2009 Environmental Policy and State Innovations Grant Pre-proposal

Title: Integrating GHG Reporting and Reduction and EMS in N. C.

Applicant: N. C. Department of Environment and Natural Resources; Division of Pollution Prevention and Environmental Assistance; Partners – DENR Division of Air Quality, State Energy Office and N. C. Waste Reduction Partners

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Total Project Cost: Total Budget: $284,500
Requested from EPA: $184,500
Non-Federally Funded Staff Time: $100,000

Project Period: October 1, 2009 - September 30, 2011

Project Abstract:
Emissions of greenhouse gases to the atmosphere are increasing the temperature causing major environmental changes, public health consequences, effects on the economy and quality of life. N.C. DENR proposes a pilot project to develop a methodology, tools and training for incorporating the key requirements of GHG accounting and assurance, based on the ISO14064:2006 standard, into environmental management systems. Members of the N.C. Environmental Stewardship Initiative will be asked to serve as pilot facilities. These facilities will commit to testing the methodology and to reporting greenhouse gas emission reductions to DENR. In addition, facilities will be encouraged to report GHG emissions to The Climate Registry. Pilot facilities will receive on-site visits to assist with footprint inventory, calculation and preparing reporting facilities for data verification and reducing greenhouse gas emission. Training and tools will be developed to assist other states and organizations. Expected outcomes are reduced greenhouse gas emissions and increased number of N.C. facilities reporting on GHG.

Statutory Authority and Flexibility: N/A

State Agency Support: DENR Secretary Bill Ross is aware of and endorses this proposal.

Pre-proposal Budget Summary:

Budget Category	Federal Funds Requested	Proposed State Leverage Funds	Total Funds	Explanation
Salaries and Benefits	$132,046	$100,000	$232,046	*[EPA Redacted as Confidential Budgetary Information]*
Training	8,000		8,000	Training for DENR staff on Climate Registry data collection and verification.
Travel	8,061		8,061	Estimated 30 on-site (in-state) visits to ESI facilities, 1 out-of-state trip for 2 staff for GHG accounting and verification training, 1 out-of-state trip for 2 staff to an appropriate national EPA conference to present on project.
Contractual	25,000		25,000	Grants to ESI pilot facilities, up to $5,000 each for 5 facilities, to be used for cost associated with testing methodology and incorporating into EMS.
Equipment	1,700		1,700	One laptop computer
Indirect Cost	9,693		9,693	Current 9.7% Indirect Rate (based on total salaries of $99,924)
TOTALS	$184,500	$100,000	$284,500	

(Benefits: Social Security 7.65%; retirement 7.83%; and medical $348.58/month)

Pre-proposal Project Narrative

a. Problem (Issue) Statement. There is a growing scientific consensus that emissions of greenhouse gases are raising temperatures causing major changes, including the melting of polar icecaps, rising sea levels, flooding of coastal lands, changes in ocean currents and more frequent and stronger hurricanes and other storms. At a November 2008 meeting of the American Medical Association delegates warned that climate change could have dramatic public health consequences, causing heat waves, drought and flooding, cutting potable water supplies, displacing populations and spreading infectious diseases. In addition to effects on the environment and public health these changes will also have negative effects on the economy and quality of life.

Current regulatory programs do not address the reduction nor require reporting of greenhouse gas emissions. However, voluntary programs such as The Climate Registry and performance-based environmental leadership programs are encouraging and assisting organizations to reduce and report on non-regulated environmental impacts, including greenhouse gas emissions.

b. **Background**. N. C. has been active in encouraging organizations to report on GHG emissions. The N.C. Department of Environment and Natural Resources, Division of Air Quality is in the rule-making process to require reporting of direct GHG emissions from Title V facilities per major permitted stationary source on site. Insignificant sources are reported one time for establishing a baseline. All other reporting is voluntary. DENR/DAQ is also a charter member in TCR, which provides a voluntary means for organizations to verify their greenhouse gas emissions using accurate and consistent methods.

