NEWMOA Project Ideas
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Introduction

NEWMOA is interested in pursuing a variety of projects to support member state priorities in the areas of hazardous and solid waste management, pollution prevention, environmental results projects, waste site cleanup, and priority toxics including mercury reduction. This document provides brief descriptions of a variety of possible projects in these program areas. The proposed projects could be funded by contracts with state agencies, grants from EPA and other federal agencies, negotiated settlements as part of state or federal enforcement actions (often called Supplemental Environmental Projects or Environmentally Beneficial Projects) with private entities, grants from private foundations, or contracts with private companies.

NEWMOA welcomes interest in these projects and is willing to work with potentially interested parties to adapt them to specific circumstances. Each of the projects described below can be adapted for a particular state or geographic area or targeted to address the issues in a specific Supplemental Environmental Project. To discuss any of these projects, contact: Terri Goldberg, Deputy Director, NEWMOA, (617) 367-8558 X302 or tgoldberg@newmoa.org

Waste Site Cleanup Projects

Proposed Waste Site Cleanup Workshops Project

NEWMOA seeks funding to conduct Waste Site Cleanup workshops for local, state, tribal, and federal regulators, consultants, and others. The purpose of these workshops is to enhance the efficiency of waste site cleanup projects by improving the technical capability of state and federal regulators and the consultants that work on them. There are a wide variety of topics for which NEWMOA would be interested in conducting future workshops, including: characterizing vapor intrusion potential at sites, more active approaches to sites contaminated with chlorinated solvents, and emerging issues such as the potential impact of nanotechnology on the environment.

The Association has extensive experience organizing and running educational workshops on a variety of priority waste site cleanup topics, including investigating and mitigating vapor intrusion, remediating sites with chlorinated solvent contamination, and reducing the carbon footprint of cleanup activities. Agendas and presentations from past events are available at: www.newmoa.org/cleanup/workshops.cfm.

Once a workshop topic is determined, NEWMOA identifies technical experts to deliver presentations, develops the agenda, handles the logistics, promotes the event, manages registration, and conducts the session. Workshops are usually open to local, state, tribal, and federal regulators,

as well as consultants and others. In 2008, regulators, consultants, and industry representatives from states as far away as Utah and Montana attended the workshops. NEWMOA obtains continuing education credits for each workshop for Massachusetts Licensed Site Professionals (LSPs) and Connecticut Licensed Environmental Professionals (LEPs). Generally, each one-day workshop is held in two locations in the region to maximize attendance and has about 75-100 attendees. The workshops have generally received a combination of "excellent" and "good" ratings from participants.

Proposed Greening Remediation – Carbon Footprint Project

Waste site cleanup activities can have a significant carbon footprint, particularly during the remedy implementation. However, methods to determine the carbon footprint of remediation technologies are not fully developed or widely available. In order to reduce the carbon footprint of remediation activities, those involved in choosing the remedial approaches need to have an understanding of the potential carbon footprint of various options. NEWMOA proposes to conduct an initiative to develop a common regional approach to determining the carbon footprint of different remediation technologies at waste sites. Regulators could then use the carbon footprint as a factor in selecting between two or more remediation approaches that meet or exceed the remediation goals and objectives.

NEWMOA would contact identified experts and examine available information to help propose the best available approach. NEWMOA would highlight data gaps and endeavor to find or develop information to fill these gaps so a common methodology could be proposed. NEWMOA would also coordinate state agencies in understanding how to include carbon footprint data into decision-making at a site – for example as a factor to choose between two methods that both meet the cleanup criteria established for that site. The proposed outcome of this effort would be a guidance document outlining an agreed-upon methodology for assessing the carbon footprint of waste site remediation activities and an agreed upon approach for integrating the carbon footprint assessment into the selection of a remedial action.

Proposed Greening Remediation – Understanding Alternative Energy Technologies Project

NEWMOA proposes to develop fact sheets and training sessions on ways of making remediation projects more energy efficient. An important aspect of greening waste site cleanup projects and lowering their carbon footprint is minimizing the energy needed to power the systems and equipment used during the remediation process. However, regulators and consultants often do not understand the technologies that are available to achieve a higher degree of energy efficiency at contaminated sites, and therefore do not feel comfortable specifying their use on projects. NEWMOA proposes to address this obstacle through developing a series of fact sheets and workshops to provide information on technical topics associated with implementing greener cleanups. NEWMOA would draw on existing energy efficiency and greener cleanup resources, but put them in formats that are more useful and directly related to waste site remediation, including incorporating case studies. NEWMOA would develop short fact sheets on technical topics such as:

- improving energy efficiency of mechanical systems (i.e., motor efficiencies, use of variable frequency drive (VFD) motors)
- incorporating renewable energy technologies (i.e., wind and solar photovoltaic cells)
- integration of heating and process requirements (i.e., combined heat and power, geothermal heat pumps, solar thermal systems)

- issues related to the delivery and/or generation of alternative energy at sites (i.e., demand response pricing, distributed generation – connecting to the grid, renewable/alternative portfolio standards)
- minimizing overall energy use through choices in material supply and waste disposal (i.e., available models, databases, and life cycle assessments (LCAs))

NEWMOA would then develop a series of one-day trainings in the Northeast – targeted to both regulators and consultants. NEWMOA has extensive experience organizing and running educational workshops on a variety of priority waste site cleanup topics. Agendas and presentations from past events are available at: www.newmoa.org/cleanup/workshops.cfm. NEWMOA would identify technical experts to deliver presentations, develop the agendas, determine the logistics, publicize the trainings, handle registration, and run the workshops. Workshops would be open to local, state, tribal, and federal regulators, as well as consultants and others.

