

The Maryland Energy Administration's
**Kathleen A. P. Mathias Agriculture
Energy Efficiency Program**

A Case Study

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EXECUTIVE SUMMARY

Energy policy makers and program designers in the United States focus on implementing programs to address and realize the potential for energy efficiency savings that has been publicized and pursued for decades. This concentration encompasses numerous types of buildings in the United States and applies to buildings within the nation's agriculture sector. The U.S. Department of Energy's (DOE) Better Buildings Neighborhood Program (Better Buildings Program) is designed to push the envelope in energy efficiency and deliver savings in sustainable and innovative ways. The Better Buildings Program generates models for the building upgrade industry that can eventually be sustained in the private sector. Successful models will drive demand for energy upgrades, provide attractive financing options, foster a trained energy workforce, and create models for energy efficiency programs across the country. To create such a model for the agriculture sector, program managers at the Maryland Energy Administration (MEA) developed the Kathleen A. P. Mathias Agriculture Energy Efficiency Program (Ag Program). The Ag Program examines the agricultural neighborhoods of Maryland and asks the question: *How can Maryland's, and indeed America's, agriculture community benefit from a competitive grant program designed to implement cost-effective energy efficiency upgrades, leverage funds, and showcase the energy efficiency upgrades in a way that will enable other farmers/ businesspeople in the agriculture sector to make informed cost/benefit decisions and find future funding opportunities for similar upgrades?*

MEA was awarded a \$2 million Better Buildings Program sub-grant from the Maryland Department of Housing and Community Development (DHCD). This American Recovery and Reinvestment Act (ARRA)-funded program was designed to expend its funds in one year. Therefore, MEA began designing the Ag Program in June 2012 and the Ag Program opened for applications on August 15, 2012. MEA faced the following challenges in implementing a grant program:

- **Time** – There was less than one year to implement measures.
- **Federal Requirements** – Special Terms and Conditions:
 - National Environmental Policy Act (NEPA) Allowable Measures
 - Waste Management
 - Historic Preservation
 - Davis-Bacon Wages
 - Certified Minority Business Enterprise and/or Disadvantaged Business Enterprise (MBE/DBE) Firms
 - Signage
 - Procurement

- Other requirements
- **Program Requirements** – The upgrades/retrofits must achieve at least a 15% energy savings for that treated/upgraded space.

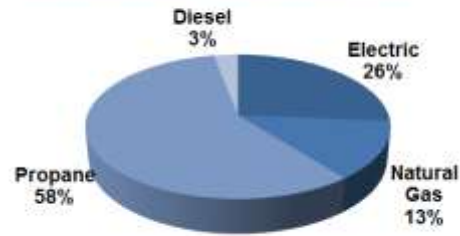
MEA responded to these challenges by designing a program to successfully address the challenges while yielding \$233,000 in annual savings for Maryland’s agricultural businesses.

Locations



Mathias Ag Program Outcomes

Where did the energy savings come from?



Total Energy Savings: 10,375 MMBtu

Estimated Costs, Savings, and Payback

Estimated Annual Energy Cost Savings	\$233,471
Estimated Installed Cost	\$1,966,735
Estimated Payback in Years	8.4

Building Info

Average Savings per Building	23.6%
Square Footage	754,138
Number of Buildings Retrofitted	48

Greenhouse Gases (estimated values)

CO ₂ (Metric Tons)	969.85780*
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*The equivalent of taking approximately 200 cars off Maryland’s roads for a year.

One of the common definitions of ‘efficiency’ is the extent to which time, effort or cost is well used for the intended task or purpose. The Ag Program presented in this case study is intended to serve as an example of a competitive grant program that can be implemented quickly, is scalable, and can be done in a compliant manner that will share the information gained in ways that encourage future leveraging opportunities. Effective programs should be personalized to their target audience. The energy coach model takes this approach into account. This case study presents an example of a program in which time, effort and cost are well used for the intended task or purpose.

What This Paper Covers

This paper explores strategies used to implement and increase demand for energy efficiency improvements in Maryland's agriculture sector. It is important to note that the strategies discussed in this paper, although supported by professional audits, have not had adequate time for follow-up. The quantitative aspect of the implemented measures over the course of time could have variation from the estimated energy savings. The qualitative aspect of the showcasing and work with the utilities to place the potential for energy savings on stakeholders' "radar" should be taken as suggestions of what may possibly work to expand interest, and thus, expand implementation of similar energy efficiency measures in the agriculture sector.

INTRODUCTION

The United States Federal Government has awarded grants since its inception. In fact, Congress provided for grants of land under the Articles of Confederation as early as 1785¹. The American Recovery and Reinvestment Act (ARRA) of 2009—referred to commonly to as the “stimulus” or the “stimulus package”—created grant opportunities for many participants who had never partaken in federally-funded grant programs. Indeed, many who participated in federal grant programs were unfamiliar with the ARRA grant requirements. Numerous local government agencies had never undertaken the federally-funded construction-type projects available through ARRA. Farmers and businesspeople working in the agriculture sector were also unfamiliar with the requirements laid out in the ARRA Special Terms and Conditions associated with the funding.

Maryland Statewide Farm Energy Audit Program

MEA had explored the connection between energy and agriculture by designing a three-phase program—the Maryland Statewide Farm Energy Audit Program—to explore cost-effective ways of identifying and reducing energy use in Maryland’s agriculture sector. A coalition of government agencies, trade groups, and private sector participants came together in 2006 to establish a process by which the agriculture sector could reduce its energy consumption in the state.

According to the U.S. Department of Agriculture (USDA) 2007 Census of Agriculture, Maryland’s farms increased in number, fossil fuel consumption, and energy use between 2002 and 2007. Maryland’s approximately 12,000 farms spent about \$26 million on electricity in 2008². For a decadal perspective, Maryland farms spent about \$33 million on petroleum products, gasoline, diesel fuel, natural gas, LP gas, kerosene, fuel oil, and other fuels in 1997;³ in 2007, Maryland farms spent about \$67 million on “gasoline, fuels, and oils.” In 1997 the average retail rate for electricity in Maryland was 7 cents per kilowatt hour (kWh); in 2007 it was 11.4 cents per kWh.⁴

¹ Canada, Ben. (2003). Federal Grants to State and Local Governments: A Brief History. *Report for Congress* (summary page). Retrieved April 22, 2013 from <http://usinfo.org/enus/government/statelocal/docs/fedgrants.pdf>.

²Energy Information Administration. (2008). Form EIA-826 detailed data. Retrieved April 19, 2013 from http://www.eia.doe.gov/cneaf/electricity/page/sales_revenue.xls.

Comparison of average retail residential electricity price between 1997 and 2008 shows 47% increase in costs. USDA 1997 Census of Agriculture, Table 3: Farm Production Expenses for Maryland shows \$17.7 million in farm electricity expenditures.

³ USDA. (1997) Census of Agriculture, Table 3: Farm Production Expenses for Maryland: USDA 1997 Census of Agriculture, Table 3: Farm Production Expenses for Maryland. Retrieved April 19, 2013 from http://www.agcensus.usda.gov/Publications/1997/Vol_1_Chapter_2_County_Tables/Maryland/md2_03.pdf.

⁴ American Public Power Association. (2008, March). Retail Electric Rates in Deregulated and

Table 1: Maryland Total Farm Production Expenses: 2007 and 2002⁵

Item	2007		2002 ⁶	
	Farms	Expenses (\$1,000)	Farms	Expenses (\$1,000)
Gasoline, fuels, and oils	12,548	(X)	11,490	(X)
\$1,000	(X)	67,511	(X)	43,006
percent of total	(X)	4.4	(X)	3.8
Utilities ⁷	6,648	(X)		(X)
\$1,000	(X)	35,814	(X)	29,948
percent of total	(X)	2.3	(X)	2.7

The program designed to establish a process by which the agriculture sector could reduce its energy consumption in Maryland was entitled the Maryland Statewide Farm Energy Audit Program. Phases I and II of the program included identifying and quantifying energy consumption. Phase I involved completing 25 energy audits on the Eastern Shore and identified an annual energy saving of 471,700 kWh and 46,000 gallons of propane. Phase II encompassed the completion of 51 energy audits targeted in Western Maryland and identified an annual energy savings of 1.6 million kWh and 22,808 gallons of propane. Phase III implemented some of the measures recommended by the previous audits and resulted in 42 additional energy audits, 82 agriculture sector producers implementing projects that saved 2.3 million kWh, 52,733 gallons of propane, and 527,627 Therms of natural gas. In 2010, the American Council for an Energy-Efficient Economy (ACEEE) awarded the Phase III program with Exceptional State-led Energy Efficiency Program. The program has been discontinued, however, as MEA seeks out other innovative sectors and ways to promote affordable, reliable and clean energy.

Kathleen A. P. Mathias Agriculture Energy Efficiency Program

When the opportunity came for MEA to design a program using the Better Buildings Program sub-grant from the Maryland Department of Housing and Community Development (DHCD), MEA had already identified the need for energy-saving upgrades in the agriculture sector. MEA program managers were up-to-speed on ARRA requirements thanks to the opportunity to previously

Regulated States: A Ten Year Comparison. Retrieved April 19, 2013 from <http://www.publicpower.org/files/PDFs/10year.pdf>.

⁵ USDA. (2007). Census of Agriculture, Table 3: Farm Production Expenses for Maryland. Retrieved April 19, 2013 from http://www.agcensus.usda.gov/Publications/2007/Full_Report/usv1.pdf, p.325.

⁶ 2002 data are based on a sample of farms.

⁷ The question asked on the census report was: “Utilities purchased for the farm business – include electricity, farm share of telephone, water purchased, etc....”

administer various ARRA-funded grants. The sub-grant process was streamlined due to MEA developing many of the documents useful to the program, understanding the common pitfalls of ARRA-funded programs, and having a monitoring process in place for ensuring compliance. Finally, the timing for this sub-grant allowed for application of lessons learned from staff who were already trained and ready to participate in an ARRA-funded program. Thus, MEA was ready to design and implement an ARRA-funded program to benefit the state's agriculture sector within the abbreviated timeframe.

Maryland State Senator James N. (Jim) Mathias, Jr., representing three counties (Somerset, Wicomico and Worcester Counties) on Maryland's lower Eastern Shore, was concerned about escalating electricity costs for his farming constituents. Senator Mathias advocated for this program and its funding. The Kathleen A. P. Mathias Agriculture Energy Efficiency Program (Ag Program) is named in memory of the Senator's wife.

Scope

The objective of this case study is to provide policy makers and program designers with the results of this specific program—DOE's Better Buildings Neighborhood Program—as well as to provide an understanding of the process this Ag Program used to achieve its results.

The Better Buildings Program emphasizes a “whole building” approach by retrofitting existing buildings for energy efficiency, energy security, and affordability. This approach is different from typical energy efficiency upgrades that focus on an individual measure replacement's gain in efficiency. Using this whole building approach, it is anticipated that multiple measures may be required to achieve at least a 15% savings for the building in which they are implemented. Each of the buildings or, in certain cases, individual measure, achieves at least a 15% savings in energy use.

It is important to note that onsite renewable energy generation (e.g., solar photovoltaic systems, small scale wind, or geothermal) was not the emphasis of the Ag Program. Renewable energy measures were allowed only if they were installed in conjunction with energy efficiency measures, with the real emphasis being on the energy efficiency measures. Onsite renewable energy generation proposals that constituted more than half of a project's cost were not considered to be adequate applications. One caveat: solar thermal was considered to be an energy efficiency measure for the purposes of the Ag Program.

The Ag Program targeted the high-energy users of the agriculture sector. It was anticipated that these would be the mills, processing plants, aquaculture, and high-energy intensity farms such as dairy farms and chicken farms. In order to be inclusive of potential participants the Ag Program designated itself to be open to “farms/businesses in the agriculture sector.” The term “agribusiness” was deemed to be too narrow to use as a definition (it could omit smaller farms). Conversely, “agriculture” could omit players like processing plants. The term “farms/businesses in the agriculture sector” was used to target the audience MEA wished to support with this grant funding.

The insights and findings in this case study come from four main sources:

1. Process used to design the grants,
2. Process used to implement the grants,
3. Analysis of the design and implementation of the Ag Program by MEA Program Managers for lessons learned and future recommendations, and
4. Detailed case studies of 16 agricultural energy efficiency projects.

THE EMPOWER EECBG GRANT PROGRAM

MEA had effectively explored the connection between energy and agriculture with the Maryland Statewide Farm Energy Audit Program and a funding source had been dedicated thanks to Senator Mathias and the \$2 million Better Buildings Program sub-grant from the Maryland Department of Housing and Community Development (DHCD). The next step was to use experience gained during the implementation of another ARRA-funded program to design the Ag Program for success.

The Ag Program was modeled after one specific ARRA-funded program, the EmPOWER Energy Efficiency and Conservation Block Grant (EECBG) program. Under the EECBG program, the DOE provided \$9.59 million to MEA to fund sub-grants to Maryland municipalities in order to support energy efficiency and/or renewable energy projects at local government facilities.

The EECBG program enabled MEA to provide sub-grants to the 160 local governments in Maryland that were not receiving an EECBG grant allocation directly from DOE. Grant allocations were determined using a population-based formula. Of the 160 local governments offered the chance to participate, 132 signed up for the sub-grant. Of this group, 27 eventually withdrew and 105 successfully completed their grant. The sub-grants ranged in size from \$5,000 to \$454,692. The most common complaint from those who withdrew from the process addressed the time, effort and energy required to meet ARRA requirements.

The EECBG program served as the model for MEA's ARRA compliance. Myriad documents were created for the program. These documents proved to be invaluable for all of MEA's ARRA-funded programs. A compliance monitoring program was also implemented. This monitoring program also included site visits. The creation of the documents and follow-up monitoring honed the MEA program manager's skills in meeting the ARRA Special Terms and Conditions.

Lessons Learned from the EECBG Experience

With the opportunity to reflect on a successful EECBG program, MEA program managers made the following observations on how to improve the sub-grant process:

- **Make the award amount worthwhile.**

The EECBG grants used a population-based formula to allocate available funds. The goal was to reach as many local governments as possible and be equitable in the distribution of grants. MEA capped the minimum award amount at \$5,000. This amount was not enough to entice numerous participants to stay with the grant to completion.

- **Remember that allocated award amounts do not have the buy-in that a competitive grant does.**

Many of the local governments were ambivalent about their awards. Some viewed their awards as an extra burden on already busy staff. The program design assigned specific grant amounts based on population with a minimum grant size of \$5,000. Since public entities had different levels of interest, frequently the sub-grants were passed down to others to manage as the demands of the grant process increased. It appeared that local governments found it easier to walk away from a grant because they had not specifically sought it out nor did they have a specific energy upgrade in mind.

- **Simplify the process.**

The end goal is to make sure that all of the grant requirements are met in a timely manner. This allows for grants to be completed in the allotted time and also gives the time necessary to address any issues that may arise. Thus, time management is an important factor to consider when planning a program that will be compliant with the grant requirements; it also ensures that reimbursement can happen as soon as possible. MEA uses “billing in arrears” with all of its grants to ensure projects are completed acceptably. MEA designed the EECBG program to use an “energy coach” or person designated to help meet the grant requirements. MEA also “front-loaded” many ARRA requirements. It is clear that the energy coach needed to have more of a hand in the process and that front-loading all requirements, with only a few exceptions, was possible.

- **Do not give too much time for the award period of performance.**

MEA gave the EECBG program participants more than two years to complete their grants. Many participants waited until late in the grant process to begin work. As a result, program managers spent a lot of time and effort trying to get projects approved and under construction. There were also numerous requests for extensions.

- **Ensure the sub-grantees understand what upgrades they want and that they need to be cost-effective.**

MEA provided energy audits to the EECBG sub-grantees. Many sub-grantees initially wanted

capital improvement type upgrades that did not necessarily meet program requirements or did not pay for themselves before their useful life expectancy. Also, many sub-grantees changed their projects mid-course, which required more audits and more time and effort at project approval.

- **Encourage an appropriate amount of contact between program managers and sub-grantees.**

Early in the EECBG grant program it became clear that too many entities contacting sub-grantees was ineffectual. Having different people complete the audit, follow up on the audit, call about programmatic requirements, and follow up on the Evaluation Measurement and Verification (EM&V), proved to be confusing for sub-grantees. Sub-grantees did benefit from individual one-on-one meetings with MEA program managers. The meetings improved communications and increased the comfort level for both parties. Phone calls and webinars were less effective at improving communications. Phone calls were most effective when each party spent enough time on the phone to develop a level of trust and confidence with the other party.

REQUIREMENTS AND PROGRAM DESIGN

MEA designed the Ag Program to meet the responsibilities laid forth in *The Better Buildings Neighborhood Program Grant Recipient Management Handbook*.⁹ Many of these responsibilities were already institutionally in place at MEA. MEA has processes in place to do the following:

- **Track mechanisms for programmatic and financial monitoring of MEA and sub-grantees.**
MEA performs internal audits consistently to review accuracy of internal reporting processes.
- **Ensure grant files are kept in one location.**
This will simplify the auditing process. Use folders that sort required grant documents. All files are kept for at least the required amount of time.
- **Ensure meeting types of reporting requirements.**
For the purposes of this particular grant, MEA, as a sub-grant recipient, was required to complete the DHCD's *Be SMART Program Monthly Report*. As a direct grant recipient of other ARRA funds, MEA developed methods to ensure it met reporting requirements. It used calendar reminders and coordinated proactively across their project team and sub-grantees. The MEA monthly report to the Ag Program recipients was based on the DHCD's *Be SMART Program Monthly Report* as well as the special terms and conditions associated with the grant.
- **Ensure a financial officer and auditors are on staff.**
This ensures understanding of audit requirements and that appropriate financial and administrative systems are in place.
- **Ensure timely and complete submission of required reports.**
MEA requests data from sub-grantees and contractors in advance of reporting due dates. MEA conducts data quality reviews of sub-grantee and contractor submitted data.
- **Designate an effective spokesperson.**
Select someone who has developed a good working relationship with local media and become a reliable source of information for the media and local community. All program managers work closely with MEA's Communications Manager and are directed to refer media inquiries to the Communications Manager or the Director of Legislation and Policy.

While some of the responsibilities did require minor adjustments that were program specific, such as developing the necessary reporting structure, the bulk of the Ag Program's design lay in complying with the terms and conditions of the grant. The Special Terms and Conditions is an

⁹USDOE. (2012). Grant Recipient Handbook, v2.0 January 2012. Available from http://www1.eere.energy.gov/buildings/betterbuildings/neighborhoods/tools_resources.html.

approximately 40-page document¹⁰ that accompanies ARRA-funded EECBG grants. These requirements stipulate in the very first sentence that:

“Sub-awardees who receive federal funds under an assistance agreement shall comply with the flow-down requirements for sub-awardees specified in the “Special Provisions Relating to Work Funded under American Recovery and Reinvestment Act of 2009” which apply to this award.”

These requirements flow down, or are passed down, each time a sub-award occurs. Every time the grant funds are shared, applicable special terms and conditions are passed on. While there are other requirements in the special terms and conditions, for the purposes of this paper and the program design, MEA program managers focused on designing a program that would meet the following:

- NEPA Allowable Measures
- Waste Management
- Historic Preservation
- Davis-Bacon Wages
- Certified MBE and/or DBE Firms
- Signage
- Procurement
- Flow-down Provisions

MEA program managers designed the program to front-load as many of these requirements as possible, meaning they would be taken care of before project approval. As all MEA grants are “billing in arrears” grants, no reimbursement can occur until all requirements have been met. The following measures were all able to be taken care of before project approval.

- **NEPA Allowable Measures**

DOE provided NEPA categorical exclusions for certain measures. As long as the proposed measures were included within these bounded categories, the measures were allowed without having to later conduct a NEPA review of individual projects. With a programmatic timeframe of only one year, it was important to ensure that all measures were not required to complete a NEPA evaluation performed on the potential environmental impacts of the project receiving DOE funds and the subsequent determinations. The monthly report provided by the DHCD had a list of allowable measures and MEA designed the program to allow for only the NEPA categorically excluded measures.

¹⁰ Depending on font size.

- **Waste Management**

Waste stream conditions are brought in to play by NEPA and are a project requirement. Grant recipients and sub-recipients are required to develop a waste management plan addressing waste generated by each proposed project prior to funding the project. This waste management plan describes “the plan to dispose of any sanitary or hazardous waste (e.g., construction and demolition debris, old light bulbs, lead ballasts, lead paint, piping, roofing material, discarded equipment, debris, and asbestos) generated as a result of the proposed project.”¹¹ MEA used a two-part process to meet this requirement. The first part was the “Attachment B: Part 1- Maryland Mathias Ag Program Waste Management Template WASTE MATERIAL ESTIMATING WORKSHEET.” This sheet was used to estimate the amount of waste generated and allowed for program managers to determine if the waste plan was practical and compliant. A satisfactorily completed Part 1 of the waste management template was a requirement for any project approval. The second part was the “Attachment B: Part 2- Maryland Mathias Ag Program Waste Management Template WASTE MATERIAL DISPOSITION WORKSHEET.” This sheet allowed for program managers to compare both plans and to ensure the waste was disposed of properly. As one is not allowed to profit off of an ARRA-funded grant, the waste material disposition worksheet accounted for any fees collected. The grantees were directed to deduct any such fees from their invoices. The waste material disposition worksheet specifically asked if the sub-grantee had received any money during the disposal of their project's waste.

- **Historic Preservation**

MEA had many ARRA-funded projects. Because each ARRA-funded project required an historic preservation review, MEA brought on a contractual historian with the qualifications to make the required determinations. Each Ag Program project was deemed an exempt undertaking prior to project approval. MEA's contractual historian was able to review the majority of the projects. Those that were unable to be quickly judged exempt were sent to the Maryland Historic Trust for further review. Eventually all projects were determined to be exempt undertakings. Having access to a contractual historian greatly expedited the review process.

MEA utilized the “energy coach” model also known as an “energy advocate” or “energy concierge”; after careful deliberation, this contact was referred to as the “compliance coordinator” for the Ag Program.

The role of the energy coach is to provide a single point of contact for the grantee. The coach acts as the gatekeeper for all documents, questions, and issues; and most importantly, ensures compliance with the special terms and conditions. The energy coach is a trusted messenger for the

¹¹ DE-EE000357 1 /000 STATE OF MARYLAND ARRA SPECIAL TERMS AND CONDITIONS attached as Appendix D.

program, and develops the relationship with the grantee. They guide the grantee through the program and act as an intermediary between program managers and contractors. They make sure the grantee's questions get answered and their issues are brought to the attention of program managers. They ensure all of the necessary documents are completed to satisfaction and vet them prior to submission for reimbursement. The energy coach's goal is to make the process as easy as possible for the grantees and to do so in a timely manner such that it allows MEA to meet its time milestones and requirements.