The DAQ Deputy Director is a Board Director on the Advisory Committee, and DAQ staff serve on various emissions reporting expert panels. The primary goals of TCR are to report GHG emissions in a common, accurate and transparent manner consistent across industry sectors and support future greenhouse gas reduction efforts. The registry is seen as a key part of efforts to cope with climate change or global warming. DENR has encouraged N.C. facilities to participate in the TCR. In April 2008, DAQ sent a letter to N.C. facilities, inviting them to participate as a reporter in the TCR and highlighting the benefits of participation. Currently eleven N.C. organizations are members of the TCR including DENR.

North Carolina also has a mature environmental performance-based leadership program, the Environmental Stewardship Initiative. The ESI is based on the ISO14001 environmental management system model. All ESI members receive technical assistance, training and opportunities to network and learn from other members. The program is managed through the DPPEA. The ESI provides a pool of potential candidates for reporting to the TCR. ESI members have made voluntary commitments to develop environmental management systems and report annually on regulated and non-regulated environmental improvements. They have already demonstrated an interest and commitment to improve environmental performance making them excellent candidates for reporting and reducing GHG emissions. Many of these organizations have already set goals and made progress toward reducing energy consumption. Not only will many of them be able to provide data on GHG emissions but they will also provide information, case studies and act as mentors for other organizations.

The structure of the ESI and the training and experience of the ESI staff provide an opportunity to take an existing program, with existing tools and training, and incorporate assistance and training on GHG reporting and reductions into the program. Many DPPEA staff are trained as ISO 14001 lead auditors. They have experience providing technical assistance on energy management and reductions. If provided training on the ISO14064:2006, staff will be able to develop a methodology, including tools and training, to incorporate the key requirements of GHG accounting and assurance into the EMS. DPPEA will also be following the development of the new ISO 50001 standard for achieving superior energy performance.

Many DPPEA staff are also trained Energy Managers and have experience assisting facilities in reducing energy use. The Waste Reduction Partners program includes staff and retired volunteers with extensive experience in energy management. DPPEA and WRP have worked closely with the State Energy Office on a number of energy use reduction projects.

Program Guidelines and Eligibility Requirements

Threshold Criterion #1 **(**Section I, Part C and Section III, Part C)

Statutory Authority - Clean Air Act, Section 103 (b) (3) (42 U.S.C. § 7403 (b) (3)). This proposed project will meet the Clean Air Act requirements by preventing greenhouse gas emissions. Covered activities include researching the commonalities of GHG accounting and assurance requirements with the requirements of an EMS, developing a methodology for incorporating the GHG requirements into an EMS, demonstrating the methodology at pilot facilities and developing training to disseminate this methodology to other organizations.

Threshold Criterion #2 **– (**Section I, Part D; Section III, Part C)

Substantial Compliance - This proposal supports EPA's Strategic Plan Objective 5.2 by promoting and providing assistance on energy conservation and reduction of greenhouse gases through pollution prevention and an innovative technique of incorporating GHG emission reporting and reductions into an EMS. This approach will encourage the many members of state environmental leadership programs and EPA's Performance Track to serve as models and mentors for GHG emission reporting and reduction. As organizations identify and calculate GHG emissions they will be encouraged and provided assistance to reduce these emissions. Public reporting has been demonstrated in the past to be a motivating factor, increasing the understanding and transparency of environmental impacts.

Threshold Criterion #3 - Substantial Compliance (Section II, Parts A&C; Section III, Parts A&C)
Section II, Part A - Total Project Cost**:** $284,500
Requested from EPA: $184,500; Non-Federally Funded Staff Time: $100,000

Section II, Part C - Project Period: October 1, 2009 - September 30, 2011

Section III. Part A – Applicant is the principal environmental regulatory agency in N.C.

Section III, Part C - This pre-proposal complies with all the pre-proposal submission instructions and requirements set forth in Section IV and has been submitted (www.grants.gov) by December 10, 2008.

c. **Project Objectives**
The objectives of this project are to reduce greenhouse gas emissions and increase the number of N.C. organizations reporting on GHG emissions to TCR (from the current baseline of 11). This project will work closely with volunteer pilot facilities to develop an innovative methodology incorporating GHG accounting and assurance into an EMS. In addition to utilizing the many existing tools for GHG accounting and reduction, DPPEA will develop tools, training and information for incorporating accounting and reduction efforts into a facility's existing EMS. These EMS-based GHG tools will be available on the DPPEA Web site to be used by EPA, other states with performance-based leadership programs and any facility with an EMS interested in reporting and reducing GHG emissions.

d. **Methodology or Technical Approach**.
The major tasks of this project are to:
1) Acquire training on ISO14064:2006, the GHG accounting, reporting, and verification standard, for DENR staff. DPPEA proposes sending 2-3 staff that have had ISO14001 lead auditor training to ISO14064 training.

