need for MDAR to review taxation implications for renewable energy systems on farms and other areas of diversification for farms, such as composting.

2. **Estimated Income Tax:** A recommendation by the Task Force to allow farms to pay estimated income tax on money actually received on date estimated quarterly payments are due to be filed was found to be addressed through an existing exemption.

3. **Excise Tax:** The recommendation to amend MGL C.59 Sec 8A to allow corporations to enjoy the same excise tax exemptions allowed to other persons would require a statutory change because the statute defines who is entitled to the exemptions.

Regulatory Issues

With increasing demand for locally produced food, the need to address barriers to growth in local food systems, particularly as they relate to processing has increased. For example there is a lack of access to processing facilities for red meat for local sale and consumption. There is also a need to clarify uncertainties around the regulation of standard agricultural practices, such as the application of waste materials, like liquid manure, to the land for their nutrient value. Typical agricultural activities or operations which could potentially trigger Massachusetts Department of Environmental Protection ("MassDEP") regulations include the application of livestock waste; wastewater from the washing of vegetable produce, fruits, berries and eggs; various waste management practices at maple sugaring operations; wineries; greenhouses; manure slurry management; dairy wastewater management from milking and bottling operations.

State agencies have been working together to address many of these issues and have employed a number of mechanisms such as pilot programs and memoranda of understanding. Currently there are pilot programs in place for sale of shellfish at farmers markets; the use of vegetated treatment areas to manage milkhouse wastewater; and the use of a mobile poultry processing unit to process poultry.

To address these and other issues of concern, the Commission has established a subgroup to focus specifically on regulatory streamlining issues, particularly those involving state agencies. The group includes representatives from MassDEP and the Massachusetts Department of Public Health ("MDPH"). The sub-group

has requested support from, and participation by, NRCS as it deals with the technical issues of conservation practices.

The FTRC Regulatory Subgroup has interacted with a MassDEP intra-agency workgroup which has started work on proposed changes to the Groundwater Discharge Permit program (314 CMR 5.00). The primary changes the workgroup is focusing on are:

- clarifying current language in the regulations that addresses exemptions for the land application of manure; and
- additional agricultural land application practices, that when conducted in conformance with BMP's and other conditions should be exempt from DEP permitting processes, for example liquid manure (manure mixed with processing wastewater) that is land applied at agronomic rates according to BMP's developed by NRCS.

An official regulatory development and promulgation process would be initiated to formally adopt these changes.

Farm Energy

The energy-related topics which the FTRC is commissioned to make inquiry under the Dairy Farm Preservation Act include:

- Possibilities for Group Purchasing;
- Energy Efficiency; and
- Renewable Energy and Sustainability Options

To address these issues, the Commission has reviewed current programs and regulatory structures affecting energy as related to agriculture, and is in the process of exploring further opportunities as commissioned by the legislature. Specifically, the Commission reviewed existing programs that offer technical assistance, grants, and rebates for farmers to address energy issues. The Commission reviewed Massachusetts programs as well as programs in other states. Further, the Commission reviewed various regulatory incentives for energy conservation, energy efficiency, and renewable energy projects.

Regarding "group purchasing of energy", the Commission has concluded that a group electricity purchasing effort that delivered savings to all members in excess of the existing 10% discount would be possible from time to time, depending on market conditions, but would be difficult to achieve reliably year after year. For propane and heating oil, where there is no agricultural discount, farmers may benefit from contracting with a competitive supplier, but there is little additional savings to be realized from group purchasing. However, farms consuming either electricity or natural gas for operations can benefit from technical assistance regarding their contracting options – advice regarding these options may be something that can be made part of technical assistance offerings such as DAR workshops or extension service publications.

Moving forward, the Commission has identified three potential broad action areas for addressing the above mentioned energy issues:

- Ideas for education and outreach programs;
- Potential programmatic activities that the Commonwealth could foster to help advance some of the ideas; and enhance and further some of the existing efforts already underway.
- Possible future recommendations from the commission regarding legislation or regulatory changes.

Future Inquiries of the FTRC

1. The FTRC identified a need for MDAR to provide guidance to the agricultural community on state taxation implications as they relate to renewable energy installations, net metering, and other forms of agricultural diversification such as agricultural composting.
2. Review options for targeted tax credits such as Open Space Preservation.
3. Review the regulatory process at the state and federal level, the demand for and financial viability of slaughtering facilities for local meat processing for local sale.
4. Continue to work with MDAR, MassDEP, MDPH and agricultural stakeholders such as the Natural Resources Conservation Service (NRCS) to develop a mechanism to ensure that farmers can maximize the resource potential of their operations while complying with environmental regulations.
5. Review and analyze the recommendation to pre-empt local regulation of agriculture.
6. Conduct a technical session at the Massachusetts Health Officers Association conference in the fall of 2010. The proposed session will focus on issues of local interest related to some of the evolving technologies and strategies for renewable energy and sustainable agricultural practices.
7. Explore funding opportunities for technical improvements on farms including a review of the effectiveness of the Agricultural Innovation Center.
8. Furthering through funding assistance, project implementation and regulatory framework the farming technologies associated with anaerobic digesters, “green” structures, geothermal, biomass and bio-fuels.
9. Promotion of energy conservation through working with farms, trade groups and utilities in the formation of their new energy efficiency programs as well as furthering and advancing the existing MA Farm Energy Program.
10. Promotion of collaborative purchasing through identification of potential net metering nominees, SREC aggregation, and a voluntary REC program for renewable farm projects.
11. Additional areas for future consideration include: education and outreach to local officials and Boards of Health in matters pertaining to anaerobic digesters in collaboration with sister agencies DEP and DPH; to seek alternative mechanisms to fund the Linked Loan Program established under the Dairy Preservation Act and the MA Farm Energy Program; education and outreach to farms in matters pertaining to net metering and Farm Energy Discount program.

Introduction

Annually on April 1st, the Farm Technology Review Commission (“FTRC” or “Commission”) is required to submit a report to the governor and the legislature on the results of its investigation and study, and its recommendations. The Commission was created as a result of the 2008 Dairy Farm Preservation Act² (“the Act”) with the recognition that existing regulations and statutes can negatively impact the agricultural industry by preventing the adoption and implementation of new technology, thereby impacting on economic development within the Commonwealth.

The Commission is chaired by the Commissioner of the Department of Agricultural Resources, Scott J. Soares, and is comprised of state officials and farming representatives. State agencies participating include the Department of Environmental Protection (“MassDEP”); the Department of Public Health (“MDPH”), the Department of Revenue (“DOR”) and the Massachusetts Technology Collaborative (“MTC”), now represented as the Clean Energy Center (“CEC”). Three dairy farmers representing the Massachusetts Association of Dairy Farmers, the New England Producer Handler Association, and the Massachusetts Cooperative Milk Producers Federation, respectively, have also been appointed. Each member serves for a term of three (3) years.

The specific duties of the Commission are to study and recommend options for updating farming technology including, but not limited to ways to promote energy conservation, collaborative purchasing, purchasing and selling of energy and energy saving technology. In addition, the Commission will also recommend alternative options for agricultural sustainability and growth, and analyze regulations and statutes to ensure that they are not impediments to the adoption of farming technology.

The Commission’s investigations, as well as its recommendations, and any drafts of legislation necessary to carry out these recommendations are required to be included in the report. The Commission will also analyze any existing regulations that might impact on the implementation of these recommendations.

Although this commission was brought into existence by the Act, the scope of the commission’s work is not limited to just dairy and energy related issues, but includes broader technological needs.

Setting Direction for the Commission

The statute creating the Commission outlined several areas of focus, particularly related to energy. Specific tasks for the Commission include:

- Studying ways to promote energy conservation, collaborative purchasing, purchasing and selling of energy, energy saving technology and alternative options for sustainability and growth, and
- Analyzing current regulations and statutes to ensure such regulations and statutes are not impediments to the adoption of farming technology.

The Commission also decided to consider a list of twelve (12) recommendations generated by the Dairy Farm Revitalization Task Force (“Dairy Task Force”) (Table 2). While some of the recommendations have been fully

² Section 11 of Chapter 310 of the Acts of 2008, The Dairy Farm Preservation Act

or partially implemented, several have yet to be addressed. Included within the recommendations were several areas of taxation regulation for study, the preemption of municipalities from regulating agriculture, the re-establishment of a Dairy Commission and the exemption of silage leachate from state waste regulations if disposed of using Natural Resources Conservation Standards (“NRCS”) standards.

A number of the recommendations of the Dairy Task Force have been adopted and either fully or partially implemented. These are, referencing the aforementioned Table 2:

Recommendation 1. The ability of farmers to use viability funds on farms with Article 97 restrictions:

The ability of farmers to use viability funds on farms with Article 97 restrictions was identified as a key concern. Up until 2009, farms protected by an Agricultural Preservation Restriction had been unable to receive funds from the Farm Viability Enhancement Program. The Farm Viability Enhancement Program integrates technical assistance and business planning along with access to capital and farm land preservation for farms. The Dairy Task Force identified the need to provide these valuable and proven services as well as funding to the APR farm community. In 2009, the state addressed the concerns expressed by creating the **APR Improvement Program (“AIP”)**.