Due to the complexities of federal procurement (10 CFR 600.236) for farms/businesses, MEA decided to have the businesses conduct procurement before giving out awards. This atypical process allowed for maximum front-loading of the requirements. After the selection process was complete, the selected project contacts received a letter of commitment from MEA. Essentially, the letter stated that MEA wholly supports efforts to obtain this grant to fund improvements to their facilities that will reduce building energy use by 15% or more, and commits to funding no more than 75% of the cost of their approved project, provided that certain requirements were met.

These requirements were that they:

- Agree to fund the percent of the cost of their approved project not funded by MEA or other source of leveraged funds;
- Successfully complete the preliminary requirements for the grant by a certain date, which include cooperating with:
 - Any required MEA-funded onsite or remote energy audit activities to verify the minimum 15% savings potential of the proposed project,
 - Historic review and waste management plan requirements, and
 - Procurement requirements governing this grant program;
- Establish with their proposed vendors a mutually agreeable payment plan, in recognition of the fact that the Ag Program is a reimbursement grant, payable only after the project is completed and all required documentation has been received; and
- Agree to attend a required webinar on the program and its funding source requirements.

By following this procurement before award issuance approach MEA was able to use the compliance coordinator to gather proof of the following to submit for an actual award:

- NEPA Allowable Measures were selected for implementation.
 - Waste Management Part 1 was submitted satisfactorily.
 - Historic Preservation review had occurred and was acceptable.
 - Certified MBE and/or DBE Firm outreach had occurred.
 - Procurement met the standards of 10 CFR 600.236.
 - Flow-down Provisions had been shared with those bidding on the projects and were attached to both the RFP and contracts.
-

Thus, the only requirements that needed to be addressed after the awards were given out were:

- Davis-Bacon Wages
- Signage
- EM&V of the energy savings
- Monitoring visits for compliance

Program Design Considerations

MEA designed the Ag Program to be successful while meeting both the federal requirements of the Better Buildings Neighborhood Program and the objectives of MEA.

- **Program Size**

MEA focused on implementing more robust measures on fewer buildings as opposed to fewer measures on more buildings. The other model being considered during the program design phase was an "appliance rebate" type model where small awards are given out for certain measures. MEA program managers determined that such a program would be difficult to successfully complete in the one-year time window of the funding source completion date. MEA program managers were also interested in showcasing more developed projects for the consideration of the agriculture community.

- **Rebate Amount**

MEA selected 75% of project cost as the amount of the program's rebate. MEA held a meeting on July 13, 2012 to design a program that would meet the expectations and goals of Maryland's agriculture stakeholders while also meeting federal requirements. Seventeen stakeholders representing various sectors and interests in Maryland's agriculture industry attended this planning meeting. The group unanimously selected 75% as a rebate amount that would encourage applicants to agree with meeting the requirements and allowing their implemented measures to be showcased.

- **Leveraged Funds**

The EmPOWER Maryland program requires Maryland's five largest utilities to offer programs to decrease electricity consumption. The Better Buildings Neighborhood Program encourages and recommends using leveraged funding and encourages Better Buildings grant recipients to achieve a minimum five-to-one leveraging of grant funds awarded to grant recipients. During the program planning meeting held in July 2012 the general consensus was that farmers are not likely to want to take on additional loans.

This program was designed to encourage applicants to seek out funds to leverage. Leveraged funds were among the selection criteria for application review. The program also sought to see how well the EmPOWER utility programs were performing for the agriculture sector. Thus, using the "energy coach" model, MEA sought out leveraged funds for each applicable project by sharing the audits with the utilities and helping to submit applications for the grant recipients.

- **Application Process**

A competitive grant program was selected to allow for the selection of applications that best met grant criteria. MEA offered technical assistance using engineers from EnSave, an agricultural energy efficiency consulting firm, to give the applicants the opportunity to turn in robust data with their proposed projects. The applicants that took advantage of this offer stood out during the review process as having applications with readily quantifiable and verifiable savings. The application threshold was set at \$25,000 to encourage projects with more measures on fewer buildings and capped at \$200,000. The following factors were weighed in the selection of projects eligible for grant funding:

- Project feasibility: Can the project be completed in the available construction window? Will it result in a minimum 15% energy savings?
- Energy savings: How high are the likely energy savings from the proposed measure(s)?
- Simple payback: How many years will it take to recover the cost of the investment without incentives? (Project cost divided by annual energy savings in dollars. For example: a project saving 400,000 kWh per year at \$0.10 per kWh and a \$50,000 project cost has a simple payback of 1.25 years ($\$50,000/\$40,000 = 1.25$)).
- Amount of matching (leveraged) funds: Is the applicant tapping additional funding sources to maximize the value of this grant?
- Accuracy of energy savings and cost information for the project: How accurate are the applicant's estimates? Are assumptions behind the numbers clearly stated, to enable the Ag Program team to evaluate the project?
- Best practices/showcase project: MEA is looking for projects that demonstrate energy efficiency best practices in various capacities in order to expand energy efficiency in the agriculture sector.

MEA also reserved the right to select applications that allowed for a broad diversity in the project portfolio. Factors such as measure type, geographic region and agricultural market were also considered.

- **Showcase**

MEA opted to provide information on upgrades in an easily-discernible format to facilitate future energy efficiency opportunities. To reach the broadest audience possible MEA program managers used the following three-tiered approach to distribute the information gained during the course of this program:

- Develop a case study report on the Ag program (i.e., this paper) that had all of the data written to standards that would benefit policy makers and program designers. Include all documents that could benefit future program designers. The target audience of this paper is academics, policy makers and program designers.
-

- Create individual case studies on the projects in a traditional Web-based format. Ensure that these case studies are more than just "success stories" and actually contain the data necessary for a farmer/businessperson to make an informed decision using cost/benefit analysis as to whether they should pursue the same or even similar measures. The target audiences of these case studies are farmers and businesspeople in the agriculture sector, and individuals "surfing" the Web for information on agriculture and energy efficiency.
- Create videos that highlight these measures. People are often too busy to read report-type papers (or are just not interested). MEA has a YouTube channel since many people get their information from watching YouTube rather than from reading content on websites; this seems especially true for younger audiences. Hopefully well done and informative videos will encourage other parties (e.g., the sub-grant recipients and other stakeholders in the program) to link to them and reach even more interested parties. The target audience for these videos is those who seek information using videos as opposed to other forms of media.

The intent of showcasing was not only to reach as many individuals as possible with the information gained through this program; by placing the case study report, individual case studies, and videos on a common website, MEA can run monthly reports on the numbers of views each had. Showcasing offers an opportunity beyond readily quantifiable leveraged funds to reach out to numerous others with the information necessary for them to implement a similar program or similar measures. It is the intent of this program design that such actions, while not delivering a quantifiable dollar amount, will deliver the leveraged fund goals of the Better Buildings Neighborhood Program.

PROJECT OUTCOMES

The following table summarizes energy, cost, and greenhouse gas savings realized through the 16 subgrants funded through the Ag Program.

Estimated Reduction in Energy Use					Estimated Costs, Savings and Payback		
Electric Savings (kWh)	Natural Gas Savings (Therms)	Propane Savings (Gal)	Diesel Savings (Gal)	Energy Savings (MMBtu)	Estimated Annual Energy Cost Savings	Estimated Installed Cost	Estimated Payback in Years
798,394	13,578	65,326	2,220	10,375	\$233,471	\$1,966,735	8.4

Greenhouse Gases (estimated values)			Air Pollutant Co-Benefits (estimated values)		Building Info		
CO ₂ (Metric Tons)	N ₂ O (Metric Tons)	CH ₄ (Metric Tons)	SO ₂ (Metric Tons)	No _x (Metric Tons)	Square Footage	Number of Buildings Retro-fitted	% Savings
969.85780	0.02233	0.08564	2.36172	0.70482	754,138	48	23.6%

The tables below indicate savings for the three major agriculture sectors represented in the program: grain, poultry, and dairy.

Grain Farms: Aggregated Results from Four Sites

Estimated Reduction in Energy Use						Estimated Costs, Savings and Payback		
Recommended Measure	Electric Savings (kWh) (Increase)	Propane Savings (Gal)	Natural Gas Savings (Therms)	Diesel Savings (Gal)	Energy Savings (MMBtu)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Replace Grain Dryer	123,273	36,087	13,578		5,084	\$92,012	\$731,021	7.9
Diesel to Electric Irrigation Engine	(11,283)			2,220	270	\$6,865	\$33,463	4.9
Totals	111,990	36,087	13,578	2,220	5,354	\$98,877	\$764,484	7.7

Poultry Farms: Aggregated Results from Six Sites

Estimated Reduction in Energy Use				Estimated Costs, Savings and Payback		
Recommended Measure	Electric Savings (kWh)	Propane Savings (Gal)	Energy Savings (MMBtu)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Insulation Measures		6,022	552	12,120	\$135,452	11.2
Air Sealing		839	77	\$1,341	\$11,730	8.7
Stir Fans	(5,525)	1,530	121	\$2,040	\$23,981	11.8
Electronic Control Units	4,282	79	22	\$615	\$11,975	19.5
Biomass Heat Pump Heating System	(31,800)	1,630	41	\$4,274	\$153,489	35.9
Radiant Heaters		4,309	395	\$7,028	\$57,681	8.2
Cool Cells	39,183		134	\$5,066	\$106,900	21.1
Attic Inlets		3,409	312	\$5,558	\$58,526	10.5
Ventilation	37,320		127	\$4,150	\$49,770	12.0
Lighting	168,769		576	\$19,320	\$91,227	4.7
Totals	212,229	17,818	2,356	\$61,512	\$700,731	11.4

Dairy Farms: Aggregated Results from Three Sites

Estimated Reduction in Energy Use			Estimated Costs, Savings, and Payback		
Recommended Measure	Electric Savings (kWh)	Energy Savings (MMBtu)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Solar Stock Waterer	14,400	49	1,570	\$7,536	4.8
Lighting	3,738	13	\$407	\$2,235	5.5
Water Heating	5,011	17	\$546	\$2,959	5.4
Space Heating	5,040	17	\$549	\$2,956	5.4
Vacuum Pump Variable Speed Drive	25,849	88	\$3,490	\$16,854	4.8
Ventilation	40,186	137	\$5,425	\$77,446	14.3
Refrigeration Controls	52,393	179	\$5,407	\$49,189	9.1
Totals	146,617	500	\$17,394	\$159,175	9.2

For detailed outcomes by sub-grantee, see Appendix A: Individual Case Studies.

LESSONS LEARNED FROM AG PROGRAM IMPLEMENTATION

During the implementation of the Ag Program, MEA learned numerous lessons about how the process could be improved. This section highlights these observations so others may replicate and repeat desirable outcomes, and avoid undesirable outcomes.

Project Management	
<p>Project Planning – Involve stakeholders</p>	<p>Maryland has a strong agriculture community. MEA previously designed and implemented the <i>Maryland Statewide Farm Energy Audit Program</i>. Having access to the technical assistance, agriculture department, and key agriculture stakeholder connections gained by running this program proved to be a great help in getting the Ag Program up-and-running quickly. The program design and outreach benefitted greatly from the involvement of these stakeholder connections.</p>
<p>Resource Management – Structure the program to allow for a clear breakdown of administrative, technical assistance, and implementation costs</p>	<p>MEA structured the award as follows:</p> <p><i>Expenditures for administrative support will not exceed 10% of the \$2 million in Funds dedicated towards the Farms Program (\$200,000).</i></p> <ul style="list-style-type: none"> ○ MEA had one full-time staff member dedicated to managing the Ag Program and one full-time assistant¹² dedicated to running the program. The workload was adequate for these two to <u>manage</u> the program. The remainder of the funds was used on other MEA administrative support. <p><i>MEA Expenditures for technical assistance will not exceed 30% of the \$2 million in Funds dedicated towards the Farms Program (\$600,000).</i></p> <ul style="list-style-type: none"> ○ One MEA program manager and one assistant (who worked on the program to complete his Bachelor-degree program requirements) did not have the bandwidth necessary to meet all of the requirements of <u>implementing</u> this program. MEA utilized technical assistance to assist with all aspects of running and implementing this program. Technical assistance expenditures ended up being approximately 20% of the total budget. Technical expertise was necessary and beneficial for the Ag Program. Twenty percent was an adequate amount to meet all of the needs of this inaugural ARRA-funded farm program, including the showcasing costs. This amount could be reduced easily for future programs provided the knowledge gained is

¹² The assistant was half time for half a year.

	<p>institutionalized. Hopefully the case study will facilitate this process in a way that could reduce the need for a heavy technical assistance requirement or would allow for a focus on technical assistance only where necessary.</p> <p><i>At least 60% of the \$2 million in Funds dedicated towards the Farms Program will be expended in grants for farms/and or businesses in the agricultural sector.</i></p> <ul style="list-style-type: none"> ○ Sixty percent was a program requirement. MEA directed approximately 70% directly toward the “hard costs” associated with implementations, the upgrades themselves, and the labor necessary for implementation. This amount is reflective of an ARRA-funded program and the hard costs associated with such a program.
<p>Risk Management – Ensure all requirements have been met prior to invoice submission</p>	<p>MEA’s goal was to meet all of the requirements necessary for reimbursement. This included ensuring all sub-awardees met the special terms and conditions associated with the grant. The program was designed with this in mind and all projects met all requirements. The front-loading of the requirements, check-systems along each step of the grant process, monitoring site visits, and billing in arrears ensured that grant requirements were met. Each sub-grant was reimbursed within 30 days of its invoice submission.</p>
<p>Procurement – Develop templates and run procurement before award</p>	<p>MEA previously procured a technical assistance contractor. This procurement was done in a manner compliant with both state and federal requirements. Guidance from DOE was that federal procurement (10 CFR 600.236) would be followed by all sub-grants in the Ag Program. With this in mind, MEA structured the Ag Program to have sub-awardees run their procurement before receiving an award. MEA developed a procurement checklist for sub-grantees to ensure they had procured their contractors correctly. MEA developed a procurement manual which contained the necessary templates for sub-grantees to have and use for procurement. This approach was consistent with the energy coach model and was instrumental in helping the sub-grant recipients meet the requirements of 10 CFR 600.236</p>
<p>Budget Management – Get robust bid quotes prior to giving out awards</p>	<p>MEA strongly encouraged applicants to submit bids for their proposed projects when they submitted applications. Those that did were viewed favorably during the application review for submitting an application with accurate cost information (a selection criterion). When performing audits, MEA’s auditors got quotes from producers and had the auditors use software¹³ to develop cost estimations. Even with such measures in place all but one of the bids came in over</p>

¹³ Auditors used the Farm Energy Audit Tool (FEAT) , a proprietary farm energy auditing software developed by EnSave.

	<p>budget. However, this process did allow for an accurate upgrade implementation budget once the bids were reviewed and the selections were made by the sub-awardees. The contracts were all written to the selected bid dollar amounts.</p>
<p>Quality Control – EM&V at each step of the process (when possible)</p>	<p>MEA utilized technical assistance to offer applicants the opportunity to submit applications that had been reviewed by engineers prior to submission. A diverse review team evaluated each application’s proposed measures. Auditors performed audits on selected applications to ensure the measures would produce savings and be able to do so in a cost-effective¹⁴ manner. The sub-grantees conducted their procurements according to the audits recommended measures. The selected bids were reviewed for meeting the audit’s standards and then were used to develop the scope of work for the grants. Each invoice was reviewed to ensure it met the scope’s requirements and any subtle deviations (e.g., a fan motor with 84% efficiency as compared to the audit recommendations of at least 82% efficiency) were accounted for in the energy-saving metrics.</p> <p>Each sub-grantee received a monitoring visit for compliance from MEA program managers to ensure measures being installed were being done per grant requirements. While every attempt was made to accurately reflect the energy savings associated with this grant, the savings are only anticipated, expected and/or deemed savings. The strategies and case studies discussed in this report, although supported by professional audits, have not had adequate time for follow up. The quantitative aspect of the implemented measures over the course of time could have variation from the estimated energy savings. MEA has passed certain opportunities onto USDA, Food and Resource Sciences, at the University of Maryland Eastern Shore for follow up Specifically, the bio-heat recovery propane savings, actual savings for diesel-to-electric irrigation pump upgrades, and comparisons of LED lighting upgrades for chicken farming.</p>
<p>Monthly Project Reports – Gather the necessary data</p>	<p>MEA developed a monthly project report based on the information it was required to report. This monthly report was vetted through the auditors to ensure accuracy of the energy-saving information. As the projects were implemented within 1-2 months of the executed contract, the report ended up being used only once – when completed projects were invoiced. Thus, the report was useful but not necessary on a monthly basis for this program and its quick timeframe for construction.</p>
<p>Contractor Selection – Ensure they are</p>	<p>Each winning bidder was evaluated for suspended/debarment status on the System for Award Management (known as “SAM,” the Official</p>

¹⁴ The measures would pay for themselves before their useful life expectancy.

<p>eligible to perform the work</p>	<p>U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS¹⁵) system to ensure the winning bidder was not suspended or debarred. Each proposed contractor was required to have, per the grant contract, all necessary certifications and licenses. All work performed pursuant to the grant contract was required to comply with all applicable local, state and federal building codes. MEA captured contractor’s DUNS numbers on the final report which accompanied the invoice.</p>
<p>Technical Management</p>	
<p>Requirements and Specifications – Use cut sheets</p>	<p>As mentioned previously in “Quality Control,” the grant requirements were repeatedly laid out throughout the program and the specifications for the measures were established through audits and reviewed continuously to ensure they met program requirements. The cut sheets with product technical specifications are useful for estimating savings, leveraging funds (both incremental and for the pre-qualification required by some utility programs), and comparing with approved installed measures during monitoring visits.</p>
<p>Construction – Work closely with contractors to ensure requirements are clear</p>	<p>One of the benefits of having the sub-grantees run procurement before award selection was that the contractors were ready to start work as soon as the contract was signed. Before construction could begin, MEA held kick-off meetings with the contractors to go over Davis Bacon wage and other requirements. MEA had contractors list all subcontractors with their bids and on their contracts to ensure the flow-down provisions were received and acknowledged by all contractors involved in the implementation process. As a result, all work was performed in a timely and compliant manner.</p>
<p>Documentation – Keep necessary documentation in whatever form is available</p>	<p>MEA developed many documents for this program, and kept both electronic and paper versions. Many of these documents are appendices to this case study and are to consider when planning similar programs. While MEA sought ways to electronically document as much as possible, some sub-grantees were unable to use electronic communication because they lacked the ability to use the necessary computer programs or accessories. Many items such as contractor invoices are still documented on paper which requires scanning. MEA encountered other technical documentation issues such as old computers, dial-up internet, or no computer at all. MEA specifically designed the program to use means of communication that are not computer specific. While it is desirable and more efficient to use computers and the internet, it is important to realize that this is not possible for every instance and must be taken into consideration. Each sub-grantee was directed to keep a file with their copies of project documentation for at least three years. MEA verified these file storage</p>

¹⁵ System for Award Management. Available from <https://www.sam.gov/portal/public/SAM/>

	areas when performing monitoring visits.
Human Factors	
Communication – Use compliance coordinators as gatekeepers for communications	MEA developed a team with many different skills sets and communication approaches to ensure a diverse perspective on program development and implementation. MEA used all readily available forms of media for communication with applicants and sub-grantees. Communication technologies were designed to be inclusive of a variety of people and their needs. MEA program managers utilized two compliance coordinators; one with a communications background and another with a background in federal compliance, to communicate the goals and requirements of the Ag Program. The compliance coordinators acted as the gatekeepers of the information exchanges that occurred at all levels of the Ag Program. They controlled the exchanges between the engineers, auditors and program managers, and developed the close and personalized relationships desired while limiting or controlling the amount of contact a sub-grantee would receive.
Team Experience – Tailor the team skills to reflect the program requirements	MEA utilized a program manager who just spent more than two years managing an EECBG program, was familiar with the ARRA special terms and conditions, and had farm experience. MEA utilized technical assistance contractors that were all experienced with ARRA grants. MEA utilized program planners, auditors, and engineers all familiar with energy efficiency as it relates to the agriculture sector.
Customer Outreach – Utilize program stakeholders capable of quickly getting the word out	Program design began in June 2012, with the stakeholder meeting for input occurring one month later. The program opened for applications in August 2012. MEA had approximately one month to perform outreach for the fast-moving program. The timing of the program opening for applications also happened to correspond with autumn, which is harvest season for many farms. With this in mind it was crucial that outreach efforts be effective. EnSave previously worked on the Maryland Statewide Farm Energy Audit Program and had a list of potential farms for outreach. The stakeholders who were used for program planning were used again. Agencies—such as the Maryland Department of Agriculture, Delmarva Poultry Institute, and USDA—used their newsletters to announce the program. The office of Senator Mathias also helped perform outreach. The results of this effort yielded 44 applications with \$6.7 million in proposed projects and \$5 million in requested funding (assuming 75% maximum grant funding) from 15 of Maryland’s 24 counties. It was this strong interest that enabled the program to ask for and receive the additional funding that increased the program’s budget from the initial \$1 million to \$2 million.

Recommendations and Future Considerations

As with the implementation of any program, some observations were noted during the implementation of the Ag Program that can serve as guidance for others to consider.

- **Work closely with and design the program with other funding sources in mind.**

MEA sought out the opportunity to use this program to incorporate the utility programs available to ratepayers of Maryland's five-largest utilities. Programmatically it is important that all sources of leveraged funds are sought after to maximize the efficacy of grants. Incorporating the utility programs allowed MEA to observe how the utility programs were performing in Maryland's agriculture sector.

- One hundred percent of the chicken farms in one utility's service territory were on a residential meter classification. This meant that they could not utilize the appropriate commercial programs available to help their chicken buildings. Under the residential program offerings they could only receive energy-reduction help for their dwelling. Chicken buildings often have inefficient lighting, old fans and motors, heating and weatherization upgrade needs (i.e., chickens need to be kept cool in the summer and warm in the winter like humans), and would benefit from energy efficiency upgrade opportunities.
 - Utility programs offer two levels of cost assistance with electricity-reduction measures: prescriptive and custom. The prescriptive measures are pretty straightforward; eligible upgrades receive a certain amount of incentive. Farms have measures that often fall under the custom measures category. Both types of electricity-reduction measures require preapproval by the utilities before installation to be eligible for any incentives. MEA shared the audit results with the utilities and encouraged the grant applicants to apply for the utility program funding. The majority of custom measures, while having acceptable cost-effective criteria from MEA's perspective, were not passing the utilities cost-effectiveness test. As of the writing of this case study MEA is working with the utilities, the Maryland Department of Agriculture, the Maryland Office of People's Counsel, and the Maryland Public Service Commission to explore and ameliorate these issues in ways that will benefit the stakeholders. Hopefully the opportunity for future leveraged funds for farmers utilizing the utility programs will increase because of the discoveries made during the implementation of this program.
 - MEA had some sub-grantees seek to leverage Rural Energy for America Program Grants (REAP) from USDA. The timing of the grants was uncertain at the time of MEA application due dates. When the REAP program was announced it was determined that awards would be delivered after MEA completed the Ag Program. With this in mind, MEA sought out advice from DOE and received permission for the sub-grantees
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to leverage these funds and use them toward their 25% contribution to the project, as long as it did not exceed their 25% contribution. When MEA program managers received this advice they allowed the three other farms who had leveraged funds to also apply them toward their 25% contribution¹⁶ to be consistent and fair with the process.