2) Using current experience and knowledge of ISO14001:2004 EMS and the knowledge acquired from the ISO14064:2006 training, develop a methodology incorporating the key requirements of GHG accounting and assurance into an environmental management system. Trained staff will review overlaps between the two standards and evaluate how ISO14064 requirements best fit into an EMS. Staff will research existing tools and as needed develop templates, procedures and spreadsheets to assist organizations with meeting the requirements of TCR, including carbon emissions inventory, calculation, reporting and verification.

3) Staff will solicit up to five volunteers from the ESI membership to serve as pilot projects. Grants will be made available to encourage participation and to help facilities with costs associated with testing the

methodology. These organizations will either have an EMS in place or be in the process of developing an EMS. They will commit to testing the methodology and tools developed by DPPEA and to reporting GHG emission reductions to DPPEA through their ESI annual reports. The methodology and tools will be designed to prepare facilities to verify and report data to the TCR if they choose.

4) DPPEA and N.C. Waste Reduction Partners staff will assist the pilot facilities with on-site visits to identify, calculate and report their GHG emissions. As part of the process, staff will also assist in setting goals and reducing these emissions. ESI members are required to set environmental improvement goals and to report annually on progress toward these goals. All ESI members will be encouraged to set GHG reduction goals, but the pilot facilities will serve as a model and be mentors to others. Case studies will be developed from successful projects.

5) DPPEA will work with DAQ, WRP and the State Energy Office to develop training based on the methodology and lessons learned from working with the pilot organizations. The training will be designed to equip facilities with the tools and knowledge they will need to calculate, verify and report GHG emissions to TCR. Training will be offered to all ESI members and will be incorporated into the annual EMS training provided as an incentive for ESI members. This training currently consist of five training modules offered over a period of about six months that steps members through EMS development. DPPEA will evaluate the need and feasibility of offering a separate module for GHG reporting and reductions.

6) DPPEA has recently added voluntary indirect GHG reporting into its annual report. During this project, DPPEA will evaluate adding mandatory indirect and/or direct GHG reporting requirements at the higher ESI levels, and voluntary indirect and/or direct GHG reporting at the Partner level.

7) The methodology and training will be made available to EPA and other state programs through reports and the DPPEA Web site. Additionally, DPPEA will conduct at least one webinar or conference call to other state programs and Performance Track to share the efforts, tools and results of the program, and will offer at least one webinar or conference call to Performance Track industries to share program tools, results and case studies.

Milestones	Target Dates
Training on ISO14064:2006 completed	Dec. 2009
ESI pilot project members identified	Jan. 2010
Grants provided to pilot facilities	June 2010
Draft methodology and tools completed	June 2010
Pilot work with ESI volunteers completed	Jan. 2011
Methodology and tools finalized	March 2011
Webinars and presentations on program results	May-Oct. 2011
Training developed and 1st session offered	Aug-Sept. 2011
GHG reporting incorporated into ESI requirements	Sept. 2011
Methodology and training made available to EPA, states, & P.Track	Oct. 2011

Addressing Selection Criteria

Quantitative Evaluation Criteria - Headquarters:

a) Consistency with Solicitation Theme - Innovation in environmental Permitting

EPA interprets "innovation in permitting" to include alternatives to permitting programs. This proposal provides a creative, voluntary approach to reducing GHG emissions and increasing the availability and quality of GHG data by:

1) building on existing programs – joining regulatory and performance-based programs;
2) strengthening partnerships between regulatory and non-regulatory approaches – here, between the ESI and DAQ's compliance and reporting efforts;
3) going beyond a single facility experiment – pilot project will include up to five facilities and training will be made available to all ESI members;
4) improving both reporting and reduction of greenhouse gases (EPA Goal 1, Objective 1.5);
5) promoting integrated environmental management – rather than an added requirement for organizations with an EMS, this project will help them integrate GHG management into their existing EMS; and
6) potentially transferring to other states and government programs and to Performance Track members– tools, procedures and training materials will be made available through DENR Web site, webinars and presentations. Many organizations have developed EMSs and many government performance-based programs have been created around EMSs. Using this existing structure to focus on a national environmental priority has great potential to improve the environment beyond any current requirements.