Ten (10) farms were selected into AIP for FY2010 and technical assistance and business planning elements are underway for these farms. Grant awards will range from \$25,000.00 up to \$100,000.00 with average awards at around \$50,000.00. Additional details are available at: <http://www.mass.gov/agr/programs/aip/index.htm>

Recommendation 2. Establish a state tax credit allowing such credit to include all excise taxes on animals, machinery and equipment:

Another recommendation of the Dairy Task Force was to establish a state tax credit allowing such credit to include all excise taxes on animals, machinery and equipment. This has been addressed under Section 2 of the Act which allows voters of a city or town to approve a referendum to have the assessors stop assessing excise on farm animal and machinery. As of May 2010, the Commission is aware of eight (8) towns have ceased assessing excise tax on farm animals and machinery: Berlin; Stow; Rowley; Oakham; Cambridge; Hatfield; Ashfield; and Westhampton.

Recommendation 3. Milkroom waste or milk waste generated on a farm shall be treated in the same manner as other animal waste:

The recommendation of the Task Force that milk-room waste or milk waste generated on a farm shall be treated in the same manner as other animal waste has been addressed somewhat through the creation of a pilot program and the development of a Memorandum of Agreement between MassDEP and MDAR around the use of a vegetated treatment areas for management of milkhouse wastewater. This issue is further discussed in Section 2 on Regulatory Issues (page 18).

Recommendation 4. Farm Wide Net Metering for Agriculture:

Net metering for wind, solar, and agricultural energy installations under the Green Communities Act took effect on December 1, 2009, under an order adopted by the Department of Public Utilities (“DPU”) on November 13, 2009. The Green Communities Act includes specific provisions for Agricultural Net Metering facilities whereby farms are able to install additional electrical renewable technologies besides wind and solar.

Installed capacity to date for more than 25 MA farms is over 600 kW with 750,000 kWh anticipated to be net metered. An additional 2,000 kW (2 MW) of installed capacity, representing over 10,000,000 kWh to be net metered, is anticipated within the next two years, of which approximately 1,400 kW is associated with anaerobic digesters on dairy farms, i.e. non- wind and PV. Furthermore, proposed larger scale wind projects could easily double those figures.

Recommendation 5. Regulatory issues concerning small temporary slaughtering facilities include site assignment and regulatory requirements

The creation of a pilot program to allow poultry farmers to use a Mobile Poultry Processing Unit to process chickens for direct sales, has partially addressed this recommendation. The problem of access to slaughtering facilities for four legged animals remains however.

In addition the Commission will consider the other listed recommendations such as those related to taxation; pre-emption of municipalities from regulating agriculture; grants or low interest loans to farmers; the re-establishment of a Dairy Commission; and the management of silage leachate.

To most effectively address these recommendations and its statutory obligations the Commission decided to concentrate its efforts on the following areas:

- **Revenue and Taxation:** To address the recommendations that: multi-purpose equipment vehicles should be exempted from sales tax; that farmers should be allowed to pay estimated income tax on money actually received on date estimated quarterly payments are due to be filed; and that MGL c. 59 Sec 8A should be amended to allow corporations the same excise tax exemptions allowed to other persons
- **Regulatory Models and Barriers:** To explore the intersection of environmental and public health regulations with standard agricultural practices and investigate and analyze regulatory barriers that are presented to the diversification of operations in order to remain viable. To more directly address this need a regulatory subgroup of the Commission has been established. Included among the issues to be addressed by this group is the management of silage leachate as recommended in the task force report.
- **Farm Energy:** To study ways to promote energy conservation, collaborative purchasing, purchasing and selling of energy, energy saving technology and alternative options for sustainability and growth.

This report outlines the direction that the Commission will take over the next year.

Recommendation
1. The ability of farmers to use viability funds on farms with Article 97 restrictions
2. Establish a state tax credit allowing such credit to include all excise taxes on animals, machinery and equipment
3. Milkroom waste or milk waste generated on a farm shall be treated in the same manner as other animal waste
4. Farm Wide Net Metering for Agriculture
5. Regulatory Issues concerning small temporary slaughtering facilities including site assignment and regulatory requirements
6. Pre-empt municipalities from regulating agricultural activities
7. Grants or Low Interest Loans to farmers for capital improvement
8. Exempt multi-purpose equipment vehicles from sales tax
9. Allow farms to pay estimated income tax on money actually received on date estimated quarterly payments are due to be filed
10. Amend GL c. 59 Sec 8A to allow corporations the same excise tax exemptions allowed to other persons
11. Re-establish a Dairy Commission
12. Silo leachate exempt from state waste regulations if disposed of pursuant to NRCS BMPs

Table Two: Farmer Task Force Member Recommendations Submitted Pursuant to Task Force Request

Revenue and Taxation

Because the Dairy Task Force report clearly identified several areas of taxation regulation for study, the Commission focused its attention on revenue and taxation issues. In addition the issue of taxation implications for diversified agricultural operations such as those engaged in agricultural composting or net metering of renewable energy is under review currently. The issues raised included:

- Exempt multi-purpose equipment vehicles from sales tax
- Allow farms to pay estimated income tax on money actually received on date estimated quarterly payments are due to be filed
- Amend MGL C.59 Sec 8A to allow corporations to enjoy the same excise tax exemptions allowed to other persons

Current Context

Exempt multi-purpose equipment vehicles from sales tax: Equipment that is purchased for use *exclusively* in farming enjoys an exemption from sales tax. However, when a multi-purpose piece of equipment, such as a truck, is purchased for use *primarily* on the farm, the equipment *is* subject to sales tax. A modification of the exemption to allow it to apply to equipment that is *primarily used in agriculture* could allow the farmer to do something other than farming with the equipment.

The Commission asked the DOR to explore if there are certain pieces of equipment that might benefit from the exemption, or if there are options that exist for the application of the modifier “*primarily for agricultural use*”.

In 2010 there was 10 million dollars in foregone sales taxes collections that were directly due to agricultural exemptions³. An exemption carved out for the agricultural industry for multi-use vehicles would lead to 4 to 5 million dollars per year in foregone sales tax, not including foregone taxes in the past three years which farmers might be able to get back should the exemption be retroactive.

Ultimately such an exemption would require a statutory change because the statute defines who is entitled to the exemption. According to DOR attorneys, if the Commission proposed to change the law to allow for this exemption, manufacturers would likely follow suit and expect the same exemption. If the Commission were to request the exemption, DOR may find the project is not exempt under the existing statute.

Rather than pursue an exemption to the sales tax, a more productive approach might be to explore options to allow for a targeted credit for agricultural actions such as the preservation of open space or installation of anaerobic digesters.

Taxation implications for renewable energy initiatives

Renewable energy installations for exclusive use in agriculture are exempt from sales tax under Chapter 64H Sec 6. However, according to DOR if an operation generates more electricity than is needed for exclusive use in agriculture, DOR will collect sales tax. Potentially there are implications for farms in situations

³ Information provided by DOR. There is also a website link which breaks down the forgone taxes for various agricultural subgroups: http://www.mass.gov/bb/h1/fy11h1/tax_11/items/htax3308.htm

where they are engaged in net metering or providing power to an operation viewed in taxation law as non-agricultural, such as a retail store or farm stand.

Energy generated by a renewable energy installation on a farm to power a retail operation such as farm stands would not be considered exclusively for use in agriculture. In such an instance, the equipment used to generate the power – PV, Wind Turbine, Anaerobic Digester- could be subject to sales tax. If the farm is net metering and nominating other non-agricultural users, the sale of the power could be subject to taxation under MGL c. 64H.

The Commission identified a need for MDAR to provide guidance to the agricultural community on state taxation implications as they relate to renewable energy installations and net metering. Furthermore, MDAR should work with DOR to review the issue of how taxation relates to other areas of diversification such as agricultural composting for farms.

As the Commission develops a more complete understanding of the issues, the Commission may consider possible recommendations to the Legislature regarding a clarification where there are gaps, such as in net metering or other areas.

Allow farms to pay estimated income tax on money actually received on date estimated quarterly payments are due to be filed: While this is a statutory requirement there are exemptions in the tax code that farmers may not be aware of. One exemption is that farmers and fishermen are treated differently in the tax law. They are not required to make estimated payments if they want to file and pay their tax return by March 1st of the following year. So there is an exemption to say that they are not required to make estimated payments.

Another provision relates to farmers who prefer to make Estimated Payments. If, when the quarterly payment is due, the farmer has not earned any income, he can pay zero and make it up in the following quarterly estimate. However, in the following quarterly estimate, he is only required to pay 66 $\frac{2}{3}$ % of the prior year's taxes as opposed to 80% (like other taxpayers).