- **Use multiple media approaches for communication.**

MEA realized that many stakeholders involved with the grant were not reading and understanding all of the information in the documents, including the applications (great effort was put into making them as simple as possible). Webinars were offered, help was made available, and the program was generally designed to simplify all processes as much as possible. The one media approach that was not used was short videos. To reach the broadest audience MEA is using videos for showcasing. For future programs, MEA will be working on ways to use its video gear and the MEA YouTube channel to get information out in ways that complement traditional communication vehicles.

- **Review past programs and sectors for success and current need.**

MEA knew from its award-winning Maryland Statewide Farm Energy Audit Program that there was still a tremendous opportunity to implement energy efficiency upgrades in the agriculture sector. Many of the applicants for the Ag Program had received audits that identified cost-effective energy efficiency upgrades under the Farm Energy Audit Program.

This program allowed for:

- These farms to implement the previously recommended cost-effective measures;
- Other farms to discover similar opportunities;
- Farms to have a valuable, if one-time, funding source at a time when other funding assistance is difficult to locate;
- Contractors to take on Davis-Bacon jobs that were once too intimidating for them to bid on and learn how to successfully meet the requirements;
- Farms to have a procurement policy where one had previously not existed;
- Generally, making federal funding sources successful and available to farmers and contractors that would normally not partake in such a program; and

¹⁶ The EmPOWER utility rebates for the farms portion (25%) of the project were: 1) Delmarva contributed \$962 to the grain dryer project at Harborview Farms. This accounts for .5% of Harborview Farms' \$169,473 contribution to the project. 2) BGE contributed \$885 to the project at Caprikorn Farms. This accounts for 22.5% of Caprikorn Farms \$3,922 contribution to the project. 3) Delmarva contributed \$29,000 to the project at Great Gourmet. This accounts for 93% of Great Gourmet's \$31,226.50 contribution to the project.

- Identifying energy sources for which there are few, if any, funding sources available to help reduce consumption. Specifically propane consumption reduction occurred due to this program.

CONCLUSION

The Mathias Ag Program is presented as a model for all potential stakeholders to consider. To help implement similar programs in other states, individual sub-grantee case studies and many key program documents are included as appendices to this paper. The program shows that it is possible to leverage federal funds to achieve significant energy reductions in the agriculture sector. This program can serve as a model for the implementation of similar programs targeting the agricultural sector, regardless of differences in funding source requirements. The Mathias Ag Program is scalable and, judging from the experience in Maryland, there is a long way to go before market saturation has occurred.

The success of this program enabled a strong case to be made for running future programs in Maryland's agriculture sector. Based on the outcome of this program the MEA is designing and implementing a new agriculture program for 2014.

APPENDIX A: INDIVIDUAL CASE STUDIES

AHPHARMA

A Poultry Farm Case Study

Mathias Ag Program



AHPharma is an agricultural product development company. When its president, James McNaughton, learned of an innovative poultry house heating system that draws heat from poultry litter instead of using propane, he was intrigued. Using waste heat to fulfill a vital need on poultry farms meets AHPharma’s purpose of providing unique services and products to the food animal industry.

The farm spends a little over \$20,000 annually on electricity and propane costs to heat two poultry houses. While the potential to slash his propane costs with a poultry litter heating system caught his eye, James also knew there was potential for other energy savings. The Kathleen A.P. Mathias Agriculture Energy Efficiency Program provided the farm with an energy analysis to quantify the energy and cost savings from the heating system as well as desired lighting and brood curtain upgrades. The new heating system and other measures are estimated to save 87% of propane heating costs on the farm.

Chicken heating system transports thermal heat drawn from the breakdown of poultry litter through microbial action to the poultry houses using a heat pump system and thermal piping.



LED bulbs are dimmable and use only about 15% of the energy of incandescent bulbs. They also last much longer than any other current lighting option. AHPharma is using two different types of LED bulbs in a comparison study to measure any difference in the health and growth of the brood.



Insulated brood curtains reduce heating requirements by minimizing the heated area of the house when birds are small. Using an insulated brood curtain decreases the amount of energy lost in heating the area.



These energy efficient improvements will save the farm over \$7,000 in energy costs each year and will help reduce fossil fuel consumption (see Table 1). The new heating system will help make the farm more sustainable by generating its own energy rather than relying on fossil fuels. In addition to capturing waste heat, the system captures the ammonia from litter that would otherwise be released into the atmosphere.

AHPharma Case Study

Mathias Ag Program

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh) (increase ¹)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Chicken Heating System Install heat pump system with three 5-ton compressors with compressed heat recovery to serve both houses. The system will derive heat from the litter through microbial action and transport thermal heat to the poultry houses using a pumping system and thermal piping. Install four 1 HP, 120 V water pumps with variable frequency drive wet rotor circulators. Install 2 air handling units with an air flow capacity of 400 CFM each.	-31,800	1,630	\$4,274	\$153,489	35.9
Lighting Replace (96) 100 watt incandescent bulbs with (96) 12 watt dimmable light emitting diode (LED) bulbs per house. Install 1 LED specific dimmer per house. The LED bulbs will meet the needs of the birds as confirmed by the producer and integrator. The bulbs are between 3000-6500 K color temperature and have a minimum color rendering index of 73.	20,022		\$2,505	\$4,478	1.8
Insulated Brood Curtains Replace (2) existing uninsulated brood curtains per house with (2) insulated brood curtains per house. Insulated brood curtains have a minimum R-value of R-2.5.		47	\$239	\$5,546	23.2
Totals	(11,778)	1,677	\$7,018	\$163,513	23.3

James completed the installation of his poultry litter heating system in May 2013 and looks forward to the opportunity to monitor the new measures for effectiveness on not only energy savings but on the brood’s health and productivity. “It’s great to be able to use a waste product on my farm to replace a good part of my heating costs and to switch out my old 100 Watt incandescent lights for new LED lights,” he said. “It is even better to analyze these measures and document their savings and effectiveness in a model poultry house to help other farmers have a clear understanding of what implementing these and other measures will mean to their farms.”

As one of the first farms in the Delmarva area (i.e., Delaware-Maryland-Virginia) to implement this new heating system, AHPharma is demonstrating the potential of new energy technologies. It is working closely with the University of Maryland Eastern Shore to monitor the farm’s chicken heating system and LED lights to document the energy savings over time and their effect on brood health and productivity. Having access to the costs and savings associated with these new technologies is key to helping farmers make better-informed cost/benefit decisions.

¹ The electricity consumption increases because the old propane fired heaters did not require electricity while the new chicken heating system requires pumps to move the heat from the litter to the poultry houses. Overall, the project is anticipated to reduce energy consumption by 113.4 MMBTUs annually.



BENSON FARMS

A Poultry Farm Case Study

Mathias Ag Program



Glenn Benson runs a three-house broiler farm in Bishopville, Maryland and is no stranger to his neighbors. Through Benson Farms, Glenn is directly involved with ten other farms in the immediate area. He communicates regularly with other farmers who share information and learn from each other.

Glenn spends nearly \$20,000 on electricity and another \$10,000 on propane each year to raise 335,000 birds. The Kathleen A.P. Mathias Agriculture Energy Efficiency Program provided Glenn with a chance to implement some energy efficiency projects he had in mind and reduce his operating costs. He looked forward to the opportunity to save energy in his own operation and share this experience with other growers. In 2013, Glenn made the following efficiency improvements to his farm to achieve a 21% savings in energy use:

End door covers help seal air leaks around the doors, reducing air infiltration and fuel use.



Cool cells are a form of evaporative cooling used in poultry houses. The energy savings comes from a reduction in fan run time due to the added cooling capacity of the evaporative cooling.



LED bulbs are dimmable and use only about 15% of the energy of incandescent bulbs. They also last much longer than any other current lighting option.



Benson Farms Case Study

Mathias Ag Program

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Lighting Replace 100 watt dimmable incandescent bulbs in houses 1-3 with 12 watt dimmable LED bulbs. Replace 100 watt non-dimmable incandescent bulbs in house 3 with 40 watt non-dimmable compact fluorescent bulbs. Install 1 LED-specific dimmer per house for houses 1-3.	30,988		\$4,413	\$11,310	2.6
End Door Covers Purchase end door covers and cover end doors with them.		277	\$532	\$3,000	5.6
Recirculating Cool Cells Replace existing spray bar cool cell system with 6 inch thick recirculating cool cell system. There will be 160 feet of cool cell for house 1 and 168 feet of cool cell per house for houses 2-3.	18,837		\$2,682	\$58,900	22
Totals	49,825	277	\$7,627	\$73,210	9.6

Glenn installed the new equipment in the spring of 2013 and is pleased that the new equipment is helping put more money in his pocket. “These changes are making a real difference on the farm,” said Glenn. “I’m looking forward to showing other growers what I’ve done so that other farms can reduce their energy costs, too.”

The energy efficiency measures Benson Farms implemented can be found on many other poultry farms. Thanks to the growing affordability of LED lighting, many farms have an opportunity to improve their lighting. Before making a change, growers should ensure that all bulbs are rated for poultry applications and damp locations. They should also check with their integrator to make sure the bulbs meet the color temperature and color rendering index requirements of the birds.



CAPRIKORN FARMS

A Dairy Farm Case Study

Mathias Ag Program



Caprikorn Farms is a small goat dairy in Gapland, Maryland, part of a growing movement of small-scale livestock production. In addition to raising and selling goats, the farm makes its own cheese that is sold locally. Owner Alice Orzechowski inherited the 1950’s era milk house in 2005 and wanted to make energy efficiency improvements to bring it into the 21st century.

The farm spends about \$6,200 each year to milk 72 goats. This energy expense represents a significant drain on the farm’s bottom line. Alice knew that she could slash her dairy’s energy expenses. An energy audit provided through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program gave her solid information about how much energy she could save, and program grant funds helped her implement the planned measures.

Geothermal stock waterers replace conventional electrically powered stock waterers. In cold weather, livestock farmers use stock waterers to prevent the animals’ drinking water from freezing. This device requires no electricity and has an ancillary effect of cooling the water in the summer.



Compact fluorescent lamps (CFLs) deliver the same amount of light as incandescent bulbs but use only ¼ of the electricity. They also last up to 10 times longer than incandescent bulbs.



Air-source heat pump water heaters use a heat pump to extract heat from the ambient air to supplement the traditional heating element in the water heater. The farm placed its water heater near the milk cooling condensers, which generate large amounts of waste heat.



Extruded polystyrene insulation was added to a shed on the south side of the building, which will house the dairy’s vacuum pump. The pump was previously housed in an uninsulated area that required an electric space heater, so the move to an insulated space removed the need for external heating.



Caprikorn Farms Case Study

Mathias Ag Program

Together, these measures reduce Caprikorn Farms’ energy use by nearly 50%. As shown in Table 1, they have an average payback of 5.1 years. The rapid payback and relatively low cost of these measures make them a good choice for smaller livestock farms, especially ones operating in an older space.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Geothermal Stock Waterers Replace (8) 1500 watt stock waterers with (8) solar stock tanks. Solar stock tanks have a solar collector (non-photovoltaic) and a water-holding capacity of approximately 42 gallons. No electric supply is needed for these stock tanks.	14,400	\$1,570	\$7,536	4.8
Milk Parlor Lighting Replace (19) 100 watt incandescent fixtures with (19) 23 watt compact fluorescent fixtures. The recommendation requires replacing the entire fixture with a new fixture.	3,738	\$407	\$2,235	5.5
Water Heating in Milk House Replace existing water heater with an air-source heat pump water heater. The water heater will have a capacity of 50 gallons and a minimum ENERGY STAR® energy factor rating of 2.4. Insulate existing compressor housing structure with 2” of extruded polystyrene to capture heat for heat pump water heater.	5,011	\$546	\$2,959	5.4
Space Heating: Vacuum Pump Room Relocate vacuum pump to the room on the south side of the building and insulate the room with 2” of extruded polystyrene to eliminate the need for the electric space heater.	5,040	\$549	\$2,956	5.4
Totals	28,189	\$3,073	\$15,686	5.1

Alice installed the equipment in April 2013 and is happy to have her old space brought up to date. “In the small but growing small ruminant livestock industry, I’m glad to set an example for other farms to follow,” said Alice.

The energy efficiency projects installed at Caprikorn Farms show that saving energy is not just for large farms. Indeed, the measures are an inspiration to other small-scale or beginning operators who can see the value in making their operation as energy efficient as possible. Caprikorn Farms’ investment in energy efficiency shows that smart financial decisions for the business can also benefit the environment.



CEDAR MOUNTAIN FARMS

A Poultry Farm Case Study

Mathias Ag Program



Cedar Mountain Farms is a family-owned business operating 10 broiler houses in Snow Hill, Maryland. Having already invested in energy-efficient lighting on the farm, owners Sunwoo and Kyunghi Nam were intrigued by the potential for additional energy savings from installing LED bulbs. They also knew that upgrading insulation and ventilation would help increase the farm's productivity while saving energy.

To raise 940,500 birds, the Nams spend nearly \$100,000 each year on electricity and propane. The Kathleen A.P. Mathias Agriculture Energy Efficiency Program helped Cedar Mountain Farms quantify the savings opportunities from their planned improvements and provided funds to help implement those projects. Through the program, the Nams implemented the following measures, which reduced their overall energy use by 15%:

LED bulbs are dimmable and use only about 15% of the energy of incandescent bulbs. They also last much longer than any other current lighting option.



Energy efficient ventilation fans are more efficient than the old fans and offer significant energy savings.



Dropped ceiling insulation reduces heat loss and leads to significant energy savings.



Cedar Mountain Farms Case Study

Mathias Ag Program

Taken together, these energy efficiency upgrades will pay for themselves in about eight years, as shown in Table 1.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Lighting Replace (840) 100-watt incandescent bulbs and (396) 23-watt compact fluorescent bulbs with (1,236) 10-watt dimmable LED bulbs. Install 1 LED specific dimmer per house.	66,782		\$6,844	\$40,290	5.9
Ventilation Fans Replace (18) ventilation fans with 1 HP fan motor with (18) new 3-phase, energy-efficient ventilation fans at 20,819 CFM, 24.5 CFM/watt, 0.1” static pressure, or better.	21,691		\$2,223	\$25,650	11.5
Ceiling Insulation Upgrade existing R-8 fiberglass blown insulation with R-19 insulation for a re-freshed minimum R-value of R-27.		3,152	\$5,788	\$54,514	9.4
Totals	88,473	3,152	\$14,855	\$120,454	8.1

Cedar Mountain Farm completed its installation in April 2013, and the owners expect both energy savings and reduced bird mortality through better ventilation. “I am looking forward to tracking our new production level and comparing it to our previous numbers,” said Kyunghi. “I’m hoping this information can be used to help other growers.”

Indeed, the energy savings from this installation add to the farm’s bottom line, as do the productivity benefits of the measures. In a poultry house, measures that better regulate the temperature of the birds can reduce bird deaths and provide better growth. By implementing similar upgrades, many other growers can benefit from the energy savings and productivity increase that Cedar Mountain Farms now enjoys.



DEERFIELDE FARM

A Poultry Farm Case Study

Mathias Ag Program



Maryland’s poultry industry is an important part of life for Deerfielde Farm owner Jenny Rhodes. In addition to operating her own broiler farm in Centreville, Maryland, she is president of a major poultry trade association and an extension educator in the College of Agriculture & Natural Resources for the University of Maryland Extension.

After a 2007 farm energy audit, Deerfielde Farm invested in radiant tube heaters and ceiling insulation in four poultry houses. With annual electricity and propane costs to raise 480,000 birds still in excess of \$20,000, Jenny seized the opportunity afforded by the Kathleen A.P. Mathias Agriculture Energy Efficiency Program to implement additional measures in 2013. Taken together, these improvements will reduce energy use in the poultry houses by more than 30%:

Insulated solid sidewalls, made with R11 insulation and plywood, are an improvement over curtain walls because they allow better control of temperature and humidity. They reduce heat transfer and air infiltration, another cause of heat loss.



Insulated brood curtains reduce heating requirements by minimizing the heated area of the house when the birds are small. Using an insulated brood curtain decreases the amount of energy lost in heating the area.



Vent boxes must be in good repair to avoid allowing air to leak in when the vents are closed. In well-sealed buildings with minimal air leakage, vent boxes use the static pressure difference of the outside and the inside air to ventilate without allowing cold air to drop on the birds.



Electronic control units coordinate heating, cooling, ventilation and lighting systems so they work in an integrated fashion and maintain optimum growing conditions while minimizing energy use. They also allow the producer to view the poultry house conditions remotely.



Cool cells are a form of evaporative cooling used in poultry houses. They allow fans to run less frequently, which results in energy savings.



Insulated tunnel doors provide more insulation and a better seal for tunnel inlets than a traditional tunnel curtain.



Deerfield Farms Case Study

Mathias Ag Program

Sidewall ventilation fans provide ventilation in winter when the farm is not using the tunnel ventilation fans. The replacement fans are more efficient than the old ones and offer significant energy savings.



Deerfield Farm’s energy efficient upgrades will save the farm over \$6,500 in energy costs each year. While some of the measures have a long payback period, they represent a good value for the farm because they will help improve the health of each flock—a benefit that translates to higher profits.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Curtain to Solid Insulated Sidewalls Renovate remaining 5 curtain walls to solid sidewalls and insulate with a minimum of R-11 wall insulation.		1,215	\$1,749	\$33,407	19.1
Insulated Brood Curtains Replace 2 existing uninsulated brood curtains per house with insulated brood curtains.		103	\$148	\$2,600	17.6
Vent Boxes Replace 192 existing vent boxes with 192 new vent boxes.		562	\$809	\$8,730	10.8
Electronic Control Units Install electronic control unit in house #3 and integrate lighting, heating and ventilation systems with the new controller.		79	\$615	\$11,975	19.5
Cool Cells and Insulated Tunnel Doors Install 120 feet of recirculating cool cell per house and replace existing tunnel curtain material with insulated tunnel doors.	20,346	241	\$2,731	\$63,300	23.2
Ventilation Replace 2 old 36-inch sidewall fans per house with 2 energy efficient 36-inch sidewall fans per house. New fans have a minimum ventilation efficiency ratio of 18.9 CFM/Watt.	3,578		\$419	\$9,120	21.8
Totals	28,206	2,200	\$6,471	\$129,132	19.9

Jenny is pleased with the energy efficient poultry houses that enhance the health and productivity of her flocks. “I take pride in the appearance, environmental effectiveness and energy efficiency of my farm,” said Jenny. “I am so glad these recent upgrades represent best management practices and I’m glad to be able to demonstrate their impact on my farm.” As a community leader, she hopes to help other poultry growers realize the value of energy efficient upgrades—while preparing her operation for a sustainable future.



FLINTROCK FARMS

A Poultry Farm Case Study

Mathias Ag Program



Dan Heller operates two poultry farms and a horse stable, with property in two states. As a third-generation farmer, he knows the best way to plan for the future of his farms is to maximize their growth through efficiency and environmental sustainability.

Flintrock Farms, Dan’s broiler farm in Church Hill, Maryland, spends about \$100,000 each year on energy costs to raise over 700,000 birds. To learn how to reduce this energy cost to free up funds for other business purposes, Dan requested an energy audit on his six-house broiler farm in 2010. The farm energy audit uncovered opportunities to save 20% of that cost through equipment replacement. Dan evaluated ways to implement the recommended measures for a few years. When Dan learned of a new grant opportunity through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program to help pay for the cost of installing the measures, he jumped at the chance to make the following efficiency improvements to his farm:

LED bulbs are dimmable and use only about 15% of the energy of incandescent bulbs. They also last much longer than any other current lighting option.



Radiant tube heaters are a more efficient way of warming the birds. Instead of heating the air, radiant heaters direct heat to the objects in the house such as the walls, floor, and chickens.



Attic inlets recover solar heat from the attic of poultry houses. They capture and reuse the warm air from the chicken house attic on winter days. They can also help lower the relative humidity in the house and reduce litter moisture.



Stir fans circulate heat throughout the house to reduce temperature variations. Uniform heat distribution from the ceiling to the floor allows the heating system to operate less frequently.



Brood curtains reduce heating requirements by minimizing the heated area of the house when the birds are small. Using an insulated brood curtain decreases the amount of energy lost in heating the area.



Flintrock Farms Case Study

Mathias Ag Program

Farmers who cannot invest in all technologies at once may choose to tackle the shortest-payback measures first. In Flintrock Farms’ case, adding stir fans and replacing forced air heaters with radiant tube heaters provide the quickest payback (see Table 1).

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Lighting Replace 92 8-watt dimmable cold cathode bulbs, 28 23-watt compact fluorescent (CFL) bulbs, and 4 40-watt CFL bulbs per house with 124 6.7-watt dimmable light emitting diode (LED) bulbs per house for houses 1-6. Replace (120) 100 watt dimmable incandescent bulbs and (4) 150 watt dimmable incandescent bulbs per house with (124) 8 watt dimmable light emitting diode (LED) bulbs per house for houses 7-9	50,977		\$5,558	\$35,149	6.3
Radiant Tube Heaters Replace 4 forced hot air heaters per house with 4 125,000 Btu/hr radiant tube heaters per house.		3,443	\$5,945	\$38,960	6.6
Attic Inlets Install 20 actuated attic inlets per house Install 1 electronic control unit per house in houses 7-9 that will actuate attic inlets.		2,722	\$4,700	\$42,824	9.1
Stir Fans Install 8 variable speed drive 18” basket fans per house to the ceilings of houses.	(5,525)	1,530	\$2,040	\$23,981	11.8
Brood Curtains Replace 2 existing un-insulated brood curtains per house with 2 insulated brood curtains per house. Insulated brood curtain should have a minimum R-value of R-2.5.		212	\$366	\$9,078	24.8
Totals	45,452	7,907	\$18,610	\$149,992	8.1

Dan had the equipment installed in February 2013 between broods and could not be happier with the results. “The new equipment is the right choice for my farm,” says Dan. “Every business is looking for ways to cut costs without sacrificing productivity, so it makes sense for growers to look at where they can save energy costs.”

Many poultry farms can benefit from energy efficiency measures similar to the ones Flintrock Farms implemented. Even without the grant, the recommended upgrades would pay for themselves in about 8 years—a relatively short time for a farm looking to stay in business for the next generation.