This proposal also supports three of the sub-objectives in EPA's Strategic Plan/GPRA Architecture:
Goal 1 **--** Clean Air and Global Climate Change, Objective 1.5 – Reduce Greenhouse Gas Emissions. This project will result in reduced GHG emissions by increasing awareness of emissions, technical assistance received and public reporting of emissions.
Goal 4 **--** Healthy Communities and Ecosystems. Reduction of GHGs will result in improved public health and reduce the potentially devastating consequences of continued global warming.
Goal 5 **--** Compliance and Environmental Stewardship, Objective 5.2 – Improve Environmental Performance through Pollution Prevention and Other Stewardship Practices. Technical assistance provided will focus on pollution prevention techniques. The ESI program's goal is to encourage stewardship through systematic environmental management by providing technical assistance and networking opportunities.

b) Consistency with Priority Focus Areas

This pre-proposal mainly addresses strategic focus area iv (*Advancing implementation of performance-based environmental leadership programs similar to PT program, particularly including the development and implementation of incentives*). The ESI is a state performance-based leadership program. The implementation and utilization of the ESI will be advanced by:

1) partnering with other state programs, (DAQ, WRP and the State Energy Office) will increase joint planning activities and better integrate ESI with other state agencies;
2) tools and training developed through this project will serve as an incentive for organizations to join the ESI in order to access the materials and assistance provided;
3) implementation of the knowledge and tools will improve the environmental performance of ESI members – a goal of the ESI program;
4) the ESI will be used to address a major environmental priority, GHG, improving its visibility;
5) providing a model and tools for PT and other state performance-based programs to use; and
6) the GHG emissions "footprint" of facilities will be assessed, and goals will be developed to reduce this footprint.

c) Producing measurable environmental outcomes

This pre-proposal produces quantifiable results including:

- Knowledge - number of training participants demonstrating increased knowledge (measure by quiz at beginning and end of training events).
- Behavior – number of ESI facilities reporting to state registry and number reporting to TCR; number of facilities establishing projects to reduce GHG emissions; number of facilities reporting reduced GHG emissions.
- Environmental conditions – quantified lbs. of GHG emissions reduced (reported on ESI annual reports); cost saved from energy efficiency, process improvements and fuel savings.

d) Transferring Innovation

There is tremendous opportunity for the lessons learned and tools developed from this project to be transferred to other states, federal government and Performance Track facilities. Many states have environmental leadership programs based on organizations developing an EMS and many organizations are familiar with the ISO14001 EMS approach. These states, and the EPA Performance Track program, will be able to use the methodology and tools developed through this project to assist their members in reporting and reducing GHG emissions. Incorporating the GHG requirements into an EMS will encourage more facilities to address GHG emissions and report on them.

All tools developed will be available on the DENR Web site and through webinars and presentations. DPPEA will document the process of working with pilot facilities to highlight problems encountered and how they were overcome. All output and outcome measures will be made available. Staff will be available to participate in relevant national and regional workshops to report on results and assist other states with implementing a similar system.

e) Project Technical Feasibility

No problems with technical issues are anticipated with this project. The DPPEA staff who will be working on this project are environmental engineers and specialists with environmental technical backgrounds and they are familiar with ISO 14001. Many also have Energy Management training. Their backgrounds and technical expertise will give them an excellent background to understanding, evaluating and incorporating the requirements of ISO14064 into an EMS structure, and to working with facilities to reduce GHG emissions. They have served as coaches for the ESI members so there is a trust and professional relationship already established with the organizations that will be pilot facilities.

The partner agencies bring additional expertise, complementing the knowledge, experience and contacts of DPPEA. DAQ staff bring expertise in air quality and GHG reporting that will be needed to make this a successful project. WRP provides several engineers with impressive accomplishments in assisting facilities with improving energy efficiency, and SEO provides additional information and training in energy reduction. Staff from DPPEA and the partner agencies have experience with training and materials development.