Proposed Polychlorinated Biphenyls (PCBs) – Brownfields Project

NEWMOA proposes a project to enhance the capabilities of state agency personnel to address Brownfields sites where PCBs have been detected through stakeholder meetings, development of fact sheets, and a training workshop. PCB contamination at waste sites present significant challenges during cleanup evaluation and implementation.

Unlike other contaminants of concern, PCBs are regulated under the Toxic Substance Control Act (TSCA) where they are subject to detailed requirements for evaluation and cleanup. In a Brownfields context, these requirements can be difficult to understand and implement. Brownfields projects are often under time and financial pressures to get through evaluation and cleanup and on to redevelopment and productive reuse. TSCA requirements for addressing PCBs can significantly delay and sometimes prevent a project from moving forward. For example, there have been Brownfields projects that have targeted redevelopment of historic mill structures with the intention of preserving the historic structure. The applicable TSCA rules may not allow that objective. State Brownfields program staffs need training and capacity building to more effectively understand and address the TSCA requirements for sites contaminated with PCBs.

Under this proposed project, NEWMOA would hold a series of meetings between state waste site cleanup programs, particularly Brownfields program, and EPA regional and headquarters staff to better understand the requirements and opportunities for efficiencies. NEWMOA would use the outcome of these meetings combined with existing materials to produce written materials targeted to state regulators and site owners and their consultants. For example, NEWMOA would utilize the lengthy EPA document, *PCB Site Revitalization Guidance Under TSCA* to develop a series of fact sheets in a format that is more easy to understand. Finally, NEWMOA would develop a training workshop for regulators and/or consultants and other stakeholders based on the fact sheets.

Proposed Project to Site Renewable Energy Facilities on Landfills & Contaminated Sites

Hundreds of closed solid waste landfills and other contaminated properties/Brownfields sites throughout the Northeast, that might otherwise have limited reuse potential, may provide opportunities for siting renewable energy projects such as solar collectors, wind turbines or organics processing facilities. However, expediting progress on the use of these sites requires that municipalities and others that own or control landfills and contaminated sites are helped through the intimidating array of federal and state incentive and funding programs; technical issues; environmental permit requirements; and other challenges that must be addressed to succeed.

NEWMOA proposes a project that would include a detailed "how-to" toolkit for communities and other site owners, along with staff support to assist member states in organizing informational exchange forums for municipal officials and others wishing to develop renewable energy projects on landfills/contaminated sites.

NEWMOA would develop a state specific guide for use by potential developers in each participating member-state. The guide would include information on accessing federal and state technical assistance, incentives, financing and related support resources geared to small/mid-sized municipally-sponsored projects. The guide would also include a site screening tool consisting of a checklist and explanation of the essential characteristics that a site must have for each of the project types; and a project feasibility/design tool for use by planners and potential developers. The tool would provide generic allowances and tolerances for key design features, such as bank slope, distance to bedrock, buffer zones, distance to users, wind characteristics, and others for each of the renewable energy technologies to be included.

NEWMOA would provide experienced staff to help participating state agencies plan and hold state-specific workshops/webinars, and develop other on-line information support resources. The workshops/webinars would be designed to engage all stakeholders, with special emphasis on the needs of municipal officials. Agendas would be developed in consultation with state environmental and energy agencies, and other stakeholders, and would enlist participation by appropriate consulting firms and developers. Each event would provide information on federal and state renewable energy and Brownfields/contaminated site redevelopment incentives programs, as well as the various renewable energy project opportunities and technical siting and permitting issues. The types of renewable energy projects covered would include solar and wind projects, recycling, bio-reactor, and others selected by participating state agencies.

Environmental Results Program (ERP) Projects

Proposed Technical Assistance for ERP Measurement Project

Due to two significant demands: 1) the need to effectively and efficiently improve the environmental performance of large groups of facilities with limited agency resources, and 2) calls to demonstrate that agency compliance assurance efforts are yielding measurable results, a number of states have begun to actively employ a wide variety of traditional and innovative approaches to environmental compliance, enforcement, and assistance. These initiatives involved experimenting with various combinations of regulatory and non-regulatory Environmental Results Program (ERP) tools to drive environmental performance improvements within identified regulated sectors and groups. ERP uses a unique combination of linked compliance assistance, compliance certification, and statistical performance measurement that leverages traditional compliance assurance activities to achieve improved performance for the selected group.

Building on the successful measurement approach developed for ERP, the MassDEP, in partnership with NEWMOA, designed and implemented the States Common Measures Project to advance state ERP capabilities through multi-state training and coordinated use of the measurement and other tools. A key goal of the project was to build capacity within states to use ERP tools and to enable participating states to compare the effectiveness and efficiency of differing state strategies for improving the compliance and environmental performance within a sector or group. A final report from the first phase of this Project is available at

www.newmoa.org/hazardouswaste/measures/report.cfm.