THE GREAT GOURMET

A Food Processor Case Study

Mathias Ag Program



Kim Scott operates a food processing facility in Federalsburg, Maryland. For over 10 years, The Great Gourmet has been providing crab cakes and other seafood products to customers across the country. In 2008, it was named to the Inc. 500 in recognition of its status as one of the fastest growing private companies in the U.S. And in Kim’s plans for continued company growth, energy efficiency plays an important role.

The Great Gourmet spends about \$52,000 each year on electric energy. The facility has several large walk-in freezers and coolers that operate year round and account for a significant portion of the annual electric consumption. With utility costs climbing ever higher, Kim was eager to find a way to protect her company’s bottom line. When she learned of a new grant opportunity through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program to help pay for energy efficiency measures, she decided it was time to make the following improvements to the facility:

Refrigeration controls deliver energy savings by enabling refrigeration units to work more efficiently. Solid-state floating head pressure controls for the large condensing units vary the head pressure based on outside air temperature, so the units only work as hard as they need to. Updated evaporator fan motors operate more efficiently than previous models, and defrost controls for walk-in refrigerator/freezer units deliver additional savings.



Solar hot water systems use the sun to heat water efficiently. In this closed-loop system, water in the solar loop is pumped to flat plate solar thermal collectors on the roof, where it is heated; the heat is then transferred to domestic hot water in the storage tank through a flat plate heat exchanger with 90% efficiency.



On-demand water heaters heat water only when it is needed, which eliminates standby losses—the energy lost from continually warming water that sits in a hot water tank. For The Great Gourmet, these units will provide hot water when the solar hot water system cannot fully meet the facility’s needs.



The Great Gourmet Case Study

Mathias Ag Program

These measures will reduce the electricity costs associated with The Great Gourmet’s refrigeration and water heating by 22.8%. As shown in Table 1, the expected annual cost savings is \$11,936.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Refrigeration Controls Install solid state floating head pressure controls for the large condensing units. Install 50 brushless, high efficiency, electronically commutated evaporator fan motors. Install defrost controls for walk-in refrigerator/freezer units.	93,170	\$9,680	\$78,208	8.1
Solar Hot Water Install a drain back solar thermal heating system with flat plate solar thermal collectors, drain back accumulator tank, collectors and building loop circulation pumps, controller and accessories, solar thermal hot water storage tank, and a compact high-efficiency heat exchanger.	17,541	\$1,823	\$42,848	23.5
On-Demand Water Heaters Replace one large electric hot water heater with a propane-fired, high efficiency, on-demand water heater. Replace three smaller electric hot water heaters with tankless, electric high-efficiency, on-demand water heaters.	4,166	\$433	\$3,850	8.9
Totals	114,877	\$11,936	\$124,906	10.5

The equipment was installed in April 2013, and while Kim is relieved that smaller energy bills are helping her funnel more money into growing her business, she also appreciates an added benefit. “I think all businesses should look at ways to shrink their footprint,” she said. “I feel blessed to be able to do something good for the environment and save money at the same time; it’s wonderful for us.”

The energy efficiency measures implemented at The Great Gourmet hold promise for other food processing facilities with significant refrigeration and water heating needs. The 10.5 year payback on these measures is well within the service life of the equipment, making it a cost-effective investment for businesses looking for a competitive edge.



HARBORVIEW FARMS

A Grain Farm Case Study

Mathias Ag Program



Harborview Farms is one of the larger agricultural operations in Maryland, growing 475,000 bushels of corn, 140,000 bushels of wheat, and 60,000 bushels of soybeans annually. Sustainability has always been a big part of the farm’s philosophy. In 2012, the farm installed a 200 kW solar array to reduce fossil fuel usage, and the farm received recognition for its efforts to protect the Chesapeake Bay.

The Hill Family (Trey and Cheryl Hill and Trey’s parents Herman and Christy Hill) spends approximately \$27,000 annually on electricity and nearly \$250,000 on propane. Much of that propane fuels the farm’s 35-year-old inefficient grain dryer. When the Hills learned of financial assistance available through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program, they decided to move forward with replacing their aging dryer.

Grain dryers use a lot of energy, typically propane or natural gas, to dry harvested grain. The energy used can depend on the variety of crop, the original moisture level, and the final moisture level. Many farms have old grain dryers; newer models are considerably more energy efficient, typically saving between 15-40% of the energy used.



The model the Hills chose will reduce the farm’s propane use by 23% and pay for itself in 6.5 years—not bad for equipment that generally lasts between 20 and 30 years (see Table 1).

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Grain Dryer Replace (1) Redex RT-2000 grain dryer from 1977 with a tower-style grain dryer. The new dryer has a Btu/lb of water removed rating of approximately 1,556 Btu/lb or less. Both the existing and proposed grain dryer use electricity and propane.	3,207	32,306	\$57,540	\$374,505	6.5
Totals	3,207	32,306	\$57,540	\$374,505	6.5

Harborview Farms Case Study

Mathias Ag Program

The Hill family installed the equipment in April 2013 and is glad to have the new dryer up and running for the fall harvest season. "Because our farm is so well known in the area, we know others will be looking to us to take the lead with upgrading our equipment," said Trey. "This new grain dryer is the latest step in our path to energy independence."

The Hills are continuing their tradition of environmental stewardship through this installation. Saving nearly a quarter of their propane usage helps the farm financially while serving the farm's goal of minimizing its fossil fuel use. The grain grown on Harborview Farms is turned into chicken feed and milled into flour, so energy efficiencies achieved on the farm help make these end products more sustainable, too.



HELGASON FARMS

A Poultry Farm Case Study

Mathias Ag Program



Hilmar Helgason operates two broiler houses at his poultry farm in Rhodesdale, Maryland. He believes he is growing a healthy chicken in the best way possible, and that includes doing everything he can to be more energy efficient and keep his carbon footprint small.

Helgason Farms spends about \$7,200 annually on propane to heat the 262,500 birds that are raised each year. Hilmar spends an additional \$8,900 each year on electricity costs. To learn how to reduce his energy costs, he requested an energy audit on his broiler farm in 2010. The farm energy audit uncovered opportunities to save nearly 25% of the farm’s energy costs through equipment replacement. In Hilmar’s case, all the energy efficiency opportunities involved propane reduction. He immediately implemented some of the recommendations such as insulating his sidewalls and end wall doors. When the Kathleen A.P. Mathias Agriculture Energy Efficiency Program provided additional incentive money in 2012, Hilmar decided it was time to implement the other recommendations in the audit and save as much energy as possible.

Dropped ceiling insulation reduces the houses’ heat loss by creating a greater thermal resistance. Insulation is one of the major components of energy-efficient heating.



Insulated tunnel fan curtains reduce heat loss in the winter months by sealing up the tunnel fans when they are not in use. The curtains provide much more air sealing and insulation value than fan louvers.



Attic inlets recover solar heat from the attic of poultry houses. They capture and reuse the warm air from the chicken house attic on winter days. They can also help lower the relative humidity in the house and reduce litter moisture.



Radiant tube heaters are a more efficient way of warming the birds. Instead of heating the air, radiant heaters direct heat to the objects in the house such as the walls, floor and chickens.



Helgason Farms Case Study

Mathias Ag Program

Insulated tunnel fan curtains pay for themselves in less than four years; other measures have a longer payback but act as insurance against rising fuel costs (see Table 1). While other farms may have to deal with the consequences of higher propane costs in the future, Helgason Farms can rest easy that it has done everything possible to reduce energy costs ahead of time.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Dropped Ceiling Insulation Add 6 inches of blown cellulose with an approximate R-value of R-3.2 per inch to the existing ceiling insulation.	228	\$285	\$9,020	31.6
Insulated Tunnel Fan Curtains Install insulated tunnel curtain material with an approximate R-value of R-2.5 on the inside of the tunnel fans. This curtain material will close off the tunnel fans in the winter when they are not in use. The curtains will be manually operated to open and close.	248	\$310	\$1,187	3.8
Attic Inlets Install (15) 4-way attic inlets in each house. The attic inlets will be automatically controlled by an upgrade to the existing electronic controls for Houses 1-2. The controller upgrade will add software to control the attic inlets as well as more inputs to accommodate the attic inlets controls.	687	\$858	\$15,702	18.3
Radiant Tube Heaters Replace (6) existing forced hot air heaters per house with (6) 100,000 Btu/hr, 50 foot radiant tube heaters and (1) 85,000 Btu/hr, 40 foot radiant tube heater per house.	866	\$1,083	\$18,721	17.3
Totals	2,029	\$2,536	\$44,630	17.6

Hilmar installed the new equipment in March 2013. “I’m always looking to reduce my operating expenses,” said Hilmar. “It is great to be able to save money while also helping the environment.”

These poultry house improvements can be implemented on many other farms. It is up to each grower to decide which improvements are the best investments. When faced with building a new house or improving an old one, a grower will find that retrofitting an older poultry house to make it more energy efficient often makes the most sense.



HILLCREST NURSERY

A Nursery Case Study

Mathias Ag Program



Jim Hershfeld operates a nursery in Manchester, Maryland that has been providing wholesale plants to the horticulture industry for over 30 years. Hillcrest Nursery specializes in cell pack herbs and plants including annuals, perennials, herbs, vegetables and seasonals. With five acres of greenhouses to heat, light and ventilate, Jim knows that improving energy efficiency plays an important role in growing the business and adding to the bottom line.

Hillcrest Nursery spends about \$158,000 each year on energy costs including electricity and propane. When Jim learned of a new grant opportunity through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program to help install energy efficiency measures, he seized the chance to make the following improvements to his facility:

Induction lamp fixtures offer significant energy savings over older high pressure sodium lamps. With an estimated life of 100,000 hours, they also last more than six times longer, which provides additional operational and maintenance savings. The color characteristics of the induction lamp fixtures are essential for the optimum growth of the plants.



High efficiency fan motors provide substantial energy savings over older models. Further energy savings, and better airflow control, can be achieved with individual fan switches (rather than a single switch controlling multiple fans).



Heating system upgrades included the replacement of suspended propane-fired unit heaters with a central boiler and radiant tube heating system. The new radiant heating piping system provides the optimum distribution of heat at the level of the plants.



Hillcrest Nursery Case Study

Mathias Ag Program

While the heating system upgrade provides the greatest cost savings, as shown in Table 1, all three measures contribute substantially to the anticipated annual energy cost savings of \$30,465. All measures also provide very attractive payback periods.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Lighting Replace 1,000 Watt Hydrofarm light fixtures with 420 Watt induction lamp fixtures with dimming controls.	85,410		\$10,873	\$58,018	5.3
Fan Motors Replace (29) ~ 1 HP ventilation fan motors with high efficiency motors.	34,294		\$4,366	\$25,989	6.0
Heating System Upgrade Replace 8 suspended propane-fired unit heaters with a high efficiency central boiler and aluminum fin tube radiant heating piping system.		9,150	\$15,226	\$92,051	6.0
Totals	119,704	9,150	\$30,465	\$176,058	5.8

Jim had the equipment installed in the spring of 2013 and won’t miss the higher energy bills. “With the heating upgrade we’ll be filling the propane tanks a few times less a year,” he said.

Beyond the energy savings, the induction lights offer an added benefit. “From our testing, the plant growth has been superior underneath the induction lighting,” Jim noted. Better plant growth means a healthier bottom line.

With just a six-year payback, the measures implemented at Hillcrest Nursery hold promise for other nursery operations looking for sustainability and cost savings.



HUNTING CREEK FISHERIES

An Aquaculture Case Study

Mathias Ag Program



Matt Klinger operates a fish farm and hatchery on Little Hunting Creek in Thurmont, Maryland. A family-owned business, Hunting Creek Fisheries has been raising pond and aquarium fish since 1924. Although the business used to produce 12 million ornamental fish a year, rapidly increasing fuel costs made the facility’s equipment so costly to run that Matt was forced to shut down part of the operation several years ago.

Hunting Creek Fisheries spends about \$30,000 each year on energy costs, including electricity and propane. To learn how to reduce these costs to return the business to earlier production levels, Matt requested an energy audit on his facility in 2010. The audit uncovered opportunities to save on energy costs through equipment replacement. When Matt learned of a new grant opportunity through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program, he made the following energy efficiency upgrades to his facility:

Lighting upgrades, including energy-efficient fluorescent lamps, LED bulbs, and dimming controls have the potential to not only reduce energy consumption but also improve the indoor environment by providing optimal color rendering characteristics (optimal lighting aids staff in examining the colors and patterns of the fish for sorting). In outdoor applications, LED lighting offers operational and maintenance savings over HID metal halide fixtures due to its efficiency and long bulb life.



An outdoor wood gasification furnace provides a much more direct way to heat water in fish tanks. Unlike Hunting Creek Fisheries’ old suspended, propane-fired unit heater, which heated water only by first heating the air in the building, a central boiler wood gasification furnace delivers heat directly to the fish tanks. The furnace will use plentiful locally available firewood.



Pumps and filtration upgrades can contribute substantially to energy savings in an aquaculture operation. Modifying an existing multi-stage filtration and water purification system with energy efficient motors can reduce the number of motors required for the filtration process. New filter media, ultraviolet lights and a new pumping system further increase the system’s energy efficiency.



Hunting Creek Fisheries Case Study

Mathias Ag Program

Taken together, the lighting, heating and pumps and filtration measures will return a 50% savings on the related energy costs. As shown in Table 1, Hunting Creek Fisheries is estimated to save \$13,326 annually on its electric and propane bills.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Lighting Replace fluorescent T12 fixtures with HID metal halide fixtures and dimming controls. Replace HID and compact fluorescent exterior wall packs with LED fixtures.	35,998		\$2,912	\$4,852	1.7
Heating System Replace propane-fired heater with an energy-efficient central boiler wood-gasification furnace.		2,338	\$5,804	\$22,483	3.9
Pumps and Filtration Consolidate and install new high efficiency pump motors, filtration media, ultraviolet lights and pump controls.	56,990		\$4,610	\$29,323	6.4
Totals	92,988	2,338	\$13,326	\$56,658	4.3

The equipment was installed in April 2013 and will pay for itself in an estimated 4.3 years. While Matt has already begun to see savings from the lighting and pumps and filtration upgrades, the performance of the furnace awaits next heating season. “We’re very excited about the savings that we’re going to have through this system,” said Matt. Hurricane Sandy left him with an abundant supply of downed trees to fuel his new wood-fired furnace, which will further speed his payback.

Matt is pleased to be able to bring his unused production building back online and expand his business to levels he has not seen since the price of propane jumped several years ago. “My great-grandfather, who started the farm back in the 20s, always said that despite hard times, people always seem to have a couple of pennies to buy a goldfish,” he said. “Obviously today, goldfish cost a little bit more than a couple of pennies, but we believe that efficiency measures like these can really help us stay competitive.”



JAMES LEWIS FARM

A Grain Farm Case Study

Mathias Ag Program



James Lewis operates a grain farm in Greensboro, Maryland, where he uses a diesel engine to pump water for his two center-pivot irrigation systems. He already modified the irrigation system to use low-pressure sprinkler nozzles to save energy, and was interested in installing a new electric pump to further reduce his energy costs. As an extension educator with the University of Maryland, Jim is always looking for ways to transfer his own experience to other farms. When he learned of an opportunity to quantify the energy savings from switching from a diesel- to electric-powered pump through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program, he decided it was the right time to make this conversion. The program also provided a grant to help offset the cost of the project.

Jim spends nearly \$8,500 annually to run his diesel irrigation pump. The energy audit provided through the Mathias Agriculture Program identified the potential for an electric pump to reduce his energy costs by 87%.

Converting from diesel to electric power presents an opportunity for significant energy savings on irrigation pumping systems. Electric power plants are much more efficient than diesel power plants, and energy savings of over 50% are common for this conversion. Electric power plants also usually have fewer parts, so maintenance costs are often reduced as well.



As shown in Table 1, the energy savings from the pump replacement will pay for the project in 4.9 years.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Diesel Savings (gal)	Electricity Savings (kWh) (Increase)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Pump Conversion Replace existing diesel irrigation pumping plant and pump with a 25 hp submersible electric motor and pump.	2,220	(11,283)	\$6,865	\$33,463	4.9

James Lewis Farm Case Study

Mathias Ag Program

The pump was installed in April 2013, and Jim looks forward to seeing the savings add up this season. But the benefits go further. "The electric pumping units are less time consuming—I don't have to worry about oil changes, engine repairs and fuel tanks," said Jim. "Plus, the energy savings are significant and I'm really looking forward to putting the money I used to spend on diesel fuel towards something else on the farm."



LEASE BROTHERS FARM

A Grain Farm Case Study

Mathias Ag Program



Sam Lease and his brother Dave have operated Lease Brothers Farm in Union Bridge, Maryland since 1986. They farm 3,100 acres of corn, soybeans, wheat and barley. They also custom-work crops on another 10,000 acres. The brothers plan to farm for many more years and have always recognized the importance of planning for future profitability. This includes making their farm as energy efficient as possible to save on energy costs.

Lease Brothers Farm spends over \$25,000 on propane to dry its grain each year. The brothers were aware that upgrading their grain dryer to a more efficient model would save energy, but a new dryer is a big investment. Fortunately, the Leases were able to use the Kathleen A.P. Mathias Agriculture Energy Efficiency Program to quantify the energy savings from this switch. They also used the program for incentive funds to offset costs. The program’s energy analysis indicated a potential 28% reduction in propane costs, a savings of over \$7,000 each year—money that could be invested in other ways to improve the farm and make it more profitable.

Grain dryers use a lot of energy, typically propane or natural gas, to dry harvested grain. The energy used depends on the variety of crop, the original moisture level and the final moisture level. Many farms have old grain dryers and newer models are considerably more energy efficient, typically saving between 15-40% of the energy used.



As shown in Table 1, the model the Lease Brothers Farm chose will pay for itself in 18 years—a sound investment for equipment that typically lasts about 30 years. The new dryer will also allow the farm to process more grain in less time.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Grain Dryer Replace existing grain dryer with a more efficient grain dryer	3,781	\$7,297	\$131,376	18.0

Lease Brothers Farm Case Study

Mathias Ag Program

Both Sam and Dave are glad to have their new dryer installed in time for this year's harvest, and to be doing their part to save fossil fuels and position their farm for long-term sustainability. As a farm that actively participates in local 4-H activities, it is meaningful to have something on the farm to help educate the next generation of farmers. "This new grain dryer helps show the community what we're doing on the farm to be more energy efficient," says Sam. "Farmers are always doing their best to take care of the environment, and this new equipment speaks to that."



LIPPY BROTHERS FARMS

A Grain Farm Case Study

Mathias Ag Program



Farming has long been in the blood of the Lippy family. Brothers Ed and Donald Lippy grew up on a dairy farm and studied agriculture at the University of Maryland. After graduation in the early 1950s, Ed, Donald and their two other brothers began farming and in 1965 incorporated Lippy Brothers Farms. They grow hay, snap beans, soybeans, corn, wheat and barley on their 2,000 acre farm in Hampstead, Maryland, and lease an additional 8,000 acres for these crops. The Lippys also operate a poultry farm, which features energy efficiency measures and a new solar energy system.

This interest in energy efficiency extends to the crop farm, and the Lippys knew they could improve upon their aging grain dryer. The farm spends over \$32,000 each year for electricity and \$42,000 each year for natural gas to dry the grain. Upgrading their 1982-vintage grain dryer to a modern model would reduce the farm’s energy costs, and the brothers were interested in making the investment. With the help of the Kathleen A.P. Mathias Agriculture Energy Efficiency Program, Ed and Donald were able to determine exactly how much energy they would save, and received incentive funds to offset the initial cost of the new dryer. The program’s energy analysis indicated a potential 34% reduction in energy costs—a savings of over \$27,000 each year.

Grain dryers use a lot of energy, typically propane or natural gas, to dry harvested grain. The energy used depends on the variety of crop, the original moisture level and the final moisture level. Many farms have old grain dryers and newer models are considerably more energy efficient, typically saving between 15-40% of the energy used.



As shown in Table 1, the model the Lippy Brothers Farm chose will pay for itself in 8.3 years, and provide the farm many years of savings in the years to come.

Lippy Brothers Farms Case Study

Mathias Ag Program

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Natural Gas (therms)	Electricity Savings (kWh)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Grain Dryer Replace 1982 Storemor grain dryer with a tower-style grain dryer. The new dryer will have a Btu/lb of water removed rating of approximately 1,665 Btu/lb or less. Both the existing and proposed grain dryer use electricity and natural gas.”	13,578	120,066	\$27,175	\$225,140	8.3
Totals	13,578	120,066	\$27,175	\$225,140	8.3

As a farm that has always taken the lead through the brothers’ service on Maryland agricultural boards, the Lippys are looking forward to showing others the savings they will generate from their new dryer. “We’ve always done what we can to manage our farm the best way possible—through nutrient management plans and sound environmental management,” says Ed. “Our new grain dryer is saving us a lot of money but also helps reduce the impact of fuel use on the environment, which is important to us.”



SOUTH MOUNTAIN CREAMERY

A Dairy Farm Case Study

Mathias Ag Program



The operation the Sowers family runs in Middletown, Maryland is not just another dairy. Hailing “the return of the milkman,” South Mountain Creamery is Maryland’s first on-site dairy processing plant. Since 2001, it has bottled its own milk and delivers to more than 8,000 customers weekly in Baltimore, Washington, D.C., Arlington, and other locales. The dairy’s commitment to sustainability is evident in its goal of using only its own resources to power its operation by 2015—through installation of a methane digester, soybean press, wind turbines, solar energy, geothermal loops, and a biodiesel plant. In addition to developing renewable energy sources, the farm looks for ways to reduce its energy needs.

South Mountain Creamery spends about \$14,000 each year on electric energy for three large, trailer-type container freezers and a cooler. These outdoor units operate year-round and account for a sizeable portion of the dairy’s annual electric consumption. When General Manager Peter Lee learned of a new grant opportunity through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program, he sought funding to help pay for the following refrigeration upgrades:

Replacement compressors and accessories for the container freezer and cooler units provide a substantial efficiency improvement. With exposure to the elements, the existing compressors degraded in performance over the years, while newer compressors offer higher standards of efficiency.



New compressor controls improve the energy-efficient operation of the freezers and cooler. While the original compressors operate all the time, the new, solid-state controls will help modulate the head pressure of the refrigerant based on outside weather conditions. The result is less stress on the compressors, lower energy use and prolonged equipment life due to reduced operational hours.



Condenser fan motor replacement—replacement of the standard electric fan motors associated with these freezers and cooler with high efficiency motors—results in fans that run more efficiently, consume less energy and deliver operational savings through longer life.



Defrost controls optimize defrost operation cycles and reduce defrost energy usage significantly.