Amend MGL C.59 Sec 8A to allow corporations to enjoy the same excise tax exemptions allowed to other persons: This amendment would require a statutory change because the statute defines who is entitled to the exemptions. This exempts items from the personal property tax levied by the cities and towns. Considerable resistance would be expected from the Mass Municipal Association and the 351 cities and towns because such a change would impact on the ability of cities and towns to raise taxes.

Future Inquiries

The FTRC identified a need for MDAR to provide guidance to the agricultural community on state taxation implications as they relate to renewable energy installations and net metering. Furthermore, MDAR should work with DOR to review the issue of how taxation relates to other areas of diversification such as composting for farms.

The FTRC also is interested in exploring the suitability of targeted tax credits for farms.

Regulatory Issues

A major trend in agriculture is towards the regionalization of our food system with foods that are locally produced and processed being available for consumption within the area that they are produced. Hence the growth in local farms, farmers markets, and community supported agriculture. With increasing demand for locally produced food, the need to address barriers to growth in local food systems, particularly as they relate to processing has grown. For example there is a lack of access to slaughtering facilities for red meat. The United States Department of Agriculture (“USDA”), by federal statute (Federal Meat Inspection Act and Poultry Products Inspection Act), oversees the inspection of all red meat and poultry processors who do not operate under an exemption. Currently there are only two USDA facilities in the state, far fewer than needed to meet the demand. A pilot program operating under an exemption from USDA regulations for processing of poultry is discussed further in this section.

Another key issue identified by the FTRC for attention is the need to clarify uncertainties around the regulation of standard agricultural practices, such as the application of waste materials generated by farms to the land for their resource value. Regulations at 314 CMR 5.00: Groundwater Permit Program impact the application of waste materials to the land for their resource value. The regulations may impact any agricultural operation, including processing operations, discharging wastewater through a conveyance, such as a pipe, to the ground. There are no de-minimus discharge thresholds.

Typical agricultural activities which could potentially trigger MassDEP regulations include the application of livestock waste; washing of vegetable produce, fruits, berries and eggs; maple sugaring; wineries; greenhouses; manure slurry management; dairy wastewater management from milking and bottling operations. These waste streams are discussed further in Appendix A: Agricultural Waste Streams.

This section provides an overview of regulatory activities related to the mission of the Commission. This overview is divided into three (3) subsections: one covering recent activities; another addressing on-going activities; and finally one that introduces some possible future areas of attention.

Current Context

Recent Activities

In a number of areas state agencies have worked cooperatively and effectively together to try to manage these regulatory challenges. Over the course of its meetings, the FTRC has identified a number of the mechanisms currently used to address issues of regulatory uncertainty. Identified mechanisms are further discussed below.

Milkhouse Wastewater Memorandum of Agreement: Currently, a ground water discharge permit is needed if a farmer uses a land application strategy to manage milkhouse wastewater. MassDEP was requested to consider streamlining this regulatory requirement in order to reduce the administrative and implementation costs on farmers for managing this waste stream. When an agency proposes modifications to regulatory strategies for a waste material, particularly modifications that could be perceived as a relaxation of requirements, the sponsoring agency needs to provide “background” information and analysis which support the proposed regulatory changes. A Memorandum of Agreement (MOA) was signed in April 2009 by the Commissioners of MDAR and MassDEP supporting the implementation of two milkhouse wastewater

management pilot projects. These projects would be designed to develop technical information to support the possible change in the current regulatory approach for the land application of this aqueous waste stream. The first pilot project was started in April, 2009. The second pilot has yet to start.

Cranberry Farming Nutrient Management MOA: In southeastern Massachusetts there are many surface water bodies that do not meet state surface water quality standards for nutrients. This requires the MassDEP to establish limits (referred to as Total Maximum Daily Loads) for nutrients coming from all sources impacting the water body. The release of irrigation return flows to surface water bodies from cranberry bogs has the potential to deteriorate water quality if excessive nutrients are present. In May of 2009, an MOA was signed by MDAR, MassDEP, the Cape Cod Cranberry Growers Association, and UMass to conduct a pilot program to help develop data to address this issue. Specifically the pilot project will develop and implement practices with the potential for reducing the discharge of nutrients associated with cranberry cultivation in order to meet applicable water quality standards. Two pilot projects will be implemented on two farms located on White Island Pond in Plymouth.

Mobile Poultry Processing Unit (MPPU): MPPUs have been developed to service small farms and facilitate the processing of poultry for private or market sale on a small scale. This processing strategy generates various waste streams that need to be managed. This type of processing strategy is new to Massachusetts and raises regulatory jurisdiction questions for both MDPH and MassDEP. Based on pilot project work supported by MDAR and MDPH in 2008 and 2009, MassDEP was able to issue an approval letter in May 2009 that outlined best management practices (BMP's) for waste materials (e.g. offal and inedible parts) and the scalding, chilling and rinse water from the MPPU. Compliance with the BMP's outlined in this letter means that the MPPU operator need not get any additional MassDEP permits/approvals.

Anaerobic Digesters and Combined Heat and Power Generators: There are at least 5 to 10 active proposals for the development of renewable energy projects on Massachusetts farms that will incorporate anaerobic digesters to process organic waste materials to produce a gaseous fuel. This fuel will then be used in combined heat and power generators to provide energy to the farm as well as allow any excess energy to be sold to offsite customers. Residual materials (both liquid and solid) left from the anaerobic digestion process will be reused as fertilizers and animal bedding materials. On January 13, 2010, a letter was issued by MassDEP (signed by Steve DeGabriele) outlining the permitting pathway and sequence of permitting/approvals for these types of renewable energy and fertilizer projects.

Ongoing Activities

In order to address ongoing and future regulatory issues the FTRC is engaged in the following activities:

- **FTRC Regulatory Subgroup:** The FTRC has established a subgroup to focus specifically on regulatory streamlining issues, particularly those involving state agencies (MassDEP and DPH). The subgroup includes participants from MDAR, MassDEP, MDPH, and the farming community (specifically from the Mass Association of Dairy Farmers). This subgroup holds routine public meetings to share information, to recommend priority areas for regulatory streamlining, and to develop advice for the full Commission. This Subgroup is also working to get NRCS as an active participant. It is hoped they will have access to much of

the technical information that will help support regulatory streamlining and the development of alternative oversight strategies.

As of May 2010 the Subgroup has held three meetings. Members of this regulatory review subgroup are also the principle authors of this section of the report.

- **Development of Proposed Revisions to Groundwater Discharge Permit Program:** Using the August 2009 “Gerard Kennedy memo” as a starting point an intra-agency MassDEP workgroup has started work on proposed changes to the Groundwater Discharge Permit program (314 CMR 5.00). This intra-agency work group has also been interacting with the FTRC Regulatory Subgroup to solicit guidance and feedback on proposed changes. As of April 2010, proposed changes are focusing on two areas: 1) clarifying current language in the regulations that addresses exemptions for the land application of manure; and 2) additional agricultural land application practices, that when conducted in conformance with Best Management Practices(BMPs) and other conditions should be exempt from MassDEP permitting processes. An example of this latter category would include the land application of liquid manure that has been mixed with aqueous farming wastes and is land applied according to a nutrient management plan and BMP’s developed by NRCS.

The FTRC will be used as a “sounding board” forum for initial public input on proposed changes. Once proposed changes have been identified and draft regulatory language prepared, and supporting background document(s) prepared, the official regulatory development and promulgation process would be initiated. The key steps for this process include:

- complete internal DEP review and sign-off processes,
- complete review and sign-off processes at the Secretariat level (and higher if needed),
- publish proposed draft regulation changes along with legal and technical background documents,
- conduct a public review and comment process including a public hearing (Note: this is coordinated through the Secretary of State office),
- review and prepare a response to comments,
- complete internal reviews on response to comments and proposed changes to regulations (if any),
- through the Secretary of State’s office, promulgate final regulatory changes.

After this process is completed the agency usually conducts some form of outreach to inform the regulated community of the changes and if necessary provide written guidance material to support implementation of changes.

It is important to note that starting this process does not mean it will get finished as quickly as some would like, or end up the same as it started. The first hurdle will be the review processes within the Administration where substance, priority and timing issues will be considered. If there is internal approval, the proposed regulatory changes will start the external review processes as summarized above.

- **Milkhouse Wastewater MOA:** April 2010 is the one year anniversary of the first pilot project. The data collected from this first year of this project will be analyzed to assess the effectiveness of the wastewater management strategy. It will also provide information that will help design the second pilot that was agreed to in the MOA.
- **Solid Waste Master Plan Update:** MassDEP is in the process of updating the Commonwealth's Solid Waste Master Plan. A draft of the "Update" is expected to be published for public review and comment during the spring of 2010. A key focus of the "Update" is outlining proposals to enhance and increase the recycling and reuse rates of waste materials generated in the Commonwealth. The organics fraction of the waste stream (e.g. food wastes, agriculture wastes, etc.) is one area where recycling rates remain low. The "Update" will propose deliberate strategies that target this waste stream with the goal of encouraging major increases in organics recycling.