Building on this work, NEWMOA would seek to establish a Technical Assistance Unit for state agencies actively using, or interested in, ERP measurement. The goal of the Unit would be to train and transfer knowledge dedicated to the improvement of environmental performance in business and industry. NEWMOA would assist states in building capacity to implement innovative policy approaches and objectively measure performance, providing technical assistance and/or training to states interested in ERP measurement, and developing statistical methods and tools to measure ERP performance. The Technical Assistance Unit would support national efforts aimed at achieving measurable and sustainable improvements in industry environmental performance through the application of the ERP model.

Proposed ERP Measures in Energy Conservation, Pollution Prevention, & Recycling Project
Environmental agencies must increasingly look for innovative solutions for identifying and reducing cumulative pollution impacts of thousands of small businesses in order to achieve environmental protection goals for clean air, clean water, and safe waste, while at the same time, promoting better "beyond compliance" performance in state climate mitigation and sustainability plans. The states and EPA view the use of the Environmental Results Program (ERP) measurement tools as a way to help agencies face this challenge by significantly improving the effectiveness and efficiency of environmental programs. Over the past four years, NEWMOA has provided direct support to members of the States ERP Consortium as well as the State Common Measures Project.

Due to growing concerns about the need to address climate change, NEWMOA proposes a project that would involve developing and using quantifiable "beyond compliance" outcome measures for three performance categories: energy conservation, pollution prevention, and recycling. NEWMOA would work with states to develop measures for each category and apply those measures on a common group or business sector to establish a baseline of performance. NEWMOA would also draw from the many existing energy programs that have been developed, or are under development, by the State and Federal Energy Offices or Programs, and other not-for-profit or private energy efficiency utilities to develop its measures. These measures could be used by states to measure beyond compliance environmental performance in future field inspections, certifications and other data collection work, including routine regulatory reporting by facilities in any sector.

The proposed project would:

- Build capacity within states to quantify environmental performance improvements related to energy conservation, pollution prevention, and recycling;
- Allow measurement of group environmental performance changes over time;
- Enable states to identify and understand specific problem areas related to climate change, and direct program resources where they will achieve the greatest environmental results;
- Involve state-to-state collaboration on the creation of beyond compliance measures that are tested by using ERP performance measurement techniques. Results from this multi-state effort could then be used to implement future state climate action/sustainability plans/strategies.

Mercury Reduction Projects

Proposed Mercury-added Products Labeling Compliance Project
A number of states that are members of the Interstate Mercury Education and Reduction

Clearinghouse (IMERC) have enacted legislation prohibiting the sale of mercury-added products unless they have a label indicating the presence of mercury and information concerning proper disposal. For over 10 years, the State of Vermont has required the submission of a Certified Labeling Plan that describes the mercury-added product and the contents of its label. Through a comparison of the database of companies submitting a Labeling Plan to Vermont and the IMERC Mercury-added Products Database, the IMERC-member states are aware of at least 100 companies that manufacture mercury-containing products but have not filed a labeling plan for those products, as required under state law.

Connecticut, Illinois, Louisiana, Maine, Massachusetts, Minnesota, New York, and Rhode Island require that most mercury-added products have a label on the product and the packaging stating that the product contains mercury and must be managed properly at end of life. These states do not require companies to submit a formal Certified Labeling Plan for these product labels. The IMERC-member states propose to conduct a coordinated product labeling compliance investigation to identify companies and products that may be out of compliance with the states' product labeling laws.

The proposed project:

- examine mercury-added products and packaging, either through purchase or store visits, to gauge compliance with the states' mercury-product labeling requirements;
- provide outreach to out-of-compliance companies that describes the states' labeling legislation and the steps necessary to come into compliance; and
- maintain information regarding companies' labeling compliance in the IMERC Mercury-added Products Database.

Proposed Mercury-added Switches & Relays Project

According to the *Trends in Mercury Use in Products* report published by NEWMOA in 2008, the product category of switches and relays accounts for over 40 percent of the total mercury used in all products sold in the U.S. Mercury-added switches and relays are used as components in a wide variety of end products. As a result, they are often difficult to track. As of mid-2009, 11 IMERC-member states had banned the sale or distribution of mercury-added switches and relays in their jurisdictions. The IMERC-members states are interested in investigating whether some mercury-added switches and relays are still being sold in violation of the states' mercury laws.

The proposed project would support a compliance investigation to:

- conduct research to further understand the end uses of mercury-added switches and relays in products;
- develop a protocol for attempting to purchase mercury switches and relays or products that contain these components;
- identify more information about the manufacturers and products that fall within the states' mercury switches and relays ban;
- attempt to purchase mercury-added switches and relays and products that contain these components via the internet, telephone, or in-person and documenting the results; and
- coordinate the IMERC-member states on outreach to companies that are indentified as illegally offering switch and relay products for sale to inform them of the compliance requirements.

Proposed Neon Lamp Outreach Project

All neon lamps, except for the red ones, contain mercury, and the quantity of mercury can vary greatly depending on size and manufacturer. From custom-made signs produced in small shops to mass-produced signs imported from China, neon signs can contain relatively significant amounts of mercury per sign. Neon signs are found in a myriad of locations, including nail and tanning salons, retail stores of all sizes, restaurants, and bars.