South Mountain Creamery Case Study

Mathias Ag Program

As shown in Table 1, these measures are estimated to save South Mountain Creamery \$5,407 annually in electric costs.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Refrigeration Upgrades* a. Compressor Replacement Replace three compressors for two container freezer units and one container cooler unit with high efficiency units and accessories required for proper installation. b. Compressor Controls Install new, solid-state controllers for energy-efficient operation of the new compressors. c. Condenser Fan Motor Replacement Replace six standard efficiency condenser fan motors with high efficiency motors. d. Defrost Controls Provide defrost controls to optimize defrost operation. <i>*Costs and savings include all upgrades combined.</i>	52,393	\$5,407	\$49,189	9.1

The Sowers look forward to the completion of these equipment upgrades in the summer of 2013. “We are using this project, among others, to decrease our public energy needs, our carbon footprint, and to take a big step forward toward our goal of being totally green by 2015,” said Ben Sowers.

By slicing South Mountain’s refrigeration-related energy costs by more than a third, these measures indeed constitute a big step forward—one that other refrigeration-intensive businesses can emulate with similarly impressive results.



WHITELYN FARMS

A Dairy Farm Case Study

Mathias Ag Program



Dorothy White of Whitelyn Farms milks 260 dairy cows in Hydes, Maryland. Like many dairies throughout the United States, recent years of low milk prices and high feed costs have meant challenging times for the profitability of the dairy. Dorothy understands that implementing energy efficiency measures will help her farm save money, and a grant through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program provided a means for her to install necessary upgrades to her farm.

Whitelyn Farms spends about \$27,000 on electricity each year, and Dorothy knew that some energy efficiency improvements could reduce this bill. Through an energy audit provided through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program, she learned that the planned improvements could save 32% of her energy use. Dorothy installed the following equipment, which will make a big difference to the farm’s bottom line:

Milking vacuum pump variable speed drives (VSDs) are digital controllers that regulate the speed of the milking vacuum pump motor. The VSD measures how much vacuum the system requires and regulates the speed of the pump motor. The result is a pump and motor that work only as hard as they need to rather than running at a constant high speed. This reduction in pump and motor use leads to energy savings.



High volume, low speed (HVLS) fans move large volumes of air with large fan blades (20 ft. diameter) moving at low speeds. It would take several traditional high speed low volume circulation fans to move the same amount of air as one HVLS fan. The HVLS fans also have much higher efficiency ratings than traditional circulation fans. This allows the farm to eliminate several fans, resulting in significant energy savings.



Whitelyn Farms Case Study

Mathias Ag Program

As shown in Table 1, these two measures pay for themselves in 10.6 years and will provide the farm with many years of energy and cost savings.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback In Years
Milking Vacuum Pump Variable Speed Drive Replace (2) existing 7.5 horsepower vacuum pumps with (1) 10 horsepower motor and rotary lobe vacuum pump equipped with a variable speed drive. The 10 horsepower motor is a 3-phase motor.	25,849	\$3,490	\$16,853	4.8
Ventilation Replace (32) 20,000 CFM, 3 amp existing circulation fans with (10) 120,000 CFM fans with a wattage no greater than 1200 watts.	40,186	\$5,425	\$77,446	14.3
Totals	66,035	\$8,915	\$94,299	10.6

Dorothy looks forward to saving money on her electric bill. As an added bonus, the variable speed drive will make the milking parlor quieter by reducing the pump noise. “It’s wonderful to have these new technologies that will save me money each year,” said Dorothy.

Small and mid-size dairies like this one are the backbone of Maryland’s agricultural sector, and energy efficiency is one way to ensure they continue to operate and preserve the character of rural Maryland.



APPENDIX B: BETTER BUILDINGS NEIGHBORHOOD PROGRAM GRANT RECIPIENT RESPONSIBILITIES

The Better Buildings Neighborhood Program Grant Recipient Management Handbook¹⁷ lists the grant recipient responsibilities in Section 2.1, Better Buildings Neighborhood Program Grant Recipient Responsibilities.

¹⁷USDOE. (2012). Grant Recipient Handbook, v2.0 January 2012. Available from http://www1.eere.energy.gov/buildings/betterbuildings/neighborhoods/tools_resources.html.



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2. Roles and Responsibilities

DOE's Better Buildings Neighborhood Program and grant recipients must work together to ensure the effective and efficient use of the grant funds. The grant recipient provides the local and regional effort and expertise necessary to carry out approved activities, and DOE offers financial and technical assistance and programmatic guidance. Section 2 summarizes the primary responsibilities of Better Buildings grant recipients and DOE personnel in ensuring project success and compliance and lists the technical assistance resources available to support grant recipients throughout the period of performance of the grant award.

2.1 Better Buildings Neighborhood Program Grant Recipient Responsibilities

By accepting their awards, grant recipients are also agreeing to administer and use the grant funds in a legal and ethical manner. The funding for these grants comes from taxpayers, and grant recipients have a responsibility to use them in the way they were intended. In addition to federal audits, grant recipients should also be aware that their grants may be audited by state or local officials, the U.S. Office of the Inspector General (OIG), and/or the U.S. Government Accountability Office (GAO).

Grant recipients, and their partners, are responsible for ensuring that projects are successfully implemented as approved and administered in compliance with Recovery Act, DOE financial assistance, and Better Buildings Program requirements.⁴ The award is subject to U.S. laws and regulations, including the Recovery Act, which requires an increased level of transparency and accountability in the use of award funds. Inconsistency or conflict in terms and conditions specified in the award will be resolved according to the following order of precedence:

- Public laws and statutes
- Regulations
- Applicable notices published in the Federal Register
- Executive Orders (EOs)
- Office of Management and Budget (OMB) Circulars/Code of Federal Regulations (CFRs)
- DOE standard terms and conditions
- Better Buildings-wide and project-specific terms and conditions, except to the extent that these provisions may take precedence over the DOE standard terms and conditions

Presented below is a list of key Better Buildings grant recipient responsibilities. In addition to these overarching grant recipient responsibilities, all grant recipients of federal financial assistance, including Better Buildings grant recipients, are responsible for the:

⁴ Guidance contained in this handbook is applicable to both Better Buildings EECBG recipients and SEP-SP awardees. Where differences in guidance exist between EECBG and SEP-SP, they are called out. This guidance may not be comprehensive and DOE reserves the right to update this guidance.



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...conduct of the project or activity supported and for the results achieved, monitoring of the performance of the project to assure adherence to performance goals, time schedules or other requirements as appropriate to the project or the terms of the agreement...and for monitoring the activities of and pass through requirements to any sub-grantees.⁵

Note: Definitions of grant recipients, sub-grantees, and vendors and a summary of requirements applicable to each can be found in Section 8.3.6.

Table 2.1 Better Buildings Grant Recipient Responsibilities

<ul style="list-style-type: none"> • Ensure comprehensive grants administration to avoid waste, fraud, and/or abuse of award funds. It is the responsibility of the grant recipient to administer their grant in compliance with all regulations to avoid any instances of waste, fraud, and/or abuse of award funds, which includes oversight of sub-grantees. To oversee grants administration, it is recommended that grant recipients create a thorough, systematic, ongoing programmatic and financial monitoring process. <ul style="list-style-type: none"> → <i>Best Practice: Establish rigorous tracking mechanisms for programmatic and financial monitoring of oneself and sub-grantees. Perform internal audits consistently to review accuracy of internal reporting processes.</i>
<ul style="list-style-type: none"> • Comply with the terms and conditions of the grant (Section 4.1). Upon accepting the Better Buildings award package, grant recipients agree to comply with the standard and project-specific terms and conditions of the grant. Grant recipients should review, understand, and comply with these conditions, which are available in the award package, regulations, and requirements described in the Notice of Funds Availability (NOFA), related Office of Management and Budget (OMB) Circulars, and the CFRs. See Section 2 and the award package for more details on grant recipient responsibilities and award terms and conditions. <ul style="list-style-type: none"> → <i>Best Practice: Read the award package for the terms and conditions applicable to your grant award. Hold a kickoff meeting with your project team to communicate and build understanding around the terms and conditions and award requirements.</i>
<ul style="list-style-type: none"> • Keep files on grant funds and project activities (Section 4.4). Grant recipients and sub-grantees will be monitored by Better Buildings account managers and DOE project officers, both financially and programmatically, to ensure that project goals, performance, timelines, milestones, budgets, and other requirements are met. Grant recipients are required to maintain comprehensive documentation on all aspects of grants to enable sufficient oversight by federal representatives. See Section 4 for guidance and best practices on creating and maintaining comprehensive grant documentation and Appendix A for a Grant File Checklist. <ul style="list-style-type: none"> → <i>Best Practice: Establish a grants file to ensure Better Buildings documentation is kept in one location, which will simplify the auditing process. Use folders to sort grants documents, such</i>

⁵ U.S. Department of Energy, Office of Procurement and Financial Assistance Policy. (June 2008). *Guide to Financial Assistance*.



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as folders for the application, award package, project budget documents and receipts, quarterly reports, and communications with program and other stakeholders.

- **Manage Better Buildings grant funds, draw-downs, and expenditures (Section 5).** Grant recipients are responsible for the management and administration of funds provided through this award, and they are accountable for all deadlines, requirements, and limitations.
 - *Grant recipients should be aware of payment policies related to draw-downs.* Funds are not disbursed all at once, but rather over time in accordance with the approved project budget. Grant recipients should distribute funds to sub-grantees in accordance with the approved budget. See Section 5 of this handbook for more details on payment policies.
 - *Grant recipients are responsible for managing funds according to restrictions on obligations and expenditures.* Obligations are a legal liability to pay determinable sums for services or goods during the grant period under an award, sub-award, and/or contract. Key restrictions include: 1) funds are available for obligation during the grant period of performance; 2) funds must be expended by the end of the grant period; and 3) any funds not expended must be returned to DOE, which is required to return the funds to the U.S. Treasury. See award terms and conditions and Section 8 of this handbook for allowable costs and funding restrictions on expenditures.
 - *All funds must be obligated within 18 months of award and expended within three years of award. See Section 8 for more details.* (The SEP-SP FOA did not set a timeline for recipient obligation of award funds).

→ **Best Practice:** *To ensure meeting all six types of reporting requirements—Recovery Act quarterly reports, DOE quarterly performance and financial reports, Better Buildings data reports, Davis Bacon reports, and Historic Preservation reports—grant recipients should set calendar reminders and proactively coordinate across their project team and sub-grantees. See Section 4 for details on each reporting requirement.*

- **Report program status and results (Section 6).** EECBG recipients are responsible for collecting and reporting on performance information. Grant recipients will be provided an opportunity to baseline the project milestones and will need to report quarterly and annually on progress made toward those milestones. Grant recipients are required to file reports for each of the four quarters, covering: financial status; progress toward project milestones, tasks, and deliverables; and compliance with Recovery Act requirements. See Section 6 for guidance on reporting requirements and instructions for how to submit the three types of quarterly reports (SF-425 financial status report, progress report, and other monthly and quarterly Better Buildings data reports) each quarter. Better Buildings grant recipients are also required to submit a semiannual Davis Bacon compliance report, as applicable, and an annual Historic Preservation report.

SEP-SP awards require DOE quarterly performance reports, quarterly financial performance reports, Better Buildings reports, and State Historic Preservation Office (SHPO) documentation. Closeout requires property and IP certification and final progress, financial, and Better Buildings reports.



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→ **Best Practice:** *Understanding Better Buildings performance measures and program goals at the outset provides a means to track progress and accomplish goals. Use the Better Buildings Implementation Plan, a project management plan, or work plan to evaluate progress against key milestones.*

- **Monitor project activities to ensure compliance (Section 8).** Grant recipients are responsible for monitoring award activities to provide reasonable assurance that awards are administered in compliance with financial and programmatic requirements, including the award terms and conditions and Recovery Act requirements. Grant recipients are responsible for tracking stated goals and milestones of funded projects; accounting for receipts and expenditures, cash management, and budgetary control; maintaining adequate financial records; and refunding disallowed expenditures. See Section 8 for details on basic compliance requirements of Better Buildings awards.

→ **Best Practice:** *Develop a checklist of requirements that apply to your grant and use it to monitor fulfillment of requirements.*

- **Ensure adequate financial management systems are in place (Section 8.3).** DOE requires grant recipients to have adequate management systems to ensure that project objectives are met and funds are properly spent. To ensure adequate financial systems are in place, grant recipients can refer to the checklist in Appendix A of this handbook and DOE's codes and standards (which incorporate applicable OMB Circulars); these are included in the award package and are also listed below.
 - 10 CFR 600.121—Establishes uniform administrative requirements for federal grants and cooperative agreements with institutions of higher education, hospitals, and other nonprofit organizations.
 - 10 CFR 600.220(b)—Establishes uniform administrative requirements for federal grants and cooperative agreements with state and local governments.
 - 10 CFR 600.311—Establishes uniform administrative requirements for federal grants and cooperative agreements with for-profit organizations.
 - Ensures that financial management systems for sub-grant recipients are in place. Grant recipients are responsible for sub-grantees' accounting and should be familiar with sub-grantees' financial operations to ensure funds are managed and expended in compliance with Better Buildings requirements.
 - See Section 8 and the Appendices for guidance and a capability checklist for accounting and financial systems.

→ **Best Practice:** *Work with a financial officer or an auditor to understand Better Buildings audit requirements and ensure that appropriate financial and administrative systems are in place. Use the Financial Capacity Checklist (see Appendix A) to examine your financial management processes, such as use of matching funds, and those of each sub-grant recipient. See Appendix A of this handbook for an Accounting System Checklist to guide proper administration of grant*



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funds.

- **Monitor sub-grantee obligations and expenditures (Section 8.3).**
 - *Review financial operations.* Grant recipients should be familiar with, and periodically monitor, sub-grantees’ financial operations, records, systems, and procedures, and ensure the maintenance of current financial data.
 - *Record financial activities.* Sub-grantees’ award or contract obligations, as well as cash advances and other financial activities, should be recorded in grant recipient’s records in summary form. Sub-grantee expenditures should also be recorded in the grant recipient’s records or evidenced by report forms duly filed by the sub-grantee. Non-federal contributions applied to programs or projects by sub-grantees should likewise be recorded, as should any program income resulting from program operations. Financial records must validate expenditures related to the grant.
 - *Perform budgeting and budget review.* Grant recipients should ensure that sub-grantees prepare an adequate budget on which award commitments will be based. The details of each project should be maintained on file by grant recipients.
 - See Section 8.3.6 for details on sub-grantee and vendor compliance and Appendix A for the Financial Capabilities Checklist.

→ *Best Practice: To ensure timely and complete submission of required quarterly reports, request data from sub-grantees and contractors in advance of the quarterly due dates. Conduct a data quality review of sub-grantee data submitted for Recovery Act reports on the FederalReporting.gov website to ensure accuracy.*
- **Ensure compliance with audit requirements (Section 8.4).** Grant recipients should work with a financial officer or auditor to understand and comply with federal, state, and other audit requirements. Grant recipients must also ensure that sub-grantees have met their necessary audit requirements. See Section 8 for guidance on how to adhere to audit requirements and submit audit reports.

→ *Best Practice: Establish an audit committee responsible for, among other things, reviewing annual audit plans, determining standards for auditors to follow, reviewing draft Requests for Proposal (RFPs) for audit services, ensuring auditor qualifications, monitoring conduct, and documenting financial and program activities throughout the grant period of performance.*
- **Communicate with the community.** Grant recipients should engage community stakeholders in order to remain aware of stakeholder concerns and interests and promote stakeholder involvement through community outreach and media relations.

→ *Best Practice: Grant recipients can expect close scrutiny from the public and media because their projects are funded with federal taxpayer dollars. Designate a spokesperson that can develop a good working relationship with the local media and become a reliable source of information for the media and the local community.*

APPENDIX C: MATERIALS DEVELOPED FOR AG PROGRAM

- Webpage
- Application
- Application Q&A
- Alternate Funding Sources for Agricultural Businesses
- Press Release
- Sample Energy Audit
- Compliance Monitoring Checklist
- Procurement Checklist Packet
- Sample Contract
- DOE/DHCD Monthly Reporting Form
- Program Videos

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The Kathleen A. P. Mathias Agriculture Energy Efficiency Program

What is the program?	What projects are eligible?	How do I apply?
<p>The Mathias Ag Program provides grants up to 75 percent of cost to farms/businesses in the agriculture sector for energy efficiency upgrades, after all other incentives have been applied.</p> <p>For more information, read our Goals and Incentives.</p>	<ul style="list-style-type: none"> Upgrades must achieve at least a 15 percent energy savings. Measures must be installed before April 1, 2013. Measures must be on the the eligible project list below. <p>For more information, see our Project Requirements.</p>	<p>Download the pdf application form, then complete it and submit according to the instructions provided. Applications must be submitted by the Sept. 28, 2012 deadline. For details, read How to Apply.</p> <p>Questions? See our Application Information Q&A document.</p>

Goals and Incentives

MEA is supporting showcase energy efficiency projects in the agriculture sector. Through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program (Mathias Ag Program), MEA will distribute grants ranging from \$25,000 to \$200,000 to assist with the costs of installing eligible energy efficiency technologies. The measures must enable a minimum 15 percent energy savings in the buildings or areas where they are installed. MEA will showcase these projects as case studies within the agriculture sector. MEA will award at least \$600,000 in grants funded through the U.S. Department of Energy's (DOE) Better Buildings program in partnership with the Maryland Department of Housing and Community Development's Be SMART program in autumn 2012, and anticipates granting 10-15 awards for this one-time program. Under the rules of the federal funds, all projects must be completed by April 1, 2013 and invoiced by May 1, 2013.

This program is dedicated to the memory of Kathleen Arlee "Kathy" Petry Mathias, of Ocean City, who passed away Aug. 15, 2011 after a battle with cancer. The wife of Maryland State Senator James N. Mathias Jr., Kathy was an inexhaustible advocate for Maryland's Eastern Shore and its farming community.

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Project Requirements

Farms and businesses in the agriculture sector may apply. Examples include dairy, orchard, poultry/egg, greenhouse, vegetable, animal, vineyard, grain dryer, processor, sawmill, and aquaculture. If you are uncertain about your eligibility, call EnSave at (800) 732-1399 to see if you meet the definition.

- The energy efficiency measures must be installed by April 1, 2013.
- Final invoices must be submitted to MEA by May 1, 2013.
- Completed upgrades must be estimated to achieve at least 15 percent energy savings for that treated/upgraded space — whether it is the whole building, particular units, or common areas (see Application Information Q&A question one).
- Eligible projects include:
 - Insulation
 - Ventilation
 - Lighting
 - Motors and VSDs
 - Irrigation
 - Refrigeration
 - HVAC upgrades






Related programs

- Bioheat Tax Credit Program
- Clean Energy Production Tax Credit
- Commercial Clean Energy Grant Program
- Clean Energy Production Tax Credit
- EmPOWER Maryland utility-sponsored programs
- Increase efficiency with Maryland Save Energy Now (SEN)
- Jane E. Lawton Conservation Loan Program



Read the press release

- Maryland Energy Administration, Department of Housing and Community Development Award \$1.4 Million in Grants Through the Kathleen A. P. Mathias Agriculture Energy Efficiency Program

- ⊗ Refrigeration
 - ⊗ HVAC upgrades
 - ⊗ More
 - ⊗ For a complete list, refer to the List of Approved Measures on the Mathias Ag Program application form.
 - ⊗ Awardees (successful applicants) must cover at least 25 percent of the net project cost after all grants and incentives from other sources have been applied.
 - ⊗ All projects will need to comply with DOE and American Recovery and Reinvestment Act of 2009 (ARRA) program special terms and conditions .
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How to Apply

Electronic applications are preferred. If you are unable to send electronic applications, the MEA will accept a hard copy.

- ⊗ Download the Mathias Ag Program **application form**  form. (The application is best edited with Adobe Reader X. Download Adobe Reader at get.adobe.com/reader.) If you have trouble with the pdf version, you may download the Word version of the application form .
- ⊗ Electronic applications must be emailed by 11:59 p.m. Friday, Sept. 28, 2012 to: MathiasAgProgram@sra.com.
- ⊗ Hard copy applications also must be received at MEA by Friday, Sept. 28, 2012. Mail to:

Maryland Energy Administration
 Attn: Mathias Ag Program
 60 West Street, Suite 300
 Annapolis, MD 21401

Late or incomplete applications will not be reviewed. Some method of package receipt confirmation is highly recommended for both electronic and hard copy submissions. MEA is not responsible for lost or late applications. Awards will be announced by Nov. 2012.

- ⊗ Applicant must have verifiable Dun & Bradstreet number (D-U-N-S).
- ⊗ Applicant must complete all applicable forms in accordance with the instructions.
- ⊗ Applicant must develop a monthly project spending plan to include milestones that ensure expenditure of project funds.
- ⊗ Applicant must agree to American Recovery and Reinvestment Act of 2009 special terms and conditions. These include, among other requirements, Davis Bacon Act wage rates for all project contractors.
- ⊗ Applicant must be approved to do business and be in good standing in the State of Maryland.
- ⊗ For Certificate of Status information please see the [Maryland State Department of Assessments and Taxation website](#).

Selection Criteria

These factors will be weighed in the selection of projects eligible for grant funding:

- ⊗ Project feasibility: Can the project be completed in the available construction window? Will it result in a minimum 15 percent energy savings?
- ⊗ Energy savings: How high are the likely energy savings from the proposed measure(s)?
- ⊗ Simple payback: How many years will it take to recover the cost of the investment without incentives? (Project cost divided by annual energy savings in dollars. For example: a project saving 400,000 kWh per year at \$0.10 per kWh and a \$50,000 project cost has a simple payback of 1.25 years (\$50,000/\$40,000 = 1.25).
- ⊗ Amount of matching (leveraged) funds: Is the applicant tapping additional funding sources to maximize the value of this grant?
- ⊗ Accuracy of energy savings and cost information for the project: How accurate are the applicant's estimates? Are assumptions behind the numbers clearly stated, to enable the Mathias Ag Program team to evaluate the project?
- ⊗ Best practices/showcase project: MEA is looking for projects that demonstrate energy efficiency best practices in various capacities in order to expand energy efficiency in the agriculture sector.

MEA also reserves the right to select applications that allow for a broad diversity in the project portfolio. Factors such as measure type, geographic region, and agricultural market will be considered.

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Additional Information

Useful application information, including questions that have been submitted from potential applicants to the Mathias Ag Program, is available in the following Q&A:

- ⊗ [Application Information Q&A](#) 
- ⊗ [Alternate funding sources for agricultural businesses](#) 

If you have any additional questions about this program please submit them to Dean Fisher, MEA Energy Efficiency Program Manager, at dfisher@energy.state.md.us.

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Application

Application for the Kathleen A. P. Mathias Agriculture Energy Efficiency Program

- Instructions:** Please read the application thoroughly and print clearly in all sections. Since accurate information is important in ranking your application, please add additional sheets of paper if more room is needed to explain your project. If you have any questions about the application process or need assistance determining your costs and energy savings, contact MEA's contractor, [EnSave](#) at (800) 732-1399. The MEA **strongly** recommends that you read the [Application Information Q&A](#) before completing this application.