There are many opportunities involving farming operations to recycle and reuse organic waste materials, and the "Update" will propose actions that will help enhance organics recycling and reuse at farm operations. The enhanced reuse of organics at farms can have many financial as well as sustainable design benefits for farming operations. Here are examples of some proposals that will be proposed in the draft "Update" to help enhance organics recycling that may have agriculture/farming linkages:

- increasing the allowable tonnages and material types that can be brought to an on-farm composting operation from off-site,
- adding a "site assignment" regulatory exemption for on-farm anaerobic digestion operations, and
- raising the limits for site assignment exemptions for commercial composting operations or anaerobic digestion facilities taking in source separated organics materials.

- **Anaerobic Digester (AD) and Combined Heat and Power (CHP) Projects:** In early March a pre-application permit meeting was held with project proponents and their consultants with MassDEP officials on the proposed AD and CHP project at a dairy farm located in Rutland Mass. MassDEP staff outlined technical and environmental performance requirements for air emissions, noise levels, and odors. MassDEP staff also agreed to conduct an expedited review process on the permit application (s). This is the first of five similar AD and CHP projects that will be proposed at Dairy Farms in Massachusetts. This initial permit process will serve as a model for the other four.
- **Outreach Activities:** The Commission has identified outreach and education to local officials in farming communities as a key component for the successful operation and expansion of farming activities in the Commonwealth. The Mass Health Officers Association (MHOA) is the largest statewide professional organization dedicated to local health professionals. Many Board of Health (BOH) members and most Health Department officials are members. The MHOA Annual Conference held in the fall of each year draws 500 (+/-) health professionals for two and a half days of technical sessions. As part of the evolving outreach strategy it was agreed that the Commission would submit a proposal to conduct a technical session at the conference. The proposed session will focus on issues of local interest related to some of the evolving technologies and strategies for renewable energy and sustainable agricultural practices.

Future Inquiries

It is important for agriculture in Massachusetts that MassDEP and MDAR assess the extent to which the regulations apply to the management of waste streams generated through agricultural activities.

The FTRC is particularly interested in recommending that MDAR continues to work with MassDEP and agricultural stakeholders such as the Natural Resources Conservation Service (NRCS) to develop a mechanism to ensure that farmers can continue to maximize the resource potential of their operations while complying with environmental regulations. Indeed the Commission in March of 2010 requested of NRCS State Conservationist, Christine Clarke, that she allow the participation of NRCS staff in the discussions around this important issue. NRCS staff presented to the FTRC on nutrient management planning at the FTRC March 23rd, 2010 meeting.

The slaughtering and processing of meat at the local level remains a challenge. As the Commission learns more about the obstacles to processing facilities, it may formulate an action item or recommendation.

Farm Energy

In Chapter 310 of the Acts of 2008, the FTRC was tasked with addressing three main issues related to energy:

“The commission shall study and recommend options for updating farming technology including, but not limited to, ways to promote energy conservation, collaborative purchasing, purchasing and selling of energy, energy saving technology and alternative options for sustainability and growth. The commission shall, in the course of its study, analyze current regulations and statutes to ensure such regulations and statutes are not impediments to the adoption of farming technology.”

Dairy Farm Preservation Act

To address these issues, the FTRC has reviewed current programs and regulatory structures affecting energy as related to agriculture, and is in the process of exploring further opportunities as commissioned by the legislature. Specifically, the FTRC reviewed existing programs that offer technical assistance, grants, and rebates for farmers to address energy issues. The FTRC reviewed Massachusetts programs as well as programs in other states. Further, the FTRC reviewed various regulatory incentives for energy conservation, energy efficiency, and renewable energy projects. This review is summarized below in the section titled “Energy Issues - Current Context”.

Moving forward, the FTRC has identified three potential broad action areas for addressing the above mentioned energy issues:

- Ideas for Education and Outreach Programs;
- Potential programmatic activities that the Commonwealth could foster to help advance some of the ideas; and enhance and further some of the existing efforts already underway.
- Possible future recommendations from the commission regarding legislation or regulatory changes.

Important Note:

The possible action items discussed below are reported as a preliminary work in progress, and reflect input received to date during Commission meetings, rather than as definitive recommendations of the Commission at this time. The FTRC created a matrix relating the action areas to the main energy issues. For purposes of discussion and planning, the FTRC began filling in this matrix with possible action items. These possible action items have been identified for discussion purposes only. At this time, the FTRC is still considering which action items to investigate and pursue further. The matrix and a brief description of the possible action items are included below in the section titled “Future Inquiries”.

Current Context

Massachusetts currently has programs to provide technical assistance, grants, and rebates for farmers pursuing energy efficiency improvements or pursuing renewable energy projects. Massachusetts also has in place various regulatory structures that provide incentives for the implementation of energy efficiency improvements and the development of renewable energy projects. Furthermore, Massachusetts participation in the Regional Greenhouse Gas Initiative (www.rggi.org) creates market incentives for the development of

green house gas-reducing projects. These incentives can often be combined with Federal grants, rebates, and regulatory incentives as well as assistance provided by local utility companies.

Massachusetts farmers have expressed a strong interest in these programs and incentives. Over the past year the state has made great progress toward educating and supporting members of the agricultural community in the development of energy efficiency and renewable energy projects. A significant component of that progress has been through the establishment of the MA Farm Energy Program (MFEP), which amongst other technical assistance provisions acts as an umbrella organization, i.e. a one-stop shop clearinghouse, for all relevant farm energy programs. A number of state, federal and private funding and technical assistance programs are listed below and discussed in further detail in Appendix B.

State, Federal and Private Programs

- **Massachusetts Farm Energy Program (MFEP)**
- **MDAR Energy Related Programs**
 - Division of Agricultural Technical Assistance (DATA); The Energy Efficiency, Conservation, and Renewables Program; Farm Energy Discount Program; Ag-Energy Grant Program
- **Massachusetts Clean Energy Center:**
 - Commonwealth Solar II; Commonwealth Wind
- **Federal Programs**
 - USDA Section 9007 Rural Energy for America Program (REAP); USDA - Environmental Quality Incentives Program (EQIP); Biomass Crop Assistance Program (BCAP)
- **Non-Municipal, Investor-owned ("Public") Utility Conservation & Energy Efficiency Programs**

State Regulatory Initiatives

In addition to the programmatic offering above, a number of incentives for energy conservation, energy efficiency, and renewable energy projects have been established by statute or regulatory action. These incentives are further discussed in Appendix C and include the following:

- Agricultural Net Metering
- Farm Energy Discount Program
- Chapter 61 Tax Reductions/Exemptions – utility bills, qualified equipment, transportation fuels.
- Renewable Energy Certificates (RECs)/Solar Renewable Energy Certificates.
- Alternative Energy Portfolio Standard (APS) / Alternative Energy Credits (AECs).

Future Inquiries

As discussed above, the energy-related topics of which the FTRC is commissioned to make inquiry under the Dairy Farm Preservation Act include: Possibilities for Group Purchasing; Energy Efficiency; and Renewable Energy; and Sustainability Options

Possible Action Items

To facilitate discussion, the FTRC has begun to compile a list of possible action items. The action items listed below are preliminary only, and reflect input received to date at commission meetings. They should not be considered final recommendations of the FTRC. At this time, the FTRC is still developing a list of possible action items and considering which action items to investigate and pursue further.

Group Purchasing:

- **Utilities:** Because farmers have different contracting opportunities and underlying consumption profiles, the Commission has concluded that a group electricity purchasing effort that delivered savings to all members in excess of the existing 10% discount would be possible from time to time, depending on market conditions, but would be difficult to achieve reliably year after year. For propane and heating oil, where there is no agricultural discount, farmers may benefit from contracting with a competitive supplier, but there is little additional savings to be realized from group purchasing. However, farms consuming either electricity or natural gas for operations can benefit from technical assistance regarding their contracting options – advice regarding these options may be something that can be made part of technical assistance offerings such as DAR workshops or extension service publications.”
- **Workshop on agricultural net metering:** To inform agricultural enterprises about opportunities under the new net metering regulations.
- **SRECs:** Explore an SREC aggregation for agricultural community: See above under voluntary REC program.
- **Voluntary REC program to fund “Ag Power”:** Similar to the GreenStart or New England Wind Fund program – voluntary on-bill contributions for agricultural renewables projects.
- **Identify electricity consumers that may be interested in purchasing net metering credits from farms:** Identify within utility region and load zones customers that are interested in purchasing net metering credits from farms, possibly through forming cooperatives, creating databases.

Energy Efficiency

- **Outreach about recent legislation to utilities and trade associations:** Utilities are seeking ideas for their energy efficiency programs. They are eager to support agriculture and recognize that agriculture has specific equipment needs. Trade associations and equipment vendors could solicit

input from their member groups as to what kind of energy efficiency programs they would like to see coming out of the utilities.

The majority of farms in Massachusetts are small scale and are needed to sustain agriculture in the state. If aggregated together they generate a significant amount of revenue for the state. However, their profit margins, or needs, may not be as attractive to utility programs. It is therefore important to ensure that these smaller operations are included in these programs.