Quantitative Evaluation Criteria – Regional

a) Addressing EPA Regional-State Priorities - This project addresses the EPA National Priority of Greenhouse Gas Reduction and the EPA Regional-State Priorities of implementing pollution prevention projects focused on .Chemical and Manufacturing and Greenhouse Gases. Within those categories, this project also relates to the regional priorities of utilizing environmental leadership

programs and environmental management systems, and improving utilization of pollution prevention assistance delivery techniques such as retired engineer technical assistance programs and other assistance to business.

b) Programmatic Capability and reporting on past performance of env. results – See pre-proposal *4.* ***Past Performance -Programmatic Capability and Reporting Environmental Results.***

c) Regulatory and Statutory Env. For Project Implementation – No statutory changes or regulatory flexibility will be necessary to implement this project. In 2002, the N.C. General Assembly passed the Clean Smokestack Act, which tasked DENR/DAQ with studying options for reducing CO_2 emissions from coal-fired power plants and other sources. The N.C. Climate Action Plan Advisory Group was formed as a public stakeholder group to give input to DENR/DAQ on this issue. In 2005, the N.C. Legislature also formed the Legislative Study Commission on Global Warming, and the two groups have worked together on the effort. The CAPAG released a report in 2005 listing the top 56 mitigation options with cost analyses. Currently, DAQ requires Title V facilities to report direct GHG emissions from Title V facilities per major permitted stationary source on site. No additional GHG legislation has yet been passed, and no current litigation exists or is expected that could stop or delay this project.

d) Budget Reasonableness– See ***Pre-proposal Budget Summary.***

e) Collaboration/Partnerships - This project will be performed in partnership with the DENR Division of Air Quality, Waste Reduction Partners and the State Energy Office. DAQ will provide expertise and experience on GHG reporting requirements and will work with DPPEA staff in developing tools, training and some on-site assistance with pilot facilities. WRP staff are retired engineers, some with extensive energy management experience. They will be available to assist pilot facilities with determining their energy footprint, assisting with calculations and providing energy reduction recommendations. The SEO is N.C.'s lead agency for energy programs and services. They will assist with planning and training. DPPEA staff will be the lead agency and will be responsible for coordinating activities and taking the lead in developing all new projects and training.

f) Leveraged Resources – EPA funding will be leveraged with state resources. DPPEA, DAQ and WRP staff will assist with development of tools, training and on-site assistance. SEO will provide energy information, and DPPEA and WRP staff will provide energy audits.

g) Public Involvement Process - DENR is committed to transparency and public involvement. DPPEA will work with existing groups and processes for public involvement. The ESI Advisory Board meets at least twice per year and is chaired by the DENR Assistant Secretary and includes representatives from environmental and citizen NGOs, a federal or state facility, academia, an industry trade group, large and small businesses, and agribusiness. The Board, or a workgroup of its members, will review and direct this effort's process and results. The ESI program also requires community involvement at the top level, and these facilities are involved in numerous local education and public outreach efforts, as well as acting as mentors to encourage other organizations to reduce their environmental impacts. ESI pilot facilities will be encouraged to include GHG emission reporting in public reports and outreach efforts and to address the importance of GHG reductions in their community activities.

DAQ administers and maintains a Climate Change Web site which contains information on current and upcoming state and federal regulations. The Web site also contains access to state-wide emissions inventory reports, projections and forecasting results. Organizations interested in calculating their carbon footprint can use emission calculation guideline documents, spreadsheets and other resources provided on the Web site. DAQ is heading a comprehensive effort to consolidate greenhouse emissions records for DENR's 25 divisions and report entity-wide emissions to TCR. The lessons learned and tools developed through this effort will be provided to N.C. organizations interested in joining TCR or calculating their carbon footprint. DAQ and DPPEA will share resources, training and tools through this project.

The project will also be presented to the SEO Energy Policy Council, comprised of state agencies, elected officials, power companies and industry, which makes recommendations to the state on energy policy, for input. Information on the project will be posted on the DPPEA Web site, including resources and case studies. Also, the verified emissions of facilities reporting to The Climate Registry will be available in the future through www.TheClimateRegistry.org.

e. **Outcomes and Measures**

Environmental Outputs – number of ESI members joining pilot project; number of site-visits conducted to assist members; number of new tools, case studies and templates developed; number of training sessions; number of participants trained; number of ESI members reporting GHG reduction on annual reports; number of additional organizations reporting to TCR.