APPLICATION DEADLINE: 12:00 midnight Eastern Standard Time, Friday, September 28, 2012

SECTION A: Applicant Information	
Farm/Business Name	Contact Name and Title
Project Address	Day Phone Cell Best time to call: <input type="checkbox"/> Morning <input type="checkbox"/> Afternoon <input type="checkbox"/> Night
City, State and Zip Code	Fax E-mail Address
<input type="checkbox"/> Federal ID number <input type="checkbox"/> Social Security Number <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
DUNS Number: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
Is the business a corporation? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Correspondence Address (if different than Project Address)	
Type of Operation: <input type="checkbox"/> Dairy <input type="checkbox"/> Orchard <input type="checkbox"/> Produce <input type="checkbox"/> Poultry/egg <input type="checkbox"/> Greenhouse <input type="checkbox"/> Vegetable <input type="checkbox"/> Hog <input type="checkbox"/> Vineyard <input type="checkbox"/> Grain dryer <input type="checkbox"/> Food Processor <input type="checkbox"/> Sawmill/Forestry <input type="checkbox"/> Other _____	
Utility Information: Please attach copies of 12 consecutive months of utility bills. If submitting electronically, please send the utility information in the same email as your application (refer to section G for guidelines). <input type="checkbox"/> The required utility information is attached.	
Please indicate below which utility accounts are associated with the proposed energy efficiency project.	
Electric Utility Name <i>(If more space is required attach a list of accounts)</i>	Account number(s)
Natural Gas Utility Name <i>(If more space is required attach a list of accounts)</i>	Account numbers(s)

Propane Provider Name <i>(If more space is required attach a list of accounts)</i>	Account numbers(s)
Other Fuel Provider Name <i>(If more space is required attach a list of accounts)</i>	Account numbers(s)

SECTION B: Proposed Energy Efficiency Measure(s) See Section F: Approved Measures, for the Mathias Ag Program Approved Measure List

1. Have you had an energy audit report completed within the last 3 years? Yes No
 If yes, please include a copy of the audit report with the application.

2. Please describe the *existing* system or equipment that will be modified. Include a basic description of the facility and its function, location of affected equipment, and typical facility operating hours.

3. Please describe the *proposed* project. If available, please attach supporting documentation such as manufacturer data sheets or performance ratings. *(If more space is required please attach a separate sheet describing the energy efficiency project. If you are submitting an audit report, you may indicate on the audit report the measures you wish to pursue.)*

4. Please explain in 250 words or less why your project should be selected for a grant and how your project can be used as a case study to showcase energy efficiency measures in the agriculture sector:

SECTION C: Leveraged Funds*

1. How much do you/your business anticipate spending on the project(s) you list on this application (total cost of project)?

2. Are there any other funding sources that you intend to leverage for this project? Yes No

Applicants who leverage additional funding sources such as utility programs (links on webpage under “related programs”) and other federal programs will be given greater consideration than applicants who do not leverage.

3. If you have applied for and expect to receive an incentive from an additional funding source, please provide the following information:

Name and contact information of funding grantor (i.e. utility):

Amount of incentive in dollars: _____

Expected date of award: _____

4. If you have applied for funding, filled out an application(s) and are uncertain if you will receive an incentive from an additional funding source, please provide the following information:

Name and contact information of potential funding grantor (i.e. utility):

Amount of potential incentive in dollars: _____

Expected date of award (if awarded): _____

**Note: Your Mathias Ag Program incentive will be provided at up to 75% of your project cost minus any other incentives received. In Section E of this application, you will need to certify that you will notify the Mathias Ag Program of any other program funds received.*

SECTION D: Estimated Project Costs and Savings

Please use the table below to list the project location, current energy usage, projected energy savings and estimated costs for your proposed project. This information is critical to ranking your application. Note that the current energy use is for the location of your proposed project, which may not be your entire operation. Keep in mind that 15% energy savings will be needed will for a specific project location (e.g. a barn), not necessarily for the full facility (e.g. a barn plus all other outbuildings). If you need assistance estimating how much energy is used by your facility or the projected energy savings for your project, please contact EnSave at (800) 732-1399 for technical assistance.

Location of Project (i.e. poultry house #1, workshop, etc.)	Current Energy Usage for project location (kWh, BTU, etc.)	Projected Energy Savings	Estimated Project Cost

SECTION E: Agreement to Terms, Conditions and Certification

By signing and dating the application below, I certify that I agree to the following terms and conditions:

1. I understand that applications are accepted and grants are awarded on a competitive basis, with applications to be **postmarked or e-mailed no later than 12:00 midnight Eastern Time, September , 2012.**

Applications can be submitted electronically to MathiasAgProgram@sra.com. It is recommended that you refer to [Section G: Guidelines for Electronic Submission](#) for more detail.

Alternatively, applications can be mailed to:

Maryland Energy Administration
Attn: Mathias Ag Program
60 West Street
Annapolis, MD 21401

For application or technical assistance, call EnSave at (800) 732-1399.

If you wish to submit your application electronically and the file is too large for email transmission, email MathiasAgProgram@sra.com to request access to an FTP site **NO LATER THAN NOON on September** .

2. I certify that this farm/facility is located in the state of Maryland.

3. I understand that this application does not guarantee that I will be awarded a grant for the proposed energy efficiency project.

4. To be eligible for grant funding, I understand that the equipment may not be installed prior to notification of the grant award.

5. I understand that the energy savings retrofits/upgrades must achieve at least 15% savings for the treated / upgraded space – whether it is a whole building, particular units, or common areas (see [Application Information 4 S](#)).

6. I understand that all entities selected for the Mathias Ag Program that receive additional funding through other programs may receive up to 75% of the net project cost after any additional funding received from utility rebates, USDA, etc...

7. I give permission to the Maryland Energy Administration (MEA) or its representative(s) permission to use photos of my farm or facility, and data presented in my final energy evaluation or audit report for marketing, publicity, and advertising purposes. MEA and its representatives, subject to the requirements of the Maryland Public Information Act, §10-611 et seq. of the State Government Article, will not divulge any confidential information or trade secrets.

8. Under penalties of perjury, I, the Applicant, certify that: Federal ID# and/or social security number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to

report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and I am a U.S. citizen or other U.S. person (as defined in IRS Form W-9).

9. I understand that any grant received through this program is taxable as income; therefore the Maryland Energy Administration will be sending a 1099-G form, and shall be reported as income on federal and state tax returns. For more information, applicants should contact a qualified tax professional.

10. I will allow authorized representatives of the Mathias Ag Program access to my facility in order to conduct energy audits, site inspections, or measurement & verification activities.

11. The program terms & conditions are subject to change without notice.

12. I understand that any grant payment will be contingent upon the successful inspection of the equipment installed.

13. I understand that American Recovery and Reinvestment Act (ARRA) grant funds cannot be combined with other incentive funds to exceed the total cost of an energy efficiency project. I am obligated to share any awarded or pending energy efficiency funds with the Mathias Ag Program so that any possible grant award considers those other incentives.

14. Each party shall indemnify the other for any losses or damages, except to the extent that the losses or damages arise from a party’s sole negligence or willful misconduct.

15. MEA and its contractors make no representation or warranty, and assume no liability with respect to quality, safety, performance, or other aspect of any design, system or appliance installed pursuant to this application, and expressly disclaim any such representation, warranty or liability.

16. I understand that all approved projects must adhere to the American Recovery and Reinvestment Act of 2009 Special Terms and Conditions. These include, among other requirements, Davis Bacon Act wage rates for all project contractors. The Special Terms and Conditions can be found [here](#).

17. I certify that I am an authorized signatory for the Applicant/Farm.

Authorized Applicant Signature: _____

Name and title (please print): _____

Farm/Business Name: _____

Date: _____

MEA anticipates receiving more applications than it will be able to fund under this program.

If you are not selected for the Mathias Ag Program, does MEA have your permission to refer your application to alternative funding sources and incentive programs?

Yes No

If yes, these sources may contact you regarding your application.

SECTION F: Approved Measures

The table below lists approved measures for the Mathias Ag Program. It is anticipated that more than one measure will be required to meet the 15% energy reduction for a whole building. See [Application Information Q&A](#) for examples that show how measures can be combined to meet the 15% requirement. For questions concerning custom measures or energy efficient equipment that is not on the list but may qualify, please contact MEA’s contractor, EnSave at (800) 732-1399.

Mathias Ag Program Approved Measure List

Energy Efficient Ventilation	Irrigation
Ventilation fans or box fans, 24” – 60”	Low pressure sprinkler nozzeler, portable or solid set
High volume low speed fans, 16’ diameter	Livestock, Winery and Greenhouse
Energy Efficient Lighting	Milk pre-coolers
T-8 or T-5 lamps replacing T-12s, 4’ or 8’ lamp removed	Milk transfer pump variable speed drive
Screw in compact fluorescent fixture >14 watts	Milking vacuum pump variable speed drive
High intensity discharge fixture, exterior pulse start mercury vapor basecase, 101 watts +	Compressor heat recovery units
Interior high-bay linear fluorescent 400 watt basecase up to 244 watt replacement	Scroll compressor
Interior metal halide pulse start retrofit fixture, 400 watt probe start metal halide to 320 watt pulse start metal halide	Tank insulation
LED exit sign with CFL or incandescent base case	Painting or shading fuel tanks
LED lamps, 4’ or 8’ lamp removed	Heat exchangers
Photocells	Variable speed drives
Timeclocks	Attic inlets
Grain Dryers	Heating pads for swine
Energy efficient grain dryers	Insulated brood curtains
Renewable Energy	Fan covers
Solar fencing	Radiant heaters
Solar water pumping for livestock watering	Storage water heaters
Biofuel heaters	Pipe insulation, hot water or low pressure steam application, 1” or 2”
Solar PV used in conjunction with another proposed energy efficiency measures, maximum of 60 kW (<i>refer to example in FAQ to see how PV can be integrated into an existing energy efficiency project</i>)	Infrared film for greenhouses
Motors	Thermal shade covers for greenhouses
Premium efficiency motors 5 HP – 200 HP	Stock Waterer
Custom Measures	
Custom insulation, ventilation, lighting, motors and variable speed drives, irrigation and refrigeration. Call EnSave at (800) 732-1399 to see if your project might qualify as a custom measure.	

SECTION G: Guidelines for Electronic Submission

You are encouraged to submit this application electronically. Follow these steps to successfully submit your application:

1. Once you have completed your application, go to the File menu and select "Save As" and then select "PDF".
2. Rename your file, we prefer you use the following naming convention: "LASTNAME_BUSINESSNAME_MMDDYY". For example, an application submitted by John Smith for Apple Farms on August 13, 2012 would look like this: "SMITH_APPLEFARMS_081312".
3. Once the file has been saved and renamed, email it to MathiasAgProgram@sra.com as an attachment.
4. You should receive a confirmation e-mail within 24 hours of your submission. If you do not receive a confirmation email within 24 hours, please contact Dean Fisher at dfisher@energy.state.md.us.

You can alternatively mail your application to the Maryland Energy Administration at the following address:

Maryland Energy Administration
Attn: Mathias Ag Program
60 West Street
Annapolis, MD 21401

Application Q&A

The Kathleen A.P Mathias Agriculture Energy Efficiency Program (Mathias Ag Program) Application Information Q&A

Is this program for me?

Preparing Your Application

Application Review & Next Steps

What You Should Know about Compliance

Is this program for me?

1) Who is eligible for this program?

Farms and businesses in the agriculture sector may apply. Examples include Dairy, Orchard, Poultry/egg, Greenhouse, Vegetable, Livestock, Vineyard, Grain dryer, Processor, Sawmill, and Aquaculture. If you are uncertain about your eligibility, call [EnSave](#) at (800) 732-1399 to see if you meet the definition.

To be eligible, you will also need to show how implementing allowable energy efficiency measures will achieve at least a 15% energy savings in the building(s) you plan to upgrade. This can be a combination of measures from our approved measure list. Refer to the example in question #11 to see how projects can be combined to reach 15% energy savings.

- The funding source for this program, the U.S. Department of Energy's (DOE) Better Buildings program, emphasizes a "whole building" approach by retrofitting existing buildings for energy efficiency, energy security, and affordability. This approach is different from typical energy efficiency upgrades which focus on an individual measure replacements gain in efficiency. Using this whole building approach it is anticipated that multiple measures may be required to achieve at least a 15% savings for the building in which they are implemented.
- In some circumstances an individual measure may be allowed, provided it meets the other criteria. Such an example would be a grain dryer or irrigation system where there is no building involved. If the measure that you wish to upgrade is not attached to or is not a part of any building then it can qualify as a "standalone" measure. It will still need to have an expected cost of \$25,000 - \$200,000 (see #2) and have at least a 15% energy savings. You can also apply with a standalone project and a building project.

2) What size project can apply for a grant?

Your project must cost at least \$25,000 in order to apply for this grant. There is no maximum project size, although the maximum grant is \$200,000.

3) If I receive a grant award, how much money should I plan on spending out of pocket?

All awards will be after any other incentives have been applied. Of this final amount, MEA will grant up to 75%. For example:

- \$50,000 EE project - \$10,000 utility incentive = \$40,000 project cost
 - \$40,000 – \$30,000 (assume 75% Mathias Ag Program rebate) = \$10,000 out-of-pocket cost

Note: The 75% Mathias Ag Program grant applies to the applicant's net costs, after utility or other incentives. Any additional funding that comes in after selection for the Mathias Ag Program program must be deducted from the program project cost or used to enlarge the scope of the energy efficiency project.

4) Does the grant come with strict federal compliance requirements?

Yes. The Mathias Ag Program offers an excellent opportunity for motivated applicants to realize significant long-term energy savings, but applicants should be prepared to work cooperatively with MEA at each step of the process to assure all federal requirements are met. See the "What you should know about compliance" section for details on the requirements and the support available to help you meet them.

5) What does "MEA will showcase these projects as case studies within the agriculture sector" mean?

The intent here is to help other farms and businesses like yours see a "real life" example of the energy and money saving potential of energy efficiency improvements and share information about your project with those who would be interested in the information. Information gathered would include project details such as:

- How much it cost
- How long it took
- The energy savings
- The simple payback
- The leveraged funds

We may provide this information on MEA's web site, and MEA or [EnSave](#) may ask your permission to use your project as the subject of a success story for a newsletter, web site, or other marketing vehicle. MEA will need to perform monitoring visit(s) to provide technical assistance and ensure the project requirements were fully satisfied (see "Who will be visiting my farm or business?" below). Otherwise you will NOT need to open your farm/business to allow individuals to view and inspect your project(s). Beyond the required monitoring and project visits mentioned above, "showcase and case study" will entail only a written account of your project(s).

6) How will projects be selected?

These factors will be weighed in the selection of projects eligible for grant funding:

- *Project Feasibility – Can the project be completed in the available construction window (by April 1, 2013)? Will it result in a minimum 15% energy savings? Does the monthly project spending plan include reasonable milestones that ensure expenditure of project funds?*
- *Energy Savings – How high are the likely energy savings from the proposed measure?*
- *Simple Payback – How many years will it take to recover the cost of the investment without incentives? (Project cost divided by annual energy savings in dollars. For example: a project saving 400,000 kWh per year at \$0.10 per kWh and a \$50,000 project cost has a simple payback of 1.25 years. $\$50,000/\$40,000=1.25$)*
- *Amount of matching (leveraged) funds – Is the applicant tapping additional funding sources to maximize the value of this grant?*
- *Accuracy of energy savings and cost information for the project –Are assumptions behind the numbers clearly stated, to enable the Mathias Ag Program team to evaluate the project (i.e. make and model numbers, efficiency ratings, operational schedules)?*

- *Best Practices – Showcase project – MEA is looking for projects that demonstrate energy efficiency best practices in various capacities in order to expand energy efficiency in the agriculture sector.*

MEA also reserves the right to select applications that allow for a broad diversity in the project portfolio. Factors such as measure type, geographic region and agricultural market will be considered.

Preparing Your Application

7) I want to take advantage of this opportunity, but I am not an energy expert and am not sure how to figure out my savings or efficiency options. Is there help for this?

Yes, prior to applying you should contact [EnSave](#) at 800-732-1399 for application or technical assistance. They can help you determine whether you have a project that will meet the program's requirements.

Accuracy is very important to the review team, as we will only have your application and supporting documentation to use in evaluating the merits of your project before provisionally awarding funding. Since technical and application assistance is available through EnSave at no cost to you, we encourage you to take advantage of this service in order to provide the best possible application.

8) What does "accuracy" mean when it comes to preparing my application?

The review team will use the following energy-related metrics to evaluate your application:

- Percent of savings (need to know total and proposed energy use for the project)
- Type of measure (need to identify the type of measure; make and model numbers are helpful)
- Simple payback (need to know energy savings of project, total project cost, and cost per unit of energy as reflected in your utility bills)

To help you provide the best possible information, we offer here some examples of less accurate and more accurate data for some key application questions.

Section B, Question 2 of Application: Existing Equipment Description

Less Accurate: Description of location and number and type of existing lighting fixtures

More Accurate: Description of location and number and type of existing lighting fixtures PLUS operating schedule of lighting and wattage

Section B, Question 3: Describe the Proposed Project

Less Accurate: Description of lighting replacement (100 12-watt LEDs)

More Accurate: Description of lighting replacement PLUS make and model number and a specification sheet from the manufacturer.

Section D: Estimated Project Costs and Savings

Less Accurate: Stating project cost and savings without documentation or without taking advantage of available technical assistance to arrive at the energy savings.

More Accurate: Call EnSave to request assistance with estimating energy savings. For the cost estimate, provide a source. If you received a quote from a contractor, include the quote. If you found equipment costs in a catalog or online, include that information in your application so we can validate the information.

9) I only have one meter for my entire operation. How do I figure out the energy used in the building containing my project?

EnSave can help determine this and will ask a series of questions on a case-specific basis.

10) Where do I find a list of eligible equipment?

A list of approved measures can be found in Section F of the application.

11) What are some examples of projects that are likely to qualify and projects that will not qualify?

All projects must achieve at least 15% energy savings (see #1). Higher consideration will also be given to projects with a shorter simple payback period.

Below is an example of a building on a dairy farm that proposed replacing four different measures to meet the 15% building energy savings requirement:

Benefits of Recommended Energy Saving Equipment

Equipment	Estimated Annual Electricity Savings (kWh)	Estimated Annual Fuel Savings (gallons)	Estimated Cost to the Farm	Estimated Annual Energy Cost Savings	Estimated Payback in Years
Water Heating	93,539		\$9,600	\$8,512	1.1
Lighting	140,504		\$25,380	\$12,786	2.0
Milk Cooling	46,510		\$8,560	\$4,232	2.0
Motors	14,449		\$2,800	\$1,315	2.1
Totals	295,002	0	\$46,340	\$26,845	1.7

Here are the energy savings associated with this project:

Fuel Type	Current Usage	Current Use (MMBtu)	Savings	Savings (MMBtu)	% Savings

Electricity (kWh)	1,947,427	6,647	295,002	1,007	15.1%
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Below is an example of a dairy farm building project that didn't initially qualify because it had not achieved the 15% energy savings that is required followed by an example where it used photovoltaic solar (PV) to meet the 15% energy savings requirement:

Benefits of Recommended Energy Saving Equipment

Measure	Est. Annual Electricity Savings (kWh)	Energy Savings (MMBtu)	Est. Cost to Location	Est. Annual Cost Savings	Est. Payback (Years)
Refrigeration: Milk Cooling	113,219	386	\$8,560	\$11,039	0.8
Hot Water	139,851	477	\$14,400	\$13,636	1.1
Milk Harvest	143,831	491	\$19,800	\$14,024	1.4
Lighting	89,304	305	\$10,308	\$8,707	1.2
Other Motors and Pumps	12,362	42	\$7,400	\$1,205	6.1
Totals	498567	1,701	\$60,468	\$48,611	1.2

The project is estimated to only reach 13% savings:

Fuel Type	Current Usage	Current Use (MMBtu)	Savings	Savings (MMBtu)	% Savings
Electricity (kWh)	3,807,808	12,996	498,567	1,701	13%

Perhaps this building could have added additional energy efficiency measures to gain the required 2%. In fact, it is possible that removing the pump and motor upgrades and installing other measures with better paybacks could meet the 15% energy savings requirement while improving the estimated payback – which would make the application stronger. The whole building approach encourages this kind of measure consideration.

The emphasis of this grant is on energy efficiency. However, photovoltaic solar (PV) is allowed when used in conjunction with an energy efficiency upgrade(s). The example below shows how the above building (estimated 13% savings) could reach 15% savings by installing a photovoltaic (PV) system to offset the at least 2% savings that is needed:

Measure	Est. Annual Electricity Savings (kWh)	Energy Savings (MMBtu)	Est. Cost to Location	Est. Annual Cost Savings	Est. Payback (Years)
Refrigeration: Milk Cooling	113,219	386	\$8,560	\$11,039	0.8
Hot Water	139,851	477	\$14,400	\$13,636	1.1
Milk Harvest	143,831	491	\$19,800	\$14,024	1.4
Lighting	89,304	305	\$10,308	\$8,707	1.2
Other Motors and Pumps	12,362	42	\$7,400	\$1,205	6.1
60 kW Fixed Panel PV system	74,675	255	\$270,000	\$7,281	37.1
Totals	573,242	1,956	\$330,468	\$55,892	5.9

The photovoltaic (PV) system pushes this project into the eligible range:

Fuel Type	Current Usage	Current Use (MMBtu)	Savings	Savings (MMBtu)	% Savings
Electricity (kWh)	3,807,808	12,996	573,242	1,956	15.1%

12) Are renewable energy projects allowed?

Not as "stand-alone" projects. For instance, photovoltaic solar (PV) is allowed if it is installed in conjunction with energy efficiency measures as in the above example. PV systems are subject to the NEPA requirements, which is 60 kW or less within the existing facility. The PV does not need to be grid-tied or tie-in to the building (e.g., a pump can be stand-alone with the PV displacing diesel). The PV can be installed anywhere, as long as it is within the facility boundaries of the farm. Such hybrid projects (PV + energy efficiency) will potentially negatively affect the cost and payback, but they could also help achieve the 15% requirement (see #11 example). 100% renewable projects will not be funded.

13) Do I need an audit to apply?

If you are able to adequately state your expected savings, then you don't need an audit. At a minimum you will need to know how much energy your building uses annually (this could be based on previous years' bills), how much energy the equipment you would like to replace uses, and how much energy the planned replacement will use.

14) What if I don't have one year's worth of utility bills?

If you do not have these records, your utility history can be obtained from your utility provider. Your utility may have a form you need to fill out in order to provide that information to you.

15) What is a DUNS number, how do I get one, and is there a fee?