Renewable Energy

- **Possible pilot funding for geothermal or biomass thermal heating for greenhouses:** Test performance of pilot geothermal/biomass/solar thermal installations, possibly in conjunction with UMass.
- **Workshop on anaerobic digestion for building inspectors and health inspectors:** MASSDEP has worked to try to streamline its regulations on biomass projects, but further outreach would be useful for local Boards of Health and local building permitting agencies.
- **Fund a study of anaerobic digestion capacity/siting:** Establish the capacity of Massachusetts farms and other enterprises for economic AD projects.
- **Funding for Green Buildings on farms:** There is currently no source of design or construction assistance for farms that want to build more sustainably. A farm in Westport received a grant from MDAR to develop plans for a new zero net energy milking barn but these funds are currently very limited.
- **Work with stakeholders on model siting/permitting regulations for anaerobic digesters:** Permits and regulations are not always current with new technologies. MDAR has been working effectively with MassDEP for Anaerobic Digester permitting pathway, but further local permitting education and outreach would be useful to communities.

Options for Energy Sustainability

- **Funding for Linked Loan Program:** Find alternative funding mechanisms for the Linked Loan Program established and defined per the Dairy Preservation Act

The linked loan program is a program that would benefit many farms seeking financial support for both bridge financing and long term financing for energy efficiency and renewable energy projects. The existing funding source relies on excess funds to a special account which has been unable to generate program funds. As there is a need to fund this program, FTRC should explore other funding resources.

- **Long Term Funding for Massachusetts Farm Energy Program (MFEP):** The MFEP is currently a pilot program that has demonstrated to be an effective service for farms to engage with in order to develop energy efficiency and renewable energy projects. It was originally funded by a USDA NRCS Conservation Innovation Grant (no longer available), and a MDAR Agricultural Innovation Center Grant (a grant program no longer funded). A relatively small extension was provided through funds from the aforementioned Ag Energy Program. Larger, long term funding is needed.
- **Small-scale bio-fuels production:** establish criteria, guidelines and best management practices for farms wishing to engage in developing and processing bio-fuels, for both their own use and for sale to others: this would be beneficial to understanding the local, state, and federal regulations and permitting requirements necessary to initiate this practice. Currently guidance for small-scale bio-fuels production does not exist.
- **Advertise 10% rate reduction to farmers:** Currently there is a 10% Farm Energy Discount for agricultural enterprises in statute for electric and natural gas. However, not every eligible entity is aware of this benefit. While there are over 7,000 farms in the state, there are only approximately 1500 farms in the Farm Energy Discount Program database. Possible means of advertising include:
 - putting out the word to agricultural vendors and trade associations, for example greenhouses, especially if they are using electric heat or natural gas.
 - developing outreach materials to help agricultural operations understand this discount would be a valuable exercise

Findings and Recommendations

The Commission has pursued a busy schedule of meeting over the past few months. The meetings have been substantive and productive and have provided a clear direction for the Commission.

It was recognized that several recommendations of the Dairy Task Force have been addressed and resolved including all three taxation issues:

- The recommendation to exempt multi-purpose equipment vehicles from sales tax was determined to be a challenging undertaking which would likely encounter great resistance. Rather than commit resources to securing an exemption for agriculture, a more prudent approach might be to identify areas which might benefit from a targeted tax credit. An example might be open space.
- Provisions were also identified in the tax code that allows farmers to opt out of estimated payments and pay tax return instead by March 1st of the following year. Also provisions for farmers with zero income for the quarter to postpone tax payments till next quarter
- Amending MGL c. 59 Sec 8A to allow corporations the same excise tax exemptions allowed is a statutory change with expected resistance by municipalities which would require support from the legislature.

Principal work of the Commission to date has been to identify: the current status, or “Context to Date” for each area of investigation as identified in the statutory obligations of the Commission; “Future Inquiries” for these areas; and possible additional areas for future inquiry or analysis, such as taxation regulation as it relates to renewable energy and diversification of farming activities.

Future recommendations regarding legislation or regulatory changes will be considered by the Commission as it develops a deeper understanding of the specific issues identified in the report and in future discussions. In the meantime, the recommendations for future inquiry which are presented under the umbrella of the statutory obligations of the Commission are:

Analyze regulations and statutes to ensure that they are not impediments to the adoption of farming technology:

1. The FTRC identified a need for MDAR to work with DOR to provide guidance to the agricultural community on state taxation implications as they relate to renewable energy installations and net metering. Furthermore, MDAR should work with DOR to review the issue of how taxation relates to other areas of diversification such as composting for farms.
2. Explore options for targeted tax credits.
3. The Commission has requested more information about the regulatory process at the state and federal level in order to review the issue of access to slaughtering facilities. Possible options for the Commission to consider include an evaluation of federal and state statutes relative to local meat and poultry processing.

4. Continue to work with MDAR, MassDEP and agricultural stakeholders such as the Natural Resources Conservation Service (NRCS) to develop a mechanism to ensure that farmers can maximize the resource potential of their operations while complying with environmental regulations. The FTRC Regulatory Subgroup should also continue to support the efforts of the MassDEP intra-agency workgroup.

Options for updating farming technology including, but not limited to, ways to promote energy conservation, collaborative purchasing, purchasing and selling of energy and energy saving technology:

1. The Commission has a number of recommendations under this heading, including: furthering through funding assistance, project implementation and regulatory framework, the farming technologies associated with anaerobic digesters, “green” farm structures, geothermal, biomass and bio-fuels; promotion of energy conservation through working with farms, trade groups and utilities in the formation of their new energy efficiency programs as well as furthering and advancing the existing MA Farm Energy Program; and collaborative purchasing through identification of potential net metering nominees, SREC aggregation, and a voluntary REC program for renewable farm projects.

2. In regard to the more conventional “group purchasing of energy”, because farmers have different contracting opportunities and underlying consumption profiles, the Commission has concluded that a group electricity purchasing effort that delivered savings to all members in excess of the existing 10% discount would be possible from time to time, depending on market conditions, but would be difficult to achieve reliably year after year. For propane and heating oil, where there is no agricultural discount, farmers may benefit from contracting with a competitive supplier, but there is little additional savings to be realized from group purchasing. However, farms consuming either electricity or natural gas for operations can benefit from technical assistance regarding their contracting options – advice regarding these options may be something that can be made part of technical assistance offerings such as DAR workshops or extension service publications.”

3. Additional areas for future consideration include: education and outreach to local officials and Boards of Health in matters pertaining to innovative and evolving technologies such as anaerobic digesters in collaboration with sister agencies DEP and DPH; to seek alternative mechanisms to fund the Linked Loan Program established under the Dairy Preservation Act and the MA Farm Energy Program; education and outreach to farms in matters pertaining to net metering and Farm Energy Discount program.

4. Review the Agricultural Innovation Center Program.

Recommend alternative options for agricultural sustainability and growth: As the barriers to sustainability and growth are analyzed Commission will be in a better position to recommend options for growth and sustainability.

Appendix A:

Wastes and Wastewater Generated by Agricultural Operations

- **Livestock waste:** Manure is primarily generated through dairy, beef, chicken, equine and hog operations. Depending on the size of the operation, manure is handled as a liquid or solid. Smaller operations typically handle manure as a solid, or as compost. Larger operations typically handle their manure as a liquid. Note that liquid manure slurry is one of the issues of concern for 314 CMR 5.00. Livestock manure has historically been used to maintain soil fertility as a supplement or alternative to inorganic, manufactured fertilizers. It provides valuable organic materials and nutrients for crop and pasture growth. Farmers applying manure to the land should have developed a Nutrient Management Plan (NMP) to ensure that they are applying the appropriate amount of nutrients at the appropriate location at the appropriate time. NMPs require testing of soil and manure for nutrient content and prescribe agronomical rates for application of manure to the farmer's fields. Conservation Plans identify potential water quality impacts and prescribe conservation practices to address the impacts. Examples of conservation practices include composting pads and waste storage facilities.

The characteristics of manure differ depending on the type of animal and also animal nutrition and bedding. However the primary components are nitrogen, phosphorus and potassium compounds.

- **Produce Wash-water:** Any operation engaged in the production of a vegetable, or fruit, may generate wastewater through wash rinses to remove dirt and soil particles. Several wash basins may be used depending on the number of rinses required, for example, pre-washed lettuce or salad greens. Vineyards may generate wastewater through washing of grapes and cleaning and sanitizing equipment that is used to make wine.

While pesticides may be used in the production of fruits and vegetables, residues of pesticides approved for use in the production of food, must be at or below the EPA established tolerance and any water used to wash these harvested fruits and vegetables, cannot contain pesticide residues greater than those found in the treated commodity. Where the fruit can be eaten directly with the level of residue found on Massachusetts produce, it is difficult to imagine wash-water from this produce posing any significant risk when applied to land or put in wastewater systems.