According to research conducted by NEWMOA staff for the Massachusetts Department of Environmental Protection, cheaply-made neon signs imported from overseas are popular among beer distributors that give them to their customers to display in their bars and restaurants. When these signs burn-out or break, they are often disposed of as solid waste, in violation of many state laws. Broken signs present the risk of mercury vapor exposure at the site of use, and anecdotal evidence suggests that few users of these signs understand that they contain mercury and how to properly manage this waste at its end of life. Neon signs may not be labeled properly and, therefore, may not indicate that they contain mercury, and many neon sign producers have not provided the required mercury-added product Notification to the eight IMERC-member states that require these reports.

The proposed project would fund an outreach project to:

- develop outreach materials targeted to local "artisan" manufacturers of neon signs informing them of the need to comply with state mercury-added product requirements, where applicable;
- develop outreach materials for beer distributors, particularly those distributing mass-produced signs, and end users of neon signs alerting them that the signs contain mercury, the steps to take if a lamp breaks, and the need to manage these products properly at their end of life; and
- engage larger neon sign producers, including those represented by the International Sign Association, in an effort to reduce potential mercury releases to the environment through better lamp dosing technology and development of a sign recycling infrastructure.

Proposed Tanning Salon Outreach Project

Tanning salons utilize a high volume of mercury-containing lamps in the course of their daily operations. The lamps used in tanning beds are large fluorescent lamps that typically contain higher amounts of mercury than similarly sized lamps used in traditional lighting applications. Anecdotal evidence from a number of the NEWMOA-member states suggests that when these lamps reach their end of life, they are improperly disposed of by these typically small businesses. NEWMOA developed outreach flyers, available at www.newmoa.org/prevention/mercury/lamprecycle/tan_bed_flier_MA.pdf for this business sector in the past, but there was no active follow-up. NEWMOA's Lamp Recycling Workgroup is interested in conducting further outreach to tanning salons throughout the region.

The proposed project would fund an outreach project to:

- develop additional outreach materials targeted at mangers of tanning salons informing them of state regulations regarding the disposal of spent fluorescent tanning lamps, options for recycling, and removal and storage procedures;
- attend trade shows and develop advertising materials specifically targeted towards this business sector and regional lamp recyclers;
- conduct follow-up visits to a select number of salons to discuss the effectiveness of the outreach material and barriers they face in properly recycling lamps; and
- develop recommendations for follow-up and further action by state programs.

Proposed Toys Research & Outreach Project
Concern over the safety of children's toys is growing. New laws across the country are demanding that safer materials be used in the manufacturing of these products. Mercury has long been used in children's toys in the mercury-added button-cell batteries and in lamps used in digital displays, particularly in electronic games. Based on information submitted to the IMERC-member states, compliance by toy manufacturers with the IMERC-member states' mercury-added product Notification and other requirements is low. Many mercury-containing children's toys continue to be sold without the proper reporting or labels.

The proposed project would fund a research and product testing project to:

- develop a more comprehensive list of products and distributors of children's toys that may contain mercury-added button cell batteries and other mercury-added components, including LCD screens;
- purchase children's toys from retail locations and test the button cell batteries for mercury content to gauge compliance with the states' notification and labeling laws; and
- develop outreach materials for toy manufacturers and retail stores to explain the IMERC-member states mercury legislation and the need to comply with the various regulations before products can be offered for sale in a number of the states.

Proposed Mercury Use in Polyurethane Project
Through the IMERC-member states' Notification process, information about the use of mercury as a catalyst in the manufacture of a variety of polyurethane products has recently become available. The research by various mercury experts, including David Lennett and Peter Maxson, that have examined the international trade of mercury materials suggests that this mercury use may be much more significant than the amount reported to IMERC. However, knowledge of the producers, end users, and polyurethane products that contain the mercury is limited at this time.

The proposed project would fund a research and product testing project to:

- compile lists of the producers and end users of mercury-containing polyurethane to make sure they are in compliance with IMERC-member states' mercury legislation;
- research the products and applications that require mercury-added polyurethane, including any federal or industry standards that specifically state that these products must be used;
- test a selection of mercury-added polyurethane products to better understand the mercury content of these products, determine if they fall under the states' phase-out requirements, and inform those manufacturers whose products are in violation of mercury content limits; and
- organize informational sessions with experts and industry representatives to learn about possible alternative materials that can be used in lieu of mercury-added polyurethanes.

Solid Waste Projects

Proposed Agricultural Plastics Recycling Project
The NEWMOA-member states are facing an increasingly significant amount of agricultural plastic waste with limited options for recycling. While working towards the development of a collection infrastructure and regional markets for this material, the states are interested in developing an initiative to promote product stewardship approaches to help address this burgeoning waste stream.

The proposed project would fund research to:

- develop a comprehensive list of material types, their typical uses, and producers of these products;
- identify the lessons that can be taken from other product stewardship initiatives and applied to this waste stream; and
- develop a proposal with input from states, manufacturers, distributors, recyclers, and farmers for an product stewardship approach to better managing agricultural plastics at their end of life.