Environmental Outcomes –

First Order Outcomes - Knowledge

We expect that knowledge of participants will be increased through their participation in training sessions, on-site coaching visits, and/or webinars on GHG emission calculations and reductions. This increase in knowledge will be measured by administering a quiz to participants at the beginning and end of each training session to demonstrate increased knowledge. We expect all participants to demonstrate increased knowledge unless they are already experts in the topic area.

Second Order Outcomes - Behavior

We expect that behavior changes will be shown through the process of facilities conducting GHG footprint calculations, and implementing projects to reduce GHG emissions, and reporting reduced emissions. Behavior changes will be measured by the number of ESI facilities participating, the number reporting GHG emission reductions on the ESI annual reports, the number of projects that facilities establish to reduce GHG emissions, and the number of facilities reporting to the TCR.

Third Order Outcomes - Changes in Environmental Conditions

Environmental conditions will be measured through the reported emissions in pounds of GHGs reduced by participating facilities on the ESI annual reports and the money that companies report saving from these reductions, particularly from increased energy efficiency.

4. Past Performance – Programmatic Capability and Reporting Environmental Results

Summary of Programmatic Capability

The ESI program was established in 2002 and has since grown to 115 sites (2008). The program reduces pollutants by impressive amounts each year as shown below. DPPEA has helped hundreds of organizations put EMSs in place since the mid 1990's, from small hog farmers to multi-national corporations. All staff members who work on the project are given ISO 14001 Lead Auditor Training as well as on-the-job training by peers. Coaches also receive monthly ESI updates and training. Staff can

also provide the increased level of pollution prevention assistance needed to reach the high expectations set in the ESI.

The ESI program is co-managed by key personnel who report directly to the DPPEA's Industrial Assistance Section Chief. These co-managers are responsible for overseeing the day-to-day operations of ESI staff and ensuring all deadlines and project commitments are met. The ESI staff and the Section Chief have biweekly meetings and monthly coaches meetings are held to ensure that the work plan is being followed, all goals are being met and any problems are quickly resolved. DPPEA management meets regularly with the Assistant Secretary for Information Systems/CIO to keep senior management up to date and provide feedback on program progress. Additionally, the ESI Advisory Board and the Internal Workgroup meet twice yearly and provide additional program evaluation and feedback. When needed, coaches meet with members to help them organize and develop annual report metrics, and to ensure a 100% reporting rate.

Summary of Reporting Environmental Results

DPPEA has performed the following PPG assistance agreements related to the ESI:

- PPG Cooperative Agreement #NP-98497205; Project Period 10/1/2004-9/30/2005.
- PPG Cooperative Agreement #NP-98497206-0; Project Period 10/1/2005-9/30/2006.
- PPG Cooperative Agreement #NP-98497207-0; Project Period 10/1/2006-9/30/2007.

DPPEA has consistently fulfilled all work plan and grant requirements and submitted semi-annual and final reports on time. Outputs include increased membership, movement of facilities up program levels, increased environmental performance, annual meetings, technical assistance, on-site visits, and training events. Outcomes were measured in facility pollution reductions. Each year, facilities report on the previous year's data, so data reported in 2005 is from 2004. A summary of output and outcome annual results and three-year totals are shown in the table below.

2004-2006 ESI Reported Results – Outputs and Outcomes					
Area	**Reported 2005**	**Reported 2006**	**Reported 2007**	**Totals**	**Units**
Members	**54**	**91**	**100**	**NA**	**NA**
Members moving up levels	**4**	**3**	**0**	**7**	**NA**
On-site visits, trainings	**55**	**73**	**67**	**195**	**NA**
Air Emissions	**297**	**208**	**232**	**737**	**Tons**
Hazardous Waste	**12**	**119**	**405**	**536**	**Tons**
Landfilled Waste	**997**	**82,453**	**59,441**	**142,891**	**Tons**
Energy	**11,737**	**48,451**	**169,349,052**	**169,409,239**	**Mbtu**
Water Use	**369,529,216**	**54,201,286**	**591,356,273**	**1,015,086,775**	**Gallons**
Total Cost Savings	**Not reported**	**$12,721,772**	**$10,393,930**	**$23,115,702**	**$**

5. Logic Model - Attached.