Pesticides are registered for use by EPA and the Massachusetts Pesticide Board Subcommittee only after undergoing a comprehensive environmental and toxicological assessment. Pesticide use in areas of primary recharge to a public water supply is regulated by 333 CMR 12.00^[1]. Authority over pesticide use falls within the Massachusetts Pesticide Control Act found in M.G.L. c. 132B and at 333 CMR 1.00-13.00 and within under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 USC Sec. 136 et seq.

^[1] 333 CMR 12.00 Protection of Groundwater Sources of Public Drinking Water Supplies from Nonpoint Source Pesticide Contamination

- **Maple Sugaring:** MDAR's regulatory authority over the maple industry is limited to labeling. According to the Vermont Maple Handbook, careful sanitary practices are critical in the collection of sap and the production, packaging and storage of syrup. However, anything added to sap will be concentrated in the boiling process and cause an off flavor. The Vermont guide recommends clean hot water as the best cleaning agents for maple equipment. Unscented household bleach – one part to 20 parts of water- is also recommended for cleaning.
- **Greenhouses:** Most hydroponic greenhouses and increasing numbers of regular greenhouses use re-circulating systems. This is done to conserve heat, water, and nutrients that are added to the water. Discharge of this water would occur rarely, such as in event of a plant pathogen disease in the system. However, depending on location greenhouses without re-circulating systems are likely discharging to sewer systems, septic systems or to the ground.
- **Finfish Aquaculture Operations:** Finfish aquaculture operations generally use recirculating systems but, depending on the type of operation, may discharge up to 1% of the wastewater.
- **Anaerobic Digester Effluent:** In a farm setting, anaerobic digestion is the breakdown of organic material, such as cow manure and food waste, in an anaerobic environment resulting in a mixture of methane and carbon dioxide, or biogas. The end products of anaerobic digestion are biogas for energy production, heat, separated solids which will be used for bedding, and a nutrient rich organic liquid which is intended for field application. The primary components of the waste will depend on the inputs; however it is reasonable to expect the digestate to be rich in nutrients (ammonia, phosphorus, potassium, and other trace elements). It is important for the effluent to be tested, as part of a nutrient management plan, prior to application on a large scale.
- **Milkhouse Waste:** Milkhouse wastewater, if managed inappropriately, can present a risk to water resources. Milkhouse waste is made up of dilute wash water, manure, milk solids and fats, and cleaning chemicals (usually chlorinated sanitizers and soaps). Dairy farms that manage their manure as a liquid and have adequate storage capacity add their milkhouse wastewater into their manure storage system. Farmers who manage their manure as a solid waste, or do not have storage capacity, must use the best conservation approaches available. An example is an NRCS engineered vegetated treatment area (VTA).

Appendix B: Energy Funding and Technical Assistance Programs

Massachusetts Farm Energy Program (MFEP):

There is a tremendous loss of energy savings in the agricultural community because

- many Massachusetts farmers are unaware of current energy programs available to them;
- farmers do not have access to a simple, streamlined process of applying for technical and financial assistance; and
- the current pool of financial incentives is not large enough to encourage widespread implementation.

Navigating the broad array of funding opportunities and incentives can be challenging.

The Massachusetts Farm Energy Program (MFEP) is a joint project of the Massachusetts Dept. of Agricultural Resources, the USDA-Natural Resources Conservation Service, Berkshire-Pioneer Resource Conservation & Development Area and Patriot Resource Conservation & Development Area. The MFEP intends to be the one-stop shop for all MA farms by becoming a clearinghouse for all known agriculturally related energy programs, whether local, state or federal. The MFEP in and of itself is also an energy program, providing technical assistance, grant writing support and implementation incentives as well.

MFEP provides assistance to farmers and agricultural businesses to:

- increase on-farm energy conservation and efficiency;
- promote alternative and renewable energy strategies for on-farm energy generation;
- reduce agricultural greenhouse gas emissions.

What the Massachusetts Farm Energy Program does: The Massachusetts Dept. of Agricultural Resources (MDAR) and the USDA-Natural Resources Conservation Service (NRCS) have provided funding of \$400,000 and significant in-kind assistance.

The program:

- provides technical assistance to increase use of existing energy programs;
- assists agricultural producers in leveraging funds for project implementation;
- helps to obtain, and in some cases provide, energy audits and/or renewable energy assessments;
- provides incentives for implementation of audit recommendations; and
- identifies and promotes best management practices for farm energy systems.

Federal, state, and industry investments in farm energy audits must be tied to energy savings and generation accomplished through implementation. This is the focus of the Massachusetts Farm Energy Program.

How the Program is structured: Berkshire-Pioneer Resource Conservation and Development (RC&D) Area, Inc. in conjunction with MDAR and NRCS, has developed and is implementing the program, under the guidelines adopted by the Steering Committee made up of MDAR, NRCS, Berkshire-Pioneer RC&D, and Patriot RC&D. The

program partners (listed separately) and the Technical Advisory Group (made up of partners that provide energy conservation, efficiency, or renewable energy programs to their constituents) make recommendations to the Steering Committee.

The Technical Advisory Group is charged with:

- working together to maximize financial and technical assistance opportunities available to agricultural producers;
- developing and implementing a streamlined approach for the Massachusetts Farm Energy Program and its partners to assist agribusiness; and
- identifying and recommending energy conservation and efficiency best management practices (BMPs) and renewable energy measures that will be encouraged by this program.

Berkshire-Pioneer RC&D administers the MFEP and, working with the MA Department of Agricultural Resources (MDAR), provides direct technical assistance for energy-related projects to farmers across the Commonwealth. In addition, technical support is also provided from NRCS. Energy audits and renewable energy assessments are conducted by MFEP technical assistance consultants, utility companies, and independent consultants hired by the agricultural producers. MFEP incentives are paid by Berkshire-Pioneer RC&D with MDAR (state) funding.

Aside from hosting numerous community events and grant writing workshops, to date the MFEP has directly served 84 farms, installing projects totaling savings of over 290,000 kWh, 14,500 gallons of oil and 9,650 therms of natural gas. MFEP has as importantly has leveraged over \$1.6 million dollars from other programs, paid \$27,910 in incentives to implement energy efficiency projects and saved over \$100,000 in energy costs. [

For additional information on the MFEP, please see the following website:

<http://www.berkshireroneerrcd.org/mfep/index.php>

Other Technical Assistance/Grant/Rebate Programs for Massachusetts Farmers

One of the MFEP's main missions is to help farmers leverage funding from various other programs, both private, State, and Federal. Below are several organizations and programs that can provide resources for farmers seeking to develop energy efficiency and renewable energy projects.

MDAR Energy Related Programs

Within MDAR, the Division of Agricultural Technical Assistance (DATA) oversees programs that address agricultural energy issues.

Division of Agricultural Technical Assistance (DATA): Working with the Divisions of Agricultural Development, Animal Health, and Crop Management and Inspectional Services, the DATA provides technical assistance to promote economically viable and environmentally sound agricultural practices in Massachusetts. DATA delivers services to improve agricultural stewardship and use of natural resources; promote energy efficiency and use of renewable energy; and ensure economic competitiveness and profitability. These programs are supported by the Division's digital based information management systems and interaction with local, state, and federal partners. The program specific to energy issues is the Energy Efficiency, Conservation, and Renewables Program.

For additional information on the Division of Agricultural Technical Assistance, see the following website:

http://www.mass.gov/agr/divisions/ag_technical_assistance.htm

The Energy Efficiency, Conservation, and Renewables Program: The MDAR Energy Program's primary function is to promote energy knowledge and awareness and to facilitate the implementation of energy related projects for our agri-businesses through energy efficiency, energy conservation and renewable energy applications, as a means to reduce both energy costs and environmental pollution.

Through their renewable energy coordinator position, MDAR offers support for farms interested in energy efficiency, conservation, and renewables. The primary function of the coordinator is to promote energy knowledge and awareness and to facilitate the implementation of energy related projects for our agri-businesses through energy efficiency, energy conservation and renewable energy applications, as a means to reduce both energy costs and environmental pollution. To further this effort and to avoid duplicity, MDAR provides a majority of these relevant services through the aforementioned MFEP, a program MDAR funds and staffs.

For additional information on the MDAR - Energy Efficiency, Conservation, and Renewables Program, please see the following website:

<http://www.mass.gov/agr/programs/energy/index.htm>

Farm Energy Discount Program: The Massachusetts Department of Agricultural Resources (MDAR) is the state agency responsible for determining and certifying eligibility for the Farm Energy Discount Program included in the legislation enacted to restructure the utility industry. As a result of the utility restructuring, all agricultural

ratepayers will enjoy a mandated ten percent reduction on their energy bills for electricity and natural gas. Those persons or corporations that are principally and substantially engaged in the business of production agriculture or farming for an ultimate commercial purpose are eligible. Upon determination that the applicant qualifies for the Farm Discount, MDAR will certify to the appropriate power supplier (electricity and/or natural gas) that the applicant meets the requirements for the Farm Discount and is eligible for a ten percent discount on rates. To maintain the Farm Discount, the applicant is required to submit a yearly renewal application to MDAR for confirmation of information and signature. The discount is not available for propane or fuel oil accounts. As of October 1, 2007, about 1500 farmers were in the program. Interestingly, the latest Agricultural Census reports there are about 6100 farms in Massachusetts. The Farm Energy Discount Program may be underutilized.