Recycling Agricultural Plastics: Technical Assistance Training for Conservation Districts, Agricultural Educators, & Farmers

Many types of plastics are widely used in agriculture today. Their low capital cost and flexible storage options for forage and grain crops make them popular with farmers. While plastics can improve farming efficiency and productivity, management of this waste stream at its end-of-life is a growing problem. Stakeholders estimate that about half of the plastic used on dairy farms in the Northeast is burned in open fires, releasing such harmful air pollutants as dioxin, while much of the remainder is buried on-site. According to the U.S. EPA, open waste burning at low temperatures produces dioxins, particulates, heavy metals, and other air pollutants. An EPA study cited open burning of household waste as the number one known source of dioxins in the environment. This study did not include an estimate of open burning of agricultural wastes, including plastics, which has since been estimated to be approximately equivalent in scale. Recycling plastics alleviates the environmental and health problems caused by open burning and dumping and cost less than landfill disposal. However, only a small fraction of farm, nursery, and greenhouse plastic waste generated in is recycled.

Currently, the Northeast Waste Management Officials' Association is managing a project to educate farmers and agricultural extension officials on the environmental and public health problems associated burning and burying agricultural plastics. This project is supported by a grant from the U.S. Department of Agriculture, Rural Utilities Service (RUS). This proposal seeks support to build upon this educational and assistance effort. NEWMOA's USDA-supported project has focused on New York State, Vermont, New Hampshire, and Maine and is limited to very rural areas within these states. This proposed project would expand this training and assistance project into peri-urban areas of the region and help in the development of an agricultural plastics recycling infrastructure to handle the volume of plastics film and other plastic material.

In addition to providing capital equipment for plastics collection, education for farmers and the educators and assistance providers that work with them is critical to the successful implementation of plastics recycling by farmers, growers, and others. NEWMOA's experience to date has shown that farmers and agricultural extension agents need training on why recycling agricultural plastics is important and what best management practices they should implement to properly collect the material for recycling. This kind of training is essential to the success of participation agricultural plastics recycling and the reduction in dioxin and other air contaminants from this practice.

NEWMOA's proposed project would involve the following tasks:
- Update outreach materials developed under NEWMOA's USDA grant
- Plan and hold workshops in areas of the region not previously served by NEWMOA's USDA grant

- Develop regional stakeholder working groups and hold post-workshop conference calls to provide technical assistance to farmers and extension agents for developing sustainable agricultural plastics collection programs

Under this proposal, NEWMOA would contract with Dr. Lois Levitan, Program Leader of the Cornell University-based Recycling Ag Plastics Project (RAPP), to develop the guidance materials and help lead the training workshops. Dr. Levitan is a nationally-recognized expert in agriculture plastics recycling and has extensive expertise in agricultural plastics education and market development in the Northeast. She has close connections with the agricultural extension community in New York State and has been working with several potential recycling markets located in the upstate area.

The proposed workshops would be directed to soil and water conservation district employees, agricultural extension educators, farmers, nurseries, landscapers, and other. Presentations at these events would include information about open burning regulations, the link between burning of agricultural plastics and dioxin releases, the importance of agricultural plastics recycling, recycling markets currently accepting various plastics, and best management practices (BMP) for preparing material for recycling. The workshops may also include a demonstration of the plastics balers.

Proposed Public Database of Beneficial Use Determinations Project

A variety of companies and individuals periodically approach state waste programs with plans to turn a previously discarded material into a commodity and ask for a determination that the proposed use is acceptable. NEWMOA has developed a database of the resulting Beneficial Use Determination (BUDs) issued by states, containing information including the waste, the use, the applicant company, the date issued, the quantity permitted, and restrictions on use. The database is located on the NEWMOA website and is password protected, accessible to state and EPA staff only. The primary purpose of the database is to increase the efficiency of a state's review process by providing easy access to information about BUDs issued by other states for similar waste and use combinations.

Under this proposed project, NEWMOA would engage government and non-government stakeholders to develop a publically-accessible version of the database. Non-government stakeholders would include various industry trade associations, such as those representing coal ash, foundry sands, scrap tires, and construction and demolition debris. NEWMOA would work with the project stakeholders to determine the information to be made publically available and its format, and then develop and post the public version of the database on the NEWMOA website.

Proposed Assistance to States with Developing a Common Approach to Reporting on C&D & Ongoing Reports on C&D Waste Project

In June 2009 NEWMOA published a report, *Construction and Demolition Waste Management in the Northeast in 2006* (www.newmoa.org/solidwaste/CDReport2006DataFinalJune302009.pdf). The purpose of the Report was to help the NEWMOA-member states and EPA understand how construction and demolition (C&D) waste is managed in the Northeast. An important conclusion of the Report is that the availability and quality of data regarding C&D waste management is not consistent among the Northeast states making aggregation and comparisons challenging. Through the Report preparation process, states concluded that it would be beneficial to develop a common approach to collection of data from C&D waste management facilities. This proposed project would:

- examine the report forms that each state uses to obtain data from C&D waste management facilities
- work with states to determine the data needed from each type of C&D waste management facility to obtain a state-specific and regional understanding of C&D waste management, including the reuse and recycling of specific materials
- for each state, determine how this model data set differs from how their data is currently collected
- develop a proposed report form for each type of C&D waste management facility: transfer station, processor/recycler, and disposal facility

Through this proposed project, NEWMOA would coordinate an effort to prepare an update to the published report incorporating more recent data. The states and EPA would use this Report to measure progress from the Report on the 2006 data, identify possible regulatory changes, and inform their policy-making process.