A DUNS number (for Data Universal Numbering System) is a unique 9-digit identifier issued and maintained by Dun & Bradstreet (D&B) that verifies the existence of a business entity. You can obtain a DUNS number by phone or through D&B's website. Typical turnaround time for a web request is one business day. An authorizing official of the organization should request a DUNS number. The following is a list of the information you will need in order to obtain it:

- Name of organization
- Organization address
- Name of the CEO/organization owner
- Legal structure of the organization (corporation, partnership, proprietorship)
- Year the organization started
- Primary type of business
- Total number of employees (full and part time)

Contact Dun & Bradstreet

- Phone: **866-705-5711**
- Website: <http://fedgov.dnb.com/webform/displayHomePage.do>

Obtaining a DUNS number is FREE for all federal grant and contract applicants.

Application Review & Next Steps**16) What happens after I submit my application?**

The Mathias Ag Program team will rank your application along with others. We will make one of four determinations for your project:

- a. Provisionally accept your project, and require additional information to calculate the energy savings.
- b. Provisionally accept your project, and require an on-site comprehensive energy audit to calculate the energy savings.
- c. Reject your project if it does not meet baseline criteria such as 15% energy savings.
- d. Place your project on a waiting list in the event another selected project is not formally approved.

17) What is the process if my application is selected?

If your application is selected, MEA will send a commitment letter that:

- Explains the next steps in calculating energy savings;
- Authorizes you to solicit bids for your project, with guidance on how to issue a fully compliant bid request;
- Provides instructions about meeting various preliminary project requirements within a prescribed time window.

When energy savings are verified, a viable bid is secured, and the preliminary requirements are met, MEA will issue the award, provide a contract for signature, and formally approve the project. *You must*

not sign a contract with a bidder or start work until you have received final approval to proceed. Doing so will jeopardize your grant award.

18) If selected, I would like to use my usual contractor to complete the project. Why do I have to go through a bid process?

To meet the federal requirements that govern this program. The bid process is designed to provide minority and disadvantaged business enterprises an opportunity to respond. It also assures that the bid request exactly matches the scope of the approved project, that the selected bidder does not appear in the Excluded Parties List System (EPLS), and that the contractor is fully apprised of their responsibilities in relation to the federal requirements.

19) If my project is rejected, what other funds are available?

The Mathias Ag Program team wants to help all applicants, including those who are ineligible for program funds. If you have an energy efficiency project that we cannot fund, we will help you access other possible funding sources such as utility programs, MARBIDCO financing, and USDA programs.

What You Should Know about Compliance

20) What are the ARRA Special Terms and Conditions?

The American Recovery and Reinvestment Act (ARRA) of 2009 appropriates funding for the Department of Energy (DOE) to award formula-based grants through initiatives such as the Mathias Ag Program. The ARRA Special Terms and Conditions are the federal requirements associated with ARRA grants (also commonly referred to as stimulus grants). The following are some of the key federal requirements associated with the Mathias Ag Program:

- NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) Allowable Measures
- Waste Management
- Historic Preservation
- Davis-Bacon Wages
- Certified MBE and/or DBE Firms
- Signage

These requirements *flow down*, or are passed down each time a sub-award occurs. Every time the grant funds are shared, applicable special terms and conditions are passed on. The provisions have flowed down to the MEA, will flow down to MEA grantees, and will flow down to grantees' contractors and subcontractors who perform the upgrades.

21) I have heard about these requirements and they sound like a bother. Why would I apply for this grant?

The MEA well understands the apprehension associated with the requirements for this funding source. We have been managing grants with these requirements throughout Maryland for the last three years. Along the way we have developed some *best practices* that ensure grantees are in compliance. We have developed well-trained experts for these requirements, and each farm/business that receives an award will be assigned a compliance coordinator to assist you in your efforts to meet the grant's terms and conditions. We have helped guide numerous projects throughout Maryland to successful completion with this method. Grantees work closely with us, and we let them know what they need to do each step of the way to meet compliance. We want all the Mathias Ag Program projects to be great accomplishments of benefit to all of us.

22) Who will be visiting my farm or business?

If you will receive an audit, a qualified energy auditor contracted with MEA will come to your farm or business to collect information needed to determine energy savings. MEA or its contractors may also visit your site to perform a post-installation site inspection of your project, or to install data loggers needed for measurement and verification activities. During one of these visits, photos may be taken that will be used in promotional materials to showcase your commitment to energy efficiency.

In all cases, MEA or contractors will call first to make an appointment before arriving on site, and will heed any of your safety or biosecurity requirements. All personnel visiting your facility will be fully insured. Participation in the program requires you to grant MEA or its representative(s) permission to use photos of your farm or facility, as well as data presented in your final energy evaluation or audit report for marketing, publicity, and advertising purposes, Subject to the requirements of the Maryland Public Information Act, § 10-611 et seq. of the State Government Article, MEA and its representatives will not divulge any confidential information or trade secrets. You have the right to review and approve any photos taken of your facility.

Alternate Funding

Energy Efficiency and Renewable Energy Programs Available to Agricultural Businesses

State Programs

Federal Programs

Utility Programs

Miscellaneous Programs

The following list is not meant to be the definitive list of programs available. There may be other funding sources available that are not listed on the following pages. This document presents the most complete list that the Maryland Energy Administration could provide.

State Programs					
Source	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Maryland Energy Administration	Bio-heat Tax Credit Program	Tax Credit	\$0.03 per gallon, up to \$500	Tax credit for individuals and businesses that purchase bio-heating oil for space and water heating. Bio-heating oil is defined as at least 5% biodiesel devised from EPA approved feedstocks or accepted under the EPA renewable fuel standard.	http://energy.state.md.us/Residential/bioheatGrant.html
Maryland Energy Administration and Maryland Environmental Service	State Anemometer Loan Program	Equipment Rental	n/a	This program loans wind measuring devices to Maryland residences and businesses to measure wind resources on their property. Applications that wish to install turbines with a capacity < 5 kW will not be considered. Large agricultural applications will receive dispatch priority.	http://energy.state.md.us/Residential/anemometerGrants.html
Maryland Energy Administration	Clean Energy Production Tax Credit	Tax Credit	\$0.0085 per kWh	A tax credit is available for individuals and corporations that build and generate electricity from qualified renewable energy sources. A credit of \$0.0085/kWh is provided for purely qualified sources. A credit of \$0.0050/kWh is provided for a renewable source that is co-fired with a qualified resource.	http://energy.state.md.us/Business/CleanEnergyTaxCredit.html
Maryland Energy Administration	Commercial Clean Energy Grant	Grant	Varies by business size and resource technology	Grant money is provided for businesses that adopt clean energy practices. Allowed measures are solar PV, solar water heating, geothermal heating and cooling, and wind power. Grant money is provided based on the kW of power generated. Please see link for more detailed information.	http://energy.state.md.us/Business/cleanenergygrants/index.html

State Programs					
Source	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Maryland Energy Administration	Jane E. Lawton Conservation Loan Program	Loan	\$500,000	Loans are provided to non-profit organizations, local governments, and businesses that wish to make energy efficiency upgrades. The program allows borrowers to use electricity cost savings from the upgrades to repay the loan.	http://energy.state.md.us/Govt/janeelawton.html
Maryland Energy Administration	Maryland Electric Truck Voucher Program	Voucher	\$20,000	Vouchers are provided to individuals, businesses, government entities, and non-profits that buy or lease an approved electric truck.	http://energy.state.md.us/Transportation/met/index.html
Maryland Energy Administration	Maryland Idle Reduction Technology Grant Program	Grant	50% of production cost up to \$4,000	Grants are provided to businesses that implement idle reduction upgrades in their heavy duty trucks.	http://energy.state.md.us/Transportation/idle/index.html
Maryland Energy Administration	Maryland Save Energy Now Program	Planning and Consultations	n/a	This program aims to help Maryland manufacturing facilities move forward with energy saving projects. The program's goal is to help business turn potential energy savings into reality through consultation, financial incentives, tools, and resources.	http://energy.state.md.us/SEN/index.html
Department of Housing and Community Development	Be SMART Business	Loan	\$50,000	The business program provides loans to businesses for energy efficiency projects. The loans can be used to upgrade appliances, HVAC systems, thermostats, ceiling fans, insulation, windows, doors, etc.	http://www.dhcd.maryland.gov/WBSITE/Programs/BeSmart/Business.aspx
Department of Housing and Community Development	Be SMART Business Plus	Loan	\$50,000 +	The business plus program is intended for buildings that are larger than 6,000 sq. ft. or require extensive energy efficiency retrofits. All business plus loans are in excess of \$50,000.	http://www.dhcd.maryland.gov/WBSITE/Programs/BeSmart/Business.aspx

Federal Programs					
Source	Program Name	Incentive Type	Maximum Incentive	Summary	Link
IRS	Energy Efficient Commercial Buildings Tax Deduction	Tax Credit	\$1.80 per ft ²	\$1.80 per ft ² is provided to building owners who install energy efficiency measures that reduce the buildings total energy and power cost by 50%. A deduction of \$0.60 is also available for buildings that already have energy efficient installations that meet target levels that would contribute to an overall savings of 50%.	http://www.efficientbuildings.org/
IRS	Business Energy Investment Tax Credit	Tax Credit	Varies by renewable energy source	Tax credits are provided to businesses that install renewable energy sources. Solar energy, fuel cells, and wind turbines (< 100kW capacity) are entitled to a credit of 30% of the expenditures, with no maximum. Geothermal, microturbines, and combined heat/power systems are entitled to a 10% credit with no maximum.	http://energy.gov/savings/business-energy-investment-tax-credit-itc
USDA	Rural Energy for America Program	Grant	25% of project cost	Grants are available to agricultural producers and rural small businesses. Eligible renewable energy projects include wind, solar, biomass, and geothermal. Energy efficiency measures are also approved. The 2012 deadline has passed, but the program will be open again for 2013	http://www.rurdev.usda.gov/BCP_ReapResEel.html

Federal Programs					
Source	Program Name	Incentive Type	Maximum Incentive	Summary	Link
USDA	Rural Energy for America Program	Loan	\$25 million	Loan guarantees are available to agricultural producers and rural small businesses. Eligible renewable energy projects include wind, solar, biomass, and geothermal. Energy efficiency measures are also approved. The 2012 deadline has passed, but the program will be open again for 2013.	http://www.rurdev.usda.gov/BCP_ReapLoans.html
USDA Farm Service Agency	Farm Ownership Loans	Loan	\$300,000	The USDA Farm Service Agency provides loans to farmers to make farm improvements. These loans have no minimum loan amount and require no down payment. The maximum value of the loan is \$300,000. Loans are provided at a 3% interest rate.	http://www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=dfon
USDA Natural Resource Conservation Service	Environmental Quality Incentives Program	Grant	\$300,000 over 6 year life of program	The USDA NRCS offers financial incentives for farmers that wish to adopt conservation practices. Funding is available for many different measures. Included among them are farmstead energy improvements and energy audits. A total of \$300,000 can be given out to an individual or entity of the 6 year life of the program.	http://www.md.nrcs.usda.gov/programs/eqip/eqip.html
US Small Business Administration	7(a) Loans	Loan	\$5 million gross	The SBA provides loans to small businesses to finance expansion, renovation, new construction, land purchases, equipment, working capital, inventory, and seasonal line of credit.	http://www.sba.gov/category/navigation-structure/loans-grants/small-business-loans/sba-loan-programs/7a-loan-program
US Small Business Administration	CapLines	Loan	\$5 million	The SBA provides the CapLines program to finance seasonal and/or short term working capital needs; cost to perform; and construction costs.	http://www.sba.gov/content/caplines

Federal Programs					
Source	Program Name	Incentive Type	Maximum Incentive	Summary	Link
US Small Business Administration	Small/Rural Lender Advantage Program	Loan	\$350,000	The SBA provides loans to small businesses to finance expansion, renovation, new construction, land purchases, equipment, working capital, inventory, and seasonal line of credit. These differ from the 7(a) Loans in that they have a more streamlined process.	http://www.sba.gov/content/rural-business-loans
US Small Business Administration	Small Loan Advantage	Loan	\$350,000	The SBA provides loans to small businesses to finance expansion, renovation, new construction, land purchases, equipment, working capital, inventory, and seasonal line of credit. These differ from the 7(a) Loans in that they have a more streamlined process.	http://www.sba.gov/content/advantage-loan-initiatives

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
SMECO	Small Business Solutions Program	Grant	80% of project cost	SMECO offers grants to small businesses that wish to upgrade their lighting and controls, water heating measures, and vending machine controls. The program is open to all SMECO commercial customers with rate codes 401, 402, and 403.	http://www.smeco.coop/saveEnergy/businessSolutions/smallBusinessSolutions.aspx
SMECO	Business Solutions Program	Grant	50% of total cost, 75% of incremental upgrades, 50% of engineering studies	SMECO offers financial incentives and support services to businesses that retrofit equipment, construct new buildings, conduct major renovations/remodels, purchase new equipment, and end of life equipment replacements. Engineering studies and incremental upgrades are also covered.	http://www.smeco.coop/saveEnergy/businessSolutions.aspx
Potomac Edison	Non-standard Lighting for Business Program	Grant	\$0.05 per kWh saved	Potomac Edison provides \$0.05 per kWh saved for businesses that undertake energy efficiency lighting projects. New construction and retrofits are supported.	http://www.energysavemd-business.com/nslighting.html
Potomac Edison	HVAC Incentive Program	Grant	Varies by measure	Potomac Edison offers incentives for businesses that are upgrading their HVAC systems for improved energy efficiency. Incentives are awarded based on tonnage saved by the system.	http://www.energysavemd-business.com/hvac.html
Potomac Edison	Water Heating Incentive Program	Grant	\$200 per heater	Potomac Edison offers incentives for water heating upgrades conducted by businesses. The incentive is \$200 per heat pump water heater and \$50 per electric water heaters.	http://www.energysavemd-business.com/waterheating.html

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Potomac Edison	Custom Incentive Program	Grant	\$0.05 per kWh	Potomac Edison offers incentives for businesses that have energy efficiency projects that do not fall into their other programs. To qualify projects must have a payback between 1 and 7 years before applying incentives.	http://www.energysavemd-business.com/custom.html
Potomac Edison	Audit Program	Audit	Audits and assistance are provided at no cost	Potomac Edison offers audit support and services for small businesses. Audits are provided by contractors approved by Potomac Edison. To qualify for the audit program, businesses must have a demand that is less than 60kW.	http://www.energysavemd-business.com/audit.html
Pepco	Light Fixtures and Controls	Grant	Varies depending on the type of fixture installed	Pepco offers incentives for businesses that upgrade to energy efficient lighting fixtures. Incentives range from \$10 to \$250 per installed fixture.	https://cienergyefficiency.pepco.com/Lighting.aspx
Pepco	Variable Frequency Drives	Grant	Varies depending on horsepower	Pepco offers incentives for businesses that purchase variable frequency drives. Incentives range from \$600 dollars per drive up to \$7,000.	https://cienergyefficiency.pepco.com/Variable.aspx
Pepco	Packaged HVAC Unit	Grant	Varies depending on the measure	Pepco offers incentives for businesses that upgrade their HVAC systems. Contact Pepco for specific incentive amounts for preapproved measures. For measures that are not on Pepco's standard list, a one-time incentive of \$0.16/kWh is provided for one year of projected savings.	https://cienergyefficiency.pepco.com/HVAC.aspx

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Pepco	Chillers	Grant	Varies depending on the equipment	Pepco offers incentives for businesses that upgrade their central chiller-based cooling systems. Single chillers (< 1,000 tons) qualify for an incentive of \$10-24 per ton, plus additional performance incentives that range from \$2-8. Chillers over 1,000 tons may qualify for an incentive valued at up to 50% of the total installed cost; depending on a verified analysis.	https://cienergyefficiency.pepco.com/Chillers.aspx
Pepco	Commercial Water Heating	Grant	\$200 per heat pump	Pepco offers incentives to install energy efficient water heating equipment. Pepco business customers in Maryland that have an existing facility are eligible for this program. \$200 is provided for each heat pump water heater and \$50 is provided for each electric tank water heater.	https://cienergyefficiency.pepco.com/WaterHeating.aspx
Pepco	Specialized Controls	Grant	\$15 - \$75 per measure	Pepco offers cash incentives to businesses that install electrical controls in existing buildings. Controls include motion sensors, vending machine controls, and smart strips. Incentive amounts vary by installed measure.	https://cienergyefficiency.pepco.com/Controls.aspx
Pepco	Custom Projects	Grant	\$0.16 per kWh	Pepco offers a cash incentive for businesses that want to undertake a custom energy efficiency project. This program focuses on an entire large project, not individual measures. The incentive is provided by a one-time payment of \$0.16 per kWh for one year of projected savings. Projects must generate a minimum annual energy savings of 25,000 kWh.	https://cienergyefficiency.pepco.com/Custom.aspx

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Pepco	Energy Savings Studies (Walkthrough Assessment)	Grant	75% of the cost up to \$1,000	Pepco offers a cash incentive for businesses that want to have their businesses assessed for potential energy savings. The walkthrough assessment can be used as a preliminary assessment for the detailed energy savings study (mentioned below). To qualify, businesses must have a peak demand > 100 kW a month.	https://cienergyefficiency.pepco.com/EnergySavingsStudy.aspx
Pepco	Energy Savings Studies (Detailed Energy Savings Study)	Grant	75% of the cost up to \$20,000	Pepco offers a cash incentive for businesses that want to have their businesses assessed for potential energy savings. This study is much more thorough than the walkthrough assessment. To qualify, businesses must have a conditioned areas of 25,000 sqft or larger and the building must be older than 2 years.	https://cienergyefficiency.pepco.com/EnergySavingsStudy.aspx

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Pepco	Combined Heat and Power	Grant	\$250 per kW, \$0.07 per kWh	Pepco offers an incentive program for businesses that want to install a combined heat and power system. An upfront payment of \$250 per kW produced is provided in addition to \$0.07 per kWh produced for the first 18 months following the startup of the combined heat and power system.	https://cienergyefficiency.pepco.com/Documents/CHP_Webfile.pdf
Pepco	T12 Lighting Phase Out	Grant	\$35 per fixture	The Department of Energy has mandated a phase out of T12 lighting fixtures. Pepco offers \$35 per fixture to replace T12 lamps and magnetic ballasts with T8 lamps and electronic ballasts. The upgrade can save as over 40% in energy costs.	https://cienergyefficiency.delmarva.com/Documents%5CDelmarva_T12_Flyer.pdf Please note that this is the document for Delmarva power. Both companies are owned by the same parent company. The only difference is the contact information. To contact Pepco call 1-866-353-5798
Pepco	Small Business Program	Grant	Varies by measure	Pepco offers incentives for small businesses that undertake energy efficiency projects. These incentives are for businesses that have less than 100kW of demand a month for 12 months. These incentives are greater than those offered to larger businesses.	https://cienergyefficiency.pepco.com/SmallBus.aspx
Pepco	Continuous Energy Improvement	Grant	\$0.20 per kWh saved annually	Pepco offers incentives for customers that are implementing a Continuous Energy improvement process intended to extend existing building commissioning practices. There are three phases to the program: 1. Comprehensive Energy Savings Study 2. Monthly O&M Report 3. Measure Implementation Report Incentives are paid in the third phase.	https://cienergyefficiency.pepco.com/Improvement.aspx

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Pepco	HVAC Tune-Up	Grant	Varies by measure, up to \$200/unit	Pepco offers incentives to businesses that want to tune-up their HVAC systems. Incentives vary by measure and range from \$35 per unit to \$200 per unit.	https://cienergyefficiency.pepco.com/TuneUp.aspx
Pepco	Full Retrocommissioning	Grant	Varies by phase	Retro-Commissioning (RCx) helps Pepco's commercial and industrial (C&I) customers assess energy efficiency in their facilities, identify energy-saving opportunities, and optimize their existing systems. Incentives are awarded at the 4 different phases of the project.	https://cienergyefficiency.pepco.com/Retro.aspx
Pepco	O&M Training	Grant	\$1,000	Pepco offers incentives for individuals in businesses to take certification courses in building operation and maintenance practices. Each individual is eligible for a cash incentive of 80% of enrollment costs, not to exceed \$1,000.	https://cienergyefficiency.pepco.com/OMTraing.aspx
Pepco	Occupant Training	Grant	\$5,000	Pepco offers incentives for businesses to train their employees in energy efficient practices. An incentive of 50% of the full cost of the training program, up to \$5,000, is available for the deployment of an occupant Energy Awareness program approved by Pepco.	https://cienergyefficiency.pepco.com/Training.aspx
BGE	Small Business Energy Solutions	Grant	Up to 80% of project costs	BGE provides incentives for small businesses that want to make energy efficiency upgrades or retrofits. Most lighting, electric water heating, and refrigeration controls will be covered by this program. All BGE small business and small nonprofit customers who have a monthly demand of 60 kW or less are eligible.	http://www.bgesmartenergy.com/business/small-business-energy-solutions

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
BGE	Energy Solutions for Business	Grant	Up to 50% of retrofits and up to 75% for new construction	BGE's incentive program for business is extensive. Technical services and financial incentives are provided to help businesses achieve their energy savings goals. Projects include lighting controls, lighting, HVAC systems, variable frequency drives, refrigeration equipment, etc. To qualify, businesses must be on rate schedule G, GS, GL, P, or T.	http://www.bgesmartenergy.com/business/energy-solutions-business
BGE	Combined Heat and Power	Grant	Up to \$2 million	BGE offers incentives for combined heat and power systems installed by any nonresidential customers. There are three incentive types offered: <ul style="list-style-type: none"> • Design incentive (\$75/kW) • Installation incentive (\$175/kW) • Production incentive (\$0.07/kWh for 18 months) Systems must operate at a minimum of 65% efficiency on an annual basis to qualify.	http://www.bgesmartenergy.com/business/chp
BGE	Retrocommissioning (RCx)	Grant	75% of cost up to \$30,000	The BGE RCx Program offers financial incentives for identifying and implementing relatively low-cost operational and maintenance improvements. RCx is the process of adjusting control systems in existing buildings to optimize energy efficiency. Maximum incentives are \$15,000 for facilities under 75,000 sq. ft. and \$50,000 for facilities over 75,000 sq. ft.	http://www.bgesmartenergy.com/business/retrocommissioning