For additional information on the MDAR - Farm Energy Discount Program, please see the following website:
<http://www.mass.gov/agr/admin/farmenergy.htm>

Ag-Energy Grant Program: The Ag-Energy Grant Program is an annual competitive grant program focused on funding energy efficiency and renewable energy projects. This grant program has been in existence for two years. Each year the program will define priorities so as to assist what is considered to be most current technology needs. Past priorities included further the state's anaerobic digester effort through design-engineering or equipment and labor purchase, transition assistance to the state's new outdoor wood boiler regulations, zero net energy building feasibility study financial assistance, dairy parlor energy efficiency, cranberry auto-irrigation, greenhouse energy efficiency, maple sugaring energy efficiency, and high efficiency heating systems, both biomass and conventional.

To date the program has awarded 16 projects with \$375,000 of grant funding.

Massachusetts Agricultural Environmental Enhancement Program (AEEP): The purpose of the Agricultural Environmental Enhancement Program (AEEP) is to support the mitigation and/ or prevention of negative impacts to natural resources that may result from agricultural practices. Farmers selected to participate are reimbursed for the approved costs of materials up to \$30,000 used to install best management practices which improve water quality, conserve water or reduce greenhouse gas emissions.

The AEEP provides funding to agricultural operations in Massachusetts for the mitigation and/or prevention of impacts on natural resources that may result from agricultural practices. While primarily a water quality program, AEEP will also fund practices that promote energy efficiency, water conservation, and reduce greenhouse gas emissions. Farmers selected to participate are reimbursed for the approved costs of materials up to \$30,000. A minimum of a 5% match is required of Most awards are in the \$10,000 to \$15,000 range.

MDAR's AEEP provided \$275,000 in funding for over 20 energy related projects including refrigeration, biomass boilers, photovoltaic systems, wind turbines and auto-start irrigations systems for cranberry bogs. MDAR also funded projects related to anaerobic digestion, outdoor wood boilers, and zero-net energy buildings for an additional \$125,000.

For additional information on the AEEP, please see the following website:

<http://www.mass.gov/agr/programs/aEEP/>

Farm Viability Enhancement Program (FVEP): The Farm Viability Program seeks to improve the economic viability and environmental integrity of participating farms through the development and implementation of farm viability plans. The program offers producers environmental, technical and business planning assistance to expand, upgrade and modernize their existing operations. Funding for the recommended improvements is available in exchange for an agricultural covenant on the farm property for a fixed term of five or ten years. At times these improvements can include energy efficiency upgrades to the agricultural operations.

Other State Programs

Massachusetts Clean Energy Center: The Massachusetts Clean Energy Center (CEC) seeks to maximize environmental and economic benefits for the Commonwealth's citizens by pioneering and promoting clean energy technologies and fostering the emergence of sustainable markets for electricity generated from renewable sources.

The CEC provides financial and technical assistance on clean energy technologies to individuals and businesses and helps emerging clean energy businesses flourish in the Commonwealth. The CEC has in the past supported agricultural projects including wind, solar, hydro, and biomass projects, including anaerobic digestion.

The CEC has several programs available to farmers:

- **Commonwealth Solar II**

The Commonwealth Solar II Rebate Program and the Commonwealth Solar Stimulus Rebate Program (available with limited funding in 2010) provide rebates through a non-competitive application process for the installation of photovoltaic (PV) projects.

For additional information on CEC solar rebate programs, please see the following website:

<http://www.commonwealthsolar.org/>

- **Commonwealth Wind**

The Commonwealth Wind Incentive Program provides rebate, grant, and loan funding for the installation of wind projects in Massachusetts. Funding is available for residential, commercial, industrial, and public facilities that are customers of investor-owned electric distribution utilities or Municipal Light Plant Departments that pay into the Renewable Energy Trust.

For additional information on wind support available through the CEC, please see the following website:

www.masscec.com

Non-Municipal, Investor-owned ("Public") Utility Conservation & Energy Efficiency Programs

There are four investor-owned electric utility companies in Massachusetts: National Grid, NSTAR, UNITIL (Fitchburg Gas & Electric), and Western Massachusetts Electric Company. In addition, Cape Light Compact operates the regional energy efficiency program for the Cape and islands. Natural gas companies include Berkshire Gas, Bay State Gas, National Grid (formerly Keyspan Gas), and NSTAR. Customers of these investor-owned ("public") utility companies pay into conservation and renewable energy funds and therefore have access to energy conservation programs, as well as the renewable energy programs offered by the Massachusetts Clean Energy Center. These "public" conservation and energy efficiency programs are regulated by the MA Department of Public Utilities. Typically, energy audits and some types of energy assessment, performed by a contractor or employee of the utility company, are offered as well as financial incentives (cost-share) on energy efficiency measures that are cost effective relative to energy savings. In simple terms, the energy cost savings divided by the investment costs must be greater than one. However, there may be some energy efficiency measures that would be of great benefit to agricultural operations but do not meet the cost effectiveness formula used by the public utility industry.

For additional information on the non-municipal, investor owned ("public") utility companies, please see the corresponding websites listed below.

Cape Light Compact

<http://www.capelightcompact.org/>

Bay State Gas Co.

<http://www.baystategas.com/en/home.aspx>

Berkshire Gas

<http://www.berkshiregas.com/UsageAndSafety/Commenergyefficprog.html>

National Grid

<http://www.nationalgridus.com/masselectric/business/energyeff/energyeff.asp>

NSTAR Electric & Gas

<http://www.nstaronline.com/business/>

Fitchburg Gas & Electric/UNITIL

<http://www.unitil.com/index.asp>

Western MA Electric Co. (WMECO)

<http://www.wmeco.com/Business/SaveEnergy/EnergyEfficiencyPrograms/Default.aspx>

Federal

USDA Section 9007 Rural Energy for America Program (REAP)

Provider and Program Administrator: USDA, Rural Development

Program Description: REAP offers renewable energy grants, energy efficiency grants and loan guarantees for projects that will produce renewable energy and/or provide a more efficient energy usage. This funding is not available for residential use.

Renewable Energy Grants:

- Renewable energy grants are a minimum of \$2500 and a maximum of \$500,000.
- Grant requests must not be more than 25% of the eligible project costs.
- Eligible renewable energy projects include wind, solar, biomass, geothermal, hydropower and hydrogen based sources.
- Renewable REAP funding can be combined with Renewable Energy Trust (MRET) grants.

Energy Efficiency Grants:

- Energy efficiency grants are a minimum of \$1500 and a maximum of \$250,000.
- Grant requests must not be more than 25% of the eligible project costs.
- Eligible energy efficiency projects include projects such as retrofitting lighting or insulation, replacing equipment with more efficient units.
- Energy efficiency funding can be combined with public utility incentive and Massachusetts Farm Energy Programs (MFEP) to maximize benefits.
- Energy efficiency grants require an energy assessment or energy audit to be eligible. Applicants must apply for an energy assessment or audit before the REAP application announcement to be eligible. MFEP offers technical and financial assistance for completing energy audits.

Loan Guarantees:

- Minimum of \$5000 with a maximum of \$25 million or 75% of the total eligible project costs (whichever is less). Any REAP grant funding received should be included in the total eligible project costs. Loan guarantees amounts are:

Project Costs	% of Loan Guaranteed
\$600,000 or less	85%
Greater than \$600,000 up to \$5 million	80%
Greater than \$5 million up to \$10 million	70%
Greater than \$10 million up to \$25 million	60%

- Eligible project costs include: Post-application purchase and installation of equipment, post-application construction or improvements, energy audits or assessments, permit or license fees, professional service fees, feasibility studies and technical reports, business plans, retrofitting, construction of a new energy efficient facility only when the facility is used for the same purpose, is approximately the same size, and based on the energy audit will provide more energy savings than improving an existing facility, working capital, and land acquisition.
- Participants work with a local lender who in turn applies for the loan guarantee through Rural Development for up to 85% of the loan.
- There is a one time guarantee fee of 1% of the guarantee amount, and an annual renewal fee.

Eligible Participants:

- Agricultural producers who obtain a minimum of 50% of their gross income from an agricultural operation
- Small businesses located in a rural area
- Rural Electric Cooperatives

USDA - Environmental Quality Incentives Program (EQIP)

Provider: USDA, Natural Resources Conservation Service (NRCS)

Program Administrator: USDA NRCS

The Environmental Quality Incentives Program (EQIP) was reauthorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill) to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. EQIP offers financial and technical help to assist eligible participants install or implement structural and management practices on eligible agricultural land.