Proposed Analysis of the Flow of MSW for Disposal in the Region & Improvements in Data Quality Project

All of the NEWMOA states gather data on solid waste imports and/or exports in order to generate information about recycling and waste diversion activities. In May 2000, NEWMOA initiated a project to compile and analyze the data gathered from solid waste facilities in order to characterize the flow of municipal solid waste among the NEWMOA states and identify gaps in the data collection and other sources of potential data inaccuracies. NEWMOA undertook a similar data collection and analysis each year through calendar year 2006 data. Reports were published on the 1999, 2000 and 2002 data and are at: www.newmoa.org/solidwaste. Due to budget constraints, Reports have not been published on the 2003-2006 data. However, NEWMOA developed tables and graphs summarizing the data for use by the state officials in the region.

Under this proposed project, NEWMOA would collect and analyze regional MSW data for publication in a report on available data from more recent years, and compare this information with the data from prior years and analyze trends. The information provided by this project would inform state and regional discussions on ensuring disposal capacity, strengthening recycling, and improving other waste diversion activities. Through this project the states would have a forum to: reconcile data; monitor trends in waste flow; and discuss new or anticipated developments that could impact solid waste interstate flow in the Northeast. The states would also use the proposed report to make decisions as to what additional information they need to more accurately characterize waste flow and to identify data changes that might be beneficial on both a state and regional level.

Proposed Research & Training to Improve Commercial Organics Composting & Anaerobic Digestion Project

Organic materials, including yard trimmings, food scraps, wood, and paper and paperboard products, make up more than two-thirds of the U.S. solid waste stream. Gas is created as these organic wastes decompose in a landfill. Landfill gas consists of almost half methane (CH_4, the primary component of natural gas) and close to half carbon dioxide (CO_2), with a small amount of non-methane organic compounds. This proposed project would involve research to develop training for local and state officials and others on ways to increase and improve residential and commercial composting and anaerobic digestion.

The U.S. EPA considers municipal solid waste landfills to be the second largest source of human-

related methane emissions in the United States, accounting for nearly 23 percent of these emissions in 2006. Methane gas from landfills is estimated to have a global warming potential of between 21 and 72 times greater than CO_2, depending on the time frame that is evaluated. In traditional waste-to-energy disposal facilities, organic wastes have a negative fuel value because their high moisture content detracts from the energy value of the waste stream. Therefore, incinerating organics can be an ineffective waste management option from a GHG perspective. Diverting organic material that is the source of methane can be a more beneficial management option than landfilling from a climate impact perspective. Composting, anaerobic digestion (AD), or onsite conversion of organics to methane for direct energy uses avoid most of the methane emissions from landfills and the inefficiencies associated with incineration.

This proposed project would involve NEWMOA conducting research on available information and training materials on effective ways to increase composting and anaerobic digestion at the municipal and state level. Using the available materials, NEWMOA would develop and deliver a series of training workshops in the region for public and private sector audiences.

The NEWMOA states are in various stages of preparing and adopting state-wide plans for the management of wastes generated by a disaster such as a hurricane. State and others have identified a common outstanding need to pre-identify appropriate locations for the temporary storage of the various wastes that would be generated by a disaster. Once a disaster occurs, roadways must be cleared quickly, and residents and business owners need an outlet for the various debris generated. Temporary staging areas are required for the timely and efficient management of debris. NEWMOA proposes a project to address the unmet need to pre-identify appropriate staging areas. NEWMOA would work with the waste and/or emergency response agency in each state to:

- Estimate the types and quantities of debris that would be generated – and how quantities would be distributed throughout the state
- Inventory state-owned properties to develop a list of those that might be appropriate for temporary staging
- Assist state waste/emergency response programs in communications with other state agencies that control these potentially appropriate locations
- Identify gaps between available appropriate state-owned properties, and the estimated quantities or materials and the spacial relationship to where the debris would be generated
- Utilize the internet and other resources to identify other locations that might fill the identified gaps, such as large areas that do not have dense vegetation or buildings, such as shopping center parking lots
- Identify owners of identified properties and assist state waste/emergency response programs in communications

A second common outstanding need is to pre-identify potential markets for the waste materials generated by a disaster. To minimize disposal of debris, and instead maximize reuse and recycling, states need to promote segregation of various wastes at the temporary staging areas, and to have a place for the material to go. In the aftermath of a disaster, identifying outlets for reuse and recycling are not likely to be a high priority. Therefore, NEWMOA proposes to help states identify outlets and establish relationships prior to a disaster. NEWMOA would:

- Research how debris was handled from recent large-scale disasters such as hurricanes and floods – contact key individuals to obtain lessons learned and suggestions for improvement.

- Utilize NEWMOA's regional understanding of construction and demolition waste management to contact key firms to identify their capacity to handle disaster debris and their ability to maximize recovery for reuse/recycling
- Work with state waste programs to identify additional key reuse and recycling firms in the region and engage those firms in discussions
- Develop a written resource of potential regional outlets for each of the various material types that could be generated from a disaster.

Proposed Initiative on Improving Recycling of Construction & Demolition Wastes Project
In June 2009 NEWMOA published a report, *Construction and Demolition Waste Management in the Northeast in 2006* (www.newmoa.org/solidwaste/CDReport2006DataFinalJune302009.pdf). The purpose of the Report was to help the NEWMOA-member states and EPA understand how construction and demolition (C&D) waste is managed in the Northeast. An important conclusion of the Report is that only about ten percent of C&D waste is recovered for recycling or reuse outside the landfill environment. Most C&D waste is either disposed in a landfill, or the fines and residuals generated by C&D waste processing are used as alternative daily cover (ADC) at landfills. NEWMOA proposes a project to increase the recovery of C&D wastes for recycling and reuse outside the landfill environment by focusing on how C&D waste is processed. NEWMOA's report also found that C&D waste management and markets for recovered materials are regional and therefore a regional approach to definitions and measurement is needed.

NEWMOA would work with stakeholders, including C&D waste processors and their trade association to define best management practices (BMPs) and/or performance standards for C&D waste processing. The purpose of BMPs and/or performance standards would be to show what is achievable and set expectations for recovery of materials for reuse and recycling that would minimize disposal and generation of processing fines and residuals that are used as ADC. The BMPs and/or performance standards would be written as guidance and published on the NEWMOA website.

NEWMOA would also engage member-state regulators to develop model definitions of C&D waste processing, recovery for reuse/recycling, and diversion from disposal. In some states, use of C&D waste for ADC is considered diversion from disposal and counted the same as recycling. C&D waste processors have little incentive to increase recovery for recycling and reuse outside the landfill if that effort is not considered superior to generation of ADC. After the BMPs, or performance standards, and model definitions are developed, NEWMOA will conduct a series of outreach trainings with stakeholders to increase awareness and improve facility performance.

Proposed Initiative on Improving Recycling of Asphalt Shingles
Currently most tear-off shingles generated in the Northeast states are disposed in landfills. Roofing job wastes reach landfills either directly or via a transfer station, or are delivered to a C&D debris processing facility. At a C&D debris processing facility, the shingles are typically mingled with other C&D debris and processed into fines or residuals that are then used as alternative daily cover (ADC), or shaping and grading material at landfills – uses that are not sustainable over the long-term as more landfills close. Tear-off shingles consist of about 40 percent asphalt. Asphalt is made from petroleum and is the heavy residue from the oil refining process. Recovery and reuse of asphalt shingles can offset the need for virgin petroleum products in some applications, potentially reducing associated greenhouse gas emissions. Potentially, recycled tear-off shingles can become

components of hot-mix asphalt; cold patch asphalt; dust control products on rural roads; aggregate road base; new shingles; and fuel.

A multi-state effort to facilitate the expansion of recycling markets for tear-off shingles would increase the sustainability of C&D debris management, and would reduce its associated greenhouse gas emissions. Under this proposed project, NEWMOA would assist its member states in developing a common strategy to increase the reuse and recycling of tear-off shingles from C&D debris. NEWMOA would work with the states to identify, review, and prioritize the possible regulatory and policy actions that states could implement, including development of:

- common standards regulating or banning the disposal of asphalt shingles in landfills
- approaches for encouraging the removal of asphalt shingles before processing
- approaches to encourage or require recycling of asphalt shingles from government-sponsored re-roofing and demolition projects
- common test requirements for incoming tear-off shingles and/or outgoing products
- approaches to encourage developers to establish waste management plans (which would include waste asphalt shingles) before obtaining a construction, demolition, or renovation permit

Proposed Initiative to Improve Disaster Debris Management Planning

The NEWMOA states are in various stages of preparing and adopting state-wide plans for the management of wastes generated by a disaster, such as a hurricane. State and others have identified a common outstanding need to pre-identify appropriate locations for the temporary storage of the various wastes that would be generated by a disaster. Once a disaster occurs, roadways must be cleared quickly, and residents and business owners need an outlet for debris. Temporary staging areas are required for the timely and efficient management of the wastes. NEWMOA proposes a project to address the unmet need to pre-identify appropriate staging areas. NEWMOA would work with the waste and/or emergency response agency in each state to:

- Estimate the types and quantities of debris that would be generated – and how quantities would be distributed throughout the state
- Inventory state-owned properties to develop a list of those that might be appropriate for temporary staging
- Assist state waste/emergency response programs in communications with other state agencies that control these potentially appropriate locations
- Identify gaps in available appropriate state-owned properties, the estimated quantities or materials, and the physical relationship to where the debris would be generated
- Utilize the internet and other resources to identify other locations that might fill the identified gaps, such as large areas that do not have dense vegetation or buildings, such as shopping center parking lots
- Identify owners of identified properties and assist state waste/emergency response programs in communications

A second common outstanding need is to pre-identify potential markets for the waste materials generated by a disaster. To minimize disposal of debris, and maximize reuse and recycling, states need to promote segregation of various wastes at the temporary staging areas, and to have a place for the material to go. In the immediate aftermath of a disaster, identifying outlets for reuse and recycling are not likely to be a high priority. Therefore, NEWMOA proposes to help states identify outlets and establish relationships prior to a disaster. NEWMOA would:

- Research how debris was handled from recent large-scale disasters, such as hurricanes and floods – contact key individuals to obtain lessons learned and suggestions for improvement
- Utilize NEWMOA's regional understanding of construction and demolition waste management to contact key firms to identify their capacity to handle disaster debris and their ability to maximize recovery for reuse/recycling
- Work with state waste programs to identify additional reuse and recycling firms in the region and engage those firms in discussions
- Develop a written resource of potential regional outlets for each of the various material types that could be generated from a disaster

Pollution Prevention Projects

Proposed Energy & Materials Flow & Cost Tracker Phase 2 Project

The Northeast Waste Management Officials' Association (NEWMOA) has developed a materials and energy accounting software tool called the Energy and Materials Flow and Cost Tracker (EMFACT™) during the past four years. The development of this tool was funded by the U.S. EPA Office of Research and Development Collaborative Science and Technology Network for Sustainability Program. NEWMOA partnered with the Massachusetts Office of Technical Assistance (MA OTA) on development of EMFACT™.