The Natural Resources Conservation Service (NRCS) is working to help farmers with conservation practices that improve air quality. Under the 2008 Food, Conservation and Energy Act (2008 Farm Bill), NRCS will provide eligible producers with program support through the [Environmental Quality Incentives Program \(EQIP\)](#) to implement cost effective and innovative practices that improve air quality. Individuals, groups and entities who own or manage farmland, pastureland or non-industrial forest land are eligible to apply. Producers with an annual minimum of \$1,000 of agricultural products produced and/or sold are eligible to apply. This requirement does not apply to applicants with forest land. Payments are limited to \$300,000 per participant over a 6 year period. Beginning, socially disadvantaged and limited-resource farmers may be eligible for higher payment rates.

For additional information on the EQIP, please see the following website:

<http://www.nrcs.usda.gov/PROGRAMS/EQIP/>

For additional information on the NCRS, please see the following website:

<http://www.nrcs.usda.gov/>

Biomass Crop Assistance Program (BCAP)

Provider: USDA, Farm Service Agency

Program Administrator: USDA, Farm Service Agency

Program Description: BCAP assists agricultural and forest land owners and operators with matching payments for the amount paid for the collection, harvest, storage and transportation (CHST) of eligible material by a qualified Biomass Conversion Facility (BCF). The CHST Matching Payment Program will provide eligible material owners matching payments for the sale and delivery of eligible material to a CHST-qualified BCF. These payments will be available to eligible material owners at the rate of \$1 for each \$1 per dry ton paid by the CHST-qualified BCF to the eligible material owners, limited to a maximum of \$45 per dry ton and limited to a 2-year payment duration. BCAP will also support establishing and producing eligible crops for the conversion to bioenergy through project areas and on contract acreage up to 5 years for annual and non-woody perennial crops or up to 15 years for woody perennial crops. This provision will be implemented in the future.

Appendix C: State Regulatory Initiatives for Renewable Energy

In addition to the programmatic offering above, a number of incentives for energy conservation, energy efficiency, and renewable energy projects have been established by statute or regulatory action.

- **Agricultural Net Metering:** Net metering for wind, solar and agricultural energy installations, a provision of the Green Communities Act designed to encourage development of renewable power, commenced on December 1, 2009, under an order adopted by the Department of Public Utilities (DPU) on November 13, 2009. The Green Communities Act includes provisions for Agricultural Net Metering facilities whereby farms are able to install additional electrical renewable technologies besides wind and solar.

Net metering encourages homeowners, businesses, and municipalities to install solar panels and wind turbines, and for farms additional renewable technologies such as anaerobic digesters, by allowing them to earn credit on their electric bills if they generate more power than they need. Under the Green Communities Act signed by Governor Patrick in 2008, MA Distribution Companies must compensate their customers for this excess electricity at near retail rates rather than the prior legislation lower wholesale rates. Additionally, customers may allocate their credits to other customers, allowing those without facilities to take advantage of net metering benefits as well.

The DPU order was the last regulatory step needed for electric customers to take advantage of the Act's net metering provisions. As a result, customers who own renewable energy installations can now submit net metering applications to their electric distribution companies. The DPU issued its final net metering regulations in June 2009, followed by a model net metering tariff in August 2009. The DPU order approves electric utility interconnection tariffs and requires that the electric companies immediately file net metering tariffs that comply with the terms of the model tariff approved in August 2009.

Prior to the Green Communities Act, net metering was restricted to on-site renewable energy projects capable of generating 60 kilowatts or less, with monthly reconciliation, and customers were credited for their power exported back to the grid only at the wholesale rate. Now, customers who own larger wind turbines or solar power installations - up to 2 megawatts, with provisions for multiple 2 MW projects for municipal and state installations - can export and be credited for excess power back to the grid at the higher near retail rate and credits can be carried indefinitely month-to-month. Even customers who do not generate excess power will save money on their electric bills by generating some portion of the electricity they use. For additional information on Net Metering, please see the following website:

[http://www.mass.gov/?pageID=eoeeamodulechunk&L=5&L0=Home&L1=Grants+%26+Technical+Assistance&L2=Guidance+%26+Technical+Assistance&L3=Agencies+and+Divisions&L4=Department+of+Public+Utilities+\(DPU\)&sid=Eoeea&b=terminalcontent&f=dpu_electric_faq_net_metering&csid=Eoeea](http://www.mass.gov/?pageID=eoeeamodulechunk&L=5&L0=Home&L1=Grants+%26+Technical+Assistance&L2=Guidance+%26+Technical+Assistance&L3=Agencies+and+Divisions&L4=Department+of+Public+Utilities+(DPU)&sid=Eoeea&b=terminalcontent&f=dpu_electric_faq_net_metering&csid=Eoeea)

- **Farm Energy Discount Program:** The Massachusetts Department of Agricultural Resources (MDAR) is the state agency responsible for determining and certifying eligibility for the Farm Energy Discount Program included in the legislation enacted to restructure the utility industry. As a result of the utility restructuring, all agricultural ratepayers will enjoy a mandated ten percent reduction on their energy bills for electricity and natural gas. Those persons or corporations that are principally and substantially engaged in the business of production agriculture or farming for an ultimate commercial purpose are eligible. Upon determination that the applicant qualifies for the Farm Discount, MDAR will certify to the appropriate power supplier (electricity and/or natural gas) that the applicant meets the requirements for the Farm Discount and is eligible for a ten percent discount on rates. To maintain the Farm Discount, the applicant is required to submit a yearly renewal application to MDAR for confirmation of information and signature. The discount is not available for propane or fuel oil accounts. As of October 1, 2007, about 1500 farmers were in the program. Interestingly, the latest Agricultural Census reports there are about 7500 farms in Massachusetts. The Farm Energy Discount Program may be underutilized.

For additional information on the MDAR - Farm Energy Discount Program, please see the following website: <http://www.mass.gov/agr/admin/farmenergy.htm>

- **Chapter 61 Tax Reductions/Exemptions** – utility bills, qualified equipment, transportation fuels including off-the road
- **Renewable Energy Certificates (RECs)/Solar Renewable Energy Certificates:** The Massachusetts Renewable Portfolio Standard (RPS) is designed to diversify the state's electricity supply portfolio, stabilize rates, increase energy security, improve environmental quality, and invigorate the clean energy industry. The RPS was established as part of the 1997 utility restructuring act and was refined by the 2008 Green Communities Act. The state's Department of Energy Resources (DOER) is responsible for issuing and implementing the RPS regulations ([225 CMR 14.00](#) and [225 CMR 15.00](#)).

The RPS promotes the deployment of clean energy technologies in a couple of ways.

First, it requires all retail suppliers licensed in Massachusetts to buy renewable energy certificates (RECs) produced by generating facilities that meet certain criteria. For each megawatt-hour of green electricity produced by these facilities, a REC is generated. Licensed suppliers must hold RPS-eligible RECs equivalent to a fixed percentage of the electricity that they sell to consumers each year, in megawatt-hours.

Second, it creates a new revenue stream for facilities meeting RPS criteria. Facility owners can sell both electricity and RECs, either directly to consumers or to other suppliers.

The state's RPS rises annually. By increasing the demand for RECs from new facilities, the RPS leads to an increase in energy generated by wind, solar, hydro, bioenergy, and other qualified facilities. The

RPS also creates demand for RECs from certain existing facilities, thereby helping to ensure their continued operation. (The distinction between new and existing facilities is defined by whether the facility entered into commercial operation after or before December 31, 1997. Incremental generation rates above pre-1998 levels may qualify as new generation in some cases.)

The DOER determines whether renewable energy facilities qualify for RPS eligibility. A qualified generating unit must produce electricity from one of a defined group of sources, fuels, or technologies.

As of January 2010, the DOER created a “Solar RPS Carve-Out” – including creation of a new classification of Solar RECs (SRECs), with a higher value and an independent market mechanism. Only certain solar PV installations are eligible for this SREC.

For additional information on RECs and SRECs, please see the following website:

http://www.mass.gov/?pageID=eoeewaterterminal&L=5&L0=Home&L1=Energy%2C+Utilities+%26+Clean+Technologies&L2=Renewable+Energy&L3=Solar&L4=RPS+Solar+Carve-Out&sid=Eoeea&b=terminalcontent&f=doer_renewables_solar_about-the-rps&csid=Eoeea

- **Alternative Energy Portfolio Standard (APS) / Alternative Energy Credits (AECs):** The Alternative Energy Portfolio Standard (APS) offers a new opportunity for Massachusetts businesses, institutions, and governments to receive an incentive for installing eligible alternative energy systems, such as Combined Heat and Power (CHP), through a certificate trading system similar to the [Renewable Energy Portfolio Standard \(RPS\)](#).

For additional information on technologies that are eligible for RECs under the MA RPS, please see the following website:

http://www.mass.gov/?pageID=eoeeamodulechunk&L=3&L0=Home&L1=Energy%2C+Utilities+%26+Clean+Technologies&L2=Renewable+Energy&sid=Eoeea&b=terminalcontent&f=doer_efficiency_aeps&csid=Eoeea