EMFACT™ is a software tool designed to be used within companies for systematically tracking materials and energy use; multi-media releases, discharges, and wastes; and associated costs in ways that can create value for their business. The tool can provide a comprehensive picture of resource use and its relation to production and planning that can help improve both business and environmental performance.

The primary beneficiaries of EMFACT™ are those companies and organizations that implement this environmental management accounting tool to aid them in setting P2 priorities, identifying value-added opportunities for sustainable production, and implementing other materials and energy efficiency improvements. State and local environmental and technical assistance programs and private sector consultants also benefit by having the tool to help their client companies identify P2 opportunities and quantify the benefits and costs.

EMFACT™ Version 1.0 is currently available for free download from the NEWMOA website - www.newmoa.org/prevention/emfact/index.cfm. EMFACT™ version 1.0 does not have all of the functions that were originally envisioned for the tool and needs to be improved based on feedback from users.

The purpose of this proposed project would be to support development of key enhancements to EMFACT™, including adding functions to enable users to track electricity use and greenhouse gas impacts. There are also a number of software enhancements that the developers and users have identified as important for making the tool more valuable that NEWMOA would like to implement. The proposed project would also support NEWMOA to develop several case studies of small to medium-sized manufacturing facilities that implement the EMFACT™. NEWMOA would use the results of these case studies to inform the improvements and enhancements for EMFACT™ in the development of Version 2.0 and would incorporate the lessons learned and case studies into future trainings and presentations on EMFACT™.

Proposed Wet Cleaning Outreach Project

Use of solvents like PCE by dry cleaners and others presents a potential hazard in the workplace, to neighbors, and to the environment. The use of PCE can be expensive, since waste PCE must be handled as a hazardous waste. PCE dry cleaners are also a source of a substantial amount of soil and groundwater contamination; three out of four existing dry cleaners, or 27,000 sites, are estimated to be contaminated in the United States. The remediation of these sites can be costly.

There are a number of alternatives to PCE for garment cleaning, such as hydrocarbons and siloxanes, but many of these have environmental, health, and safety concerns, or have not been thoroughly studied. Fortunately, safer and greener garment care alternatives exist, particularly wet garment cleaning. Professional wet garment cleaning has been demonstrated to be a technically viable and commercially feasible substitute for PCE dry cleaning. Wet cleaning uses computer-controlled washers and dryers, specially formulated detergents, and specialized finishing equipment to create a cost-effective alternative to dry garment cleaning.

The diffusion of professional wet cleaning has been slow. Barriers include a lack of customer awareness of professional wet cleaning as a viable substitute for PCE dry cleaning; limited understanding by stakeholders of the environmental and economic benefits of professional wet cleaning; limited understanding by cleaners of the viability of professional wet cleaning; lack of an infrastructure for professional wet cleaning; and a lack of knowledgeable vendors, qualified installers, qualified trainers, and real-world venues to observe the potential of the technology. To address these barriers, several NEWMOA-member states have recently initiated programs to promote safer alternatives to traditional PCE dry cleaning, particularly wet cleaning.

The proposed project would fund research to:

- Develop background information for the public on the health and environmental impacts of PCE and other solvent alternatives to PCE to help raise awareness by the public and dry cleaners about PCE and the solvent alternatives, such as n-propyl bromide
- Develop an outreach brochure for the public and dry cleaners on the advantages of wet cleaning from a health and environmental perspective
- Work with NEWMOA-member states disseminate the brochures to the public and dry cleaners

Proposed Hospitality Industry Outreach Project

NEWMOA initiated a regional Workgroup to promote pollution prevention and sustainability for hospitality facilities and restaurants in the Northeast in 2008. The members of the Workgroup include federal, state, and local environmental officials as well as trade groups and state tourism agencies involved in outreach, assistance, and certification programs for lodging and related operations. These officials have begun to implement successful initiatives to promote green activities for the hospitality industry throughout the region. They are interested in expanding their outreach to members of the industry.

The NEWMOA Workgroup proposes to organize a series of web conferences for members of the industry to help them understand the financial, health, and environmental advantages of implementing green projects and some of the most effective options available. The purpose of these sessions would be to compliment the green outreach and assistance that the government programs are already providing to the industry and to expand their ability to reach the facilities in their states.

NEWMOA proposes to organize such web conferences four to six per year in collaboration with the Workgroup. The Workgroup would identify topics and potential speakers for the webinars, NEWMOA staff would manage the logistics, and the Workgroup would assist with outreach and promotion of the educational events. The Workgroup has identified web conferences as a format for these activities to minimize travel expenses and effort on the part of themselves and the industry participants.