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Delmarva	Light Fixtures and Controls	Grant	Varies depending on the type of fixture installed	Delmarva offers incentives for businesses that upgrade to energy efficient lighting fixtures. Incentives range from \$10 to \$250 per installed fixture.	https://cienergyefficiency.delmarva.com/Lighting.aspx
Delmarva	Variable Frequency Drives	Grant	Varies depending on the horsepower of the drive	Delmarva offers incentives for businesses that purchase variable frequency drives. Incentives range from \$600 dollars per drive up to \$7,000.	https://cienergyefficiency.delmarva.com/Variable.aspx
Delmarva	Packaged HVAC Unit	Grant	Varies depending on the measure	Delmarva offers incentives for businesses that upgrade their HVAC systems. Contact Delmarva for specific incentive amounts for preapproved measures. For measures that are not on Delmarva’s standard list, a one-time incentive of \$0.16/kWh is provided for one year of projected savings.	https://cienergyefficiency.delmarva.com/HVAC.aspx
Delmarva	Chillers	Grant	Varies depending on the equipment	Delmarva offers incentives for businesses that upgrade their central chiller-based cooling systems. Single chillers (< 1,000 tons) qualify for an incentive of \$10-24 per ton, plus additional performance incentives that range from \$2-8. Chillers over 1,000 tons may qualify for an incentive valued at up to 50% of the total installed cost; depending on a verified analysis by Delmarva	https://cienergyefficiency.delmarva.com/Chillers.aspx

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Delmarva	Commercial Water Heating	Grant	\$200 per heat pump	Delmarva offers incentives to install energy efficient water heating equipment. Delmarva business customers in Maryland that have an existing facility are eligible for this program. \$200 is provided for each heat pump water heater and \$50 is provided for each electric tank water heater.	https://cienergyefficiency.delmarva.com/WaterHeating.aspx
Delmarva	Specialized Controls	Grant	\$15 - \$75 per measure	Delmarva offers cash incentives to businesses that install electrical controls in existing buildings. Controls include motion sensors, vending machine controls, and smart strips. Incentive amounts vary by installed measure.	https://cienergyefficiency.delmarva.com/Controls.aspx
Delmarva	Custom Projects	Grant	\$0.16 per kWh	Delmarva offers a cash incentive for businesses that want to undertake a custom energy efficiency project. This program focuses on an entire large project, not individual measures. The incentive is provided by a one-time payment of \$0.16 per kWh for one year of projected savings. Projects must generate a minimum annual energy savings of 25,000 kWh.	https://cienergyefficiency.delmarva.com/Custom.aspx
Delmarva	Energy Savings Studies (Walkthrough Assessment)	Grant	75% of the cost up to \$1,000	Delmarva offers a cash incentive for businesses that want to have their businesses assessed for potential energy savings. The walkthrough assessment can be used as a preliminary assessment for the detailed energy savings study (mentioned below). To qualify, businesses must have a peak demand > 100 kW a month.	https://cienergyefficiency.delmarva.com/EnergySavingsStudy.aspx

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Delmarva	Energy Savings Studies (Detailed Energy Savings Study)	Grant	75% of the cost up to \$20,000	Delmarva offers a cash incentive for businesses that want to have their businesses assessed for potential energy savings. This study is much more thorough than the walkthrough assessment. To qualify, businesses must have a conditioned areas of 25,000 sqft or larger and the building must be older than 2 years.	https://cienergyefficiency.delmarva.com/EnergySavingsStudy.aspx
Delmarva	Combined Heat and Power	Grant	\$250 per kW, \$0.07 per kWh	Delmarva offers an incentive program for businesses that want to install a combined heat and power system. An upfront payment of \$250 per kW produced is provided in addition to \$0.07 per kWh produced for the first 18 months following the startup of the combined heat and power system.	https://cienergyefficiency.delmarva.com/Documents/CHP_Webfile.pdf
Delmarva	T12 Lighting Phase Out	Grant	\$35 per fixture	The Department of Energy has mandated a phase out of T12 lighting fixtures. Delmarva offers \$35 per fixture to replace T12 lamps and magnetic ballasts with T8 lamps and electronic ballasts. The upgrade can save as over 40% in energy costs.	https://cienergyefficiency.delmarva.com/Documents%5CDelmarva_T12_Flyer.pdf

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Delmarva	Small Business Program	Grant	Varies by measure	Delmarva offers incentives for small businesses that undertake energy efficiency projects. These incentives are for businesses that have less than 100kW of demand a month for 12 months. These incentives are greater than those offered to larger businesses.	https://cienergyefficiency.delmarva.com/SmallBus.aspx
Delmarva	Continuous Energy Improvement	Grant	\$0.20 per kWh saved annually	Delmarva offers incentives for customers that are implementing a Continuous Energy Improvement process intended to extend existing building commissioning practices. There are three phases to the program: <ol style="list-style-type: none"> 1. Comprehensive Energy Savings Study 2. Monthly O&M Report 3. Measure Implementation Report Incentives are paid in the third phase.	https://cienergyefficiency.delmarva.com/Improvement.aspx
Delmarva	HVAC Tune-Up	Grant	Varies by measure, up to \$200/unit	Delmarva offers incentives to businesses that want to tune-up their HVAC systems. Incentives vary by measure and range from \$35 per unit to \$200 per unit.	https://cienergyefficiency.delmarva.com/TuneUp.aspx
Delmarva	Full Retrocommissioning	Grant	Varies by phase	Retro-Commissioning (RCx) helps Delmarva's commercial and industrial (C&I) customers assess energy efficiency in their facilities, identify energy-saving opportunities, and optimize their existing systems. Incentives are awarded at the 4 different phases of the project.	https://cienergyefficiency.delmarva.com/Retro.aspx

Utility Programs					
Utility Name	Program Name	Incentive Type	Maximum Incentive	Summary	Link
Delmarva	O&M Training	Grant	\$1,000	Delmarva offers incentives for individuals in businesses to take certification courses in building operation and maintenance practices. Each individual is eligible for a cash incentive of 80% of enrollment costs, not to exceed \$1,000.	https://cienergyefficiency.delmarva.com/OMTraining.aspx
Delmarva	Occupant Training	Grant	\$5,000	Delmarva offers incentives for businesses to train their employees in energy efficient practices. An incentive of 50% of the full cost of the training program, up to \$5,000, is available for the deployment of an occupant Energy Awareness program approved by Delmarva.	https://cienergyefficiency.delmarva.com/Training.aspx

Miscellaneous Programs					
Source	Program Name	Incentive Type	Maximum Incentive	Summary	Link
MARBIDCO	Rural Business Energy Efficiency Improvement Loan Fund (RBEFIL)	Loan	\$30,000	This loan program provides loans to farmers who wish to install equipment or make operational improvements that reduce the consumption of energy. Loans are provided at a below market rate and borrowers who are in good standing with their payments will receive a grant worth up to 10% of the loan.	http://www.marbidco.org/App%20Energy%202.12.pdf
MARBIDCO	Maryland Resource-Based Industry Financing Fund	Loan	\$400,000	This loan programs provides loans for Ag industry firms to purchase land and capital equipment for production and processing activities. \$200,000 is the maximum loan amount for equipment and fixed assets. \$400,000 is the maximum loan for real estate purchases, food/meat processing, and bioenergy projects. The interest rate is 3% APR.	http://www.marbidco.org/loans/mrbif.html
MARBIDCO	Rural Business Equipment and Working Capital Loan Fund	Loan	\$75,000	This loan program offers loans to Ag industry firms and producers for working capital and equipment purchases. The maximum loan amount is \$75,000 and the interest rate is 5% APR. A letter of referral from a commercial lender is required.	http://www.marbidco.org/loans/rbwc.html

Press Release



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FOR IMMEDIATE RELEASE

MARYLAND ENERGY ADMINISTRATION, DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT AWARD \$1.4 MILLION IN GRANTS THROUGH THE KATHLEEN A. P. MATHIAS AGRICULTURE ENERGY EFFICIENCY PROGRAM

17 projects will showcase best practices for agriculture energy efficiency.

Annapolis, MD (December 5, 2012) — Today, the Maryland Energy Administration (MEA) and the Department of Housing and Community Development (DHCD) announced the inaugural grant recipients of the Kathleen A. P. Mathias Agriculture Energy Efficiency Program (Mathias Program). The 17 recipients of grants ranging from \$25,000 to \$200,000 are spread across 11 Maryland counties and will receive funding to cover 75 percent of the cost of energy efficiency upgrades for selected farms and agribusinesses. The annual energy savings are estimated at approximately 800 MWh, 14,000 therms of natural gas, over 70,000 gallons of propane, and 2,220 gallons of diesel fuel.

"Reducing energy consumption on Maryland's farms and agribusiness will help our state reach its goal of reducing energy consumption 15% by 2015," said Abigail Ross Hopper, Acting Director of the Maryland Energy Administration. "The selected projects will show to all of Maryland the savings that can be made through energy efficiency upgrades in the agriculture sector and indeed all sectors of our economy."

Named after the late Kathleen A. P. Mathias, one of the Eastern Shore's leading advocates and the wife of Maryland State Senator James N. Mathias, these grants are supported by the Maryland Department of Housing and Community Development's Be SMART which is funded by the U.S. Department of Energy's Better Buildings program.

"We are pleased to provide the financial resources and assist the Maryland Energy Administration's efforts to reduce energy consumption on Maryland farms and agribusinesses," said Raymond Skinner, Secretary, Department of Housing and Community Development. "Reducing energy consumption saves money, sustains our quality of life and ensures that these farms and communities will remain viable and successful in years to come."

The program requirements must enable a minimum 15 percent energy savings in the buildings or areas where they are installed. Each of the selected projects will be showcased to highlight the gains that can be made through energy efficiency upgrades in the agriculture sector. To learn more about this innovative program please visit the Mathias Program's webpage: <http://energy.maryland.gov/Business/mathiasag/index.html>

Kathleen A.P. Mathias Agriculture Energy Efficiency Grant Awardees

<u>Awardee Name</u>	<u>County</u>	<u>Maximum MEA/DHCD Contribution</u>
Whitelyn Farms	Baltimore County	\$30,000
<i>Whitelyn Farms is a dairy farm located in northern Baltimore County. The funding will upgrade their fans and vacuum pumps. The measures are estimated to save 33% of energy use.</i>		
The Great Gourmet	Caroline County	\$44,000
<i>The Great Gourmet is a food processor. They will be upgrading their lighting and cold processing doors in addition to installing tankless water heaters and a solar-thermal heating system. The measures are estimated to save 27% of energy use.</i>		
James Lewis	Caroline County	\$20,000
<i>James Lewis is a grain producer that will switch his primary fuel source from diesel fuel to electricity. This measure is estimated to save 88% of energy use.</i>		
Hillcrest Nursery	Carroll County	\$166,000
<i>Hillcrest Nursery is a greenhouse operation. The funding will upgrade to their motors, boilers, and fans. An LED lighting upgrade will also be funded. The measures are estimated to save 15% of energy use.</i>		
Lease Brothers	Carroll County	\$108,000
<i>Lease Brothers is a grain operation that will receive funding for a replacement grain dryer. The measure is estimated to save 21% of energy use.</i>		
Lippy Brothers Farms	Carroll County	\$152,000
<i>Lippy Brothers is a grain operation that will receive funding for a new grain drying system. The measure is estimated to save 34% of energy use.</i>		
Helgason Farms	Dorchester County	\$30,000
<i>Helgason Farms is a poultry operation. They will be funding upgrades to their fans, in addition to funding the installation of insulation measures. The measures are estimated to save 16% of energy use.</i>		
Hunting Creek Fisheries	Frederick County	\$35,000
<i>Hunting Creek Fisheries is an aquaculture operation specializing in ornamental fish. They will be upgrading their lighting, tank heating, and tank pumps. The measures are estimated to save 60% of energy use.</i>		
Linganore Winecellars	Frederick County	\$35,000
<i>Linganore is a vineyard that will receive funding to install chiller and lighting upgrades. The measures are estimated to save 21% of energy use.</i>		
Harborview Farms	Kent County	\$170,000
<i>Harborview Farms is a grain operation that will receive funding to install a new grain dryer. This measure</i>		

is estimated to save 32% of energy use.

Deerfielde Farm Queen Anne’s County \$79,000

Deerfielde Farm is a poultry operation. The funding will support ventilation upgrades and the installation of electronic control units. The measures are estimated to save 33% of energy use.

Flintrock Farms Queen Anne’s County \$101,000

Flintrock is a poultry operation that will install upgrades to their current heating, lighting, and insulation systems. The measures are estimated to save 21% of energy use.

University of Maryland, Eastern Shore Somerset County \$188,000

UMES will use funding to install lighting upgrades and an energy-efficient seed dryer. The measures are estimated to save 22% of energy use.

Caprikorn Farms Washington County \$20,000

Caprikorn is a goat farm that will install upgraded lighting, space heating, vacuum pumps, stock tanks, and water heaters. The measures are estimated to save 58% of energy use.

AHPharma Wicomico County \$105,000

AHPharma will use funding to install a new bioheating technology on a poultry operation. The technology uses waste products from poultry for heating purposes. The project is estimated to save at least 15% of energy use.

Benson Farms Worcester County \$90,000

Benson Farms is a poultry operation that will receive funding for lighting and insulation upgrades. These measures are estimated to save 48% of energy use.

Cedar Mountain Farms Worcester County \$68,000

Cedar Mountain Farms is a poultry operation that will upgrade CFL lights to LEDs, and improve ventilation and insulation. The measures are estimated to save 27% of energy use.

###

The mission of the Maryland Energy Administration (MEA) is to promote affordable, reliable, clean energy. MEA’s programs and policies help lower energy bills, fuel the creation of green collar jobs, address environmental and climate impacts, and promote energy independence.

Sample Energy Audit

Mathias Ag Program

AUDIT REPORT



October 8, 2012

[NOTE: Name/Company references were removed for privacy.]

[Contact]

----- Farm

Dear -----:

On behalf of the Maryland Energy Administration's (MEA) Kathleen A.P. Mathias Agriculture Energy Efficiency Program, MEA Technical Assistance Team member EnSave has performed a desk audit capturing preliminary energy savings and financial analysis of the proposed energy efficiency improvements for ----- Farm.

This *Audit Report* presents summary information regarding potential Mathias Ag Program projects. Your primary opportunity for an upgrade includes heating, cooling, and ventilation measures for Houses 1-4 at the ----- Farm site. Please cut and paste the following information as you prepare the RFP for your Mathias Ag Program project.

RECOMMENDED PROJECT(S) & ADDRESS

Recommended Energy Efficiency Measures (EEMs) from information collected in audit for Houses 1-4 at ----- Farm:

1. **Curtain to Solid Insulated Sidewalls: Houses 1-4**
Renovate remaining (5) curtain walls to solid sidewalls and insulate with a minimum of R-11 wall insulation.
2. **Insulated Brood Curtains: Houses 1-4**
Replace (2) existing uninsulated brood curtains per house with (2) insulated brood curtains per house.
3. **Replace Vent Boxes: Houses 1-4**
Replace (192) existing vent boxes with (192) new vent boxes. There will be (50) vent boxes in each house of houses 1, 2, and 4, and (42) vent boxes in house 3.
4. **Recirculating Cool Cells: Houses 1-4**
Install (120) feet of recirculating cool cell per house on houses 1-4.
5. **Insulated Tunnel Curtains: Houses 1-4**
Replace existing tunnel curtain material with insulated curtain material for houses 1-4.
6. **Sidewall Ventilation Fans: Houses 1-4**

Replace (2) old 36 inch sidewall fans per house with (2) energy efficient 36 inch sidewall fans per house. New sidewall fans should have a minimum ventilation efficiency ratio (VER) of 18.9 cfm/Watt.

Recommended Energy Efficiency Measures (EEMs) from information collected in audit for House 3 at ----- Farm:

7. Electronic Control Unit: House 3

Install electronic control unit in house 3 and integrate lighting, heating, and ventilation systems with the new controller.

BASELINE ANALYSIS

1. Energy Consumption

You provided electricity and propane utility bills for Houses 1-4 of ----- Farm covering the period of October 2006 through September 2007. The following tables summarize the baseline consumption data and projected savings for each of the EEMs outlined in this report.

Table 1: Historical Baseline Data and Projected Savings

Fuel	Current Usage	MMBtu Usage	Projected Savings	MMBtu Savings	% Energy Savings
Electricity (kWh)	95,149	324.6	28,205	96.2	29.6%
Propane (Gal)	6,717	615.2	2,199	201.4	32.7%
Totals		939.9		297.7	31.7%

Table 2: Economic Details of Proposed Energy Efficiency Project

Recommended Measure/ Measures Considered	Estimated Electric Savings (kWh)	Estimated Propane Savings (gal)	Estimated Energy Savings (MMBtu)	Estimated Annual Energy Cost Savings	Estimated Installed Cost	Estimated Payback in Years
Curtain to Solid Insulated Sidewalls		1,215	111	\$1,749	\$31,285	17.9
Insulate Brood Curtain		103	9	\$148	\$2,800	18.9
Replace Vent Boxes		562	51	\$809	\$7,296	9.0
Electronic Control Units	4,282	79	22	\$615	\$7,000	11.4
Cool Cells	20,346		69	\$2,384	\$42,000	17.6
Insulated Tunnel Curtains		241	22	\$347	\$4,800	13.8
Ventilation	3,578		12	\$419	\$9,792	23.4
Totals	28,205	2,199	298	\$6,470	\$104,973	16.2

2. Utility Bill Analysis

Delmarva Power provides electricity distribution service to Houses 1-4 of ----- Farm. Pep Up Gas provides propane distribution service to Houses 1-4 of ----- Farm. Usage, distribution, generation and transmission charges were provided for 12 months of service (October 2006 through September 2007). According to the utility rates charged, an average blended electricity rate of **\$0.1172 per kWh** was determined. The blended rate includes all surcharges, which are added on a per-kWh basis. An average blended propane rate of **\$1.4397 per gallon** was determined according to the utility rates charged.

MATHIAS AG PROGRAM PROJECT ANALYSIS

This energy audit and the measurement and verification procedures are based on sound engineering principles and industry best practices and guidelines. The audit report is focused only on the buildings and energy efficiency measures approved under your Mathias Ag Program grant.

1. Costs

The project costs reported in Table 3 below are preliminary estimates, relying on product catalogs and estimated labor hours required.

Table 3: Estimated Costs and Savings within Preliminary Mathias Ag Program Award Amount

	Estimate Category	Total	Curtain to Solid Sidewalls	Insulated Brood Curtain	Replace Vent Boxes	Electronic Controls	Cool Cells	Insulated Tunnel Curtains	Ventilation Fans
a.	Mathias Ag Program Grant Amount (preliminary estimate)	\$78,730	\$23,464	\$2,100	\$5,472	\$5,250	\$31,500	\$3,600	\$7,344
b.	Average Cost per Unit Installed		\$6,257	\$350	\$38	\$7,000	\$10,500	\$1,200	\$1,224
c.	Number of Units Covered		5	8	192	1	4	4	8
d.	Total Investment Cost (\$)	\$104,973	\$31,285	\$2,800	\$7,296	\$7,000	\$42,000	\$4,800	\$9,792
e.	Electricity Rate (\$/kWh)	\$0.1172	\$0.1172	\$0.1172	\$0.1172	\$0.1172	\$0.1172	\$0.1172	\$0.1172
f.	Propane Rate (\$/gallon)	\$1.4397	\$1.4397	\$1.4397	\$1.4397	\$1.4397	\$1.4397	\$1.4397	\$1.4397
g.	Annual Electricity Energy Reduction (kWh)	28,205	0	0	0	4,282	20,346	0	3,578
h.	Annual Propane Energy Reduction (gallons)	2,199	1,215	103	562	79	0	241	0
i.	Total Annual Savings (\$)	\$6,470	\$1,749	\$148	\$809	\$615	\$2,384	\$347	\$419

2. Energy, Economic and Environmental Benefits

Table 4 provides the calculated energy, economic, and environmental benefits from implementing these projects individually and combined.

Table 4: Estimated Energy, Economic and Environmental Benefits

Summary of Estimated Energy, Environmental, and Economic Benefits		Total	Curtain to Solid Sidewalls	Insulated Brood Curtain	Replace Vent Boxes	Electronic Controls	Cool Cells	Insulated Tunnel Curtains	Ventilation Fans
Energy Benefits									
a.	Electricity Annual Demand Reduction (kW)	2	0	0	0	0	0	0	2.26
b.	Annual Reduction in Electricity Consumption (kWh) {From estimated cost and savings table}	28,206	0	0	0	4,282	20,346	0	3,578
	Annual reduction in Natural Gas Consumption (Therm)	0	0	0	0	0	0	0	0
	Annual reduction in Fuel Oil consumption (Gal)	0	0	0	0	0	0	0	0
	Annual reduction in Propane consumption (Gal)	2,200	1,215	103	562	79	0	241	0
	Annual reduction in Diesel consumption (Gal)	0	0	0	0	0	0	0	0
c.	Useful life of energy efficiency measure (years) {EEM useful life * % contributed to annual emissions savings}	N/A	30	30	14	14	14	30	14
d.	Lifetime energy savings from source (Million Btu) {(Reduction kWh * 3,413 Btu/kWh + Reduction Therms * 99,976 Btu/Therm + Reduction Fuel Oil * 140,000 Btu/Gal + Reduction Propane * 91,600 Btu/Gal + Reduction Diesel * 139,000 Btu/Gal) * c / 1,000,000}	6,454	3,339	283	721	306	972	662	171
e.	Total % Energy Savings {From historical baseline data and projected savings table}	31.40%	11.80%	1.00%	5.40%	2.30%	7.30%	2.30%	1.30%
Economic Benefits									
f.	Installed Cost (\$)	\$104,973	\$31,285	\$2,800	\$7,296	\$7,000	\$42,000	\$4,800	\$9,792
g.	Annual Cost Savings (\$) {From estimated cost and savings table}	\$6,471	\$1,749	\$148	\$809	\$615	\$2,384	\$347	\$419
h.	Simple Payback (years) { f÷g }	16.22	17.89	18.92	9.02	11.38	17.62	13.83	23.37
i.	Lifetime Cost per Million Btu (\$) { f÷d }	\$16.27	\$9.37	\$9.89	\$10.12	\$22.88	\$43.20	\$7.25	\$57.28
Environmental Benefits									
j.	Annual Carbon Dioxide (CO2) emission reductions (Metric Tons)	29.74180	6.97409	0.59122	3.22588	3.05154	12.34481	1.38334	2.17093
k.	Annual Nitrous Oxide (N2O) emission reductions (Metric Tons)	0.00066	0.00022	0.00002	0.00010	0.00005	0.00018	0.00004	0.00003
l.	Annual Methane (CH4) emission reductions (Metric Tons)	0.00238	0.00110	0.00009	0.00051	0.00013	0.00028	0.00022	0.00005
m.	Annual Sulphur Oxide (SOx) emission reductions (Metric Tons)	0.00133	0.00006	0.00009	0.00051	0.00013	0.00028	0.00022	0.00005
n.	Annual Nitrogen Oxide (NOx) emission reductions (Metric Tons)	0.00679	0.00551	0.00009	0.00051	0.00013	0.00028	0.00022	0.00005

RECOMMENDATIONS

This audit studied the potential for seven grant-qualified energy efficiency projects. The proposed EEMs demonstrate substantial energy, environmental and economic savings. We recommend you leverage the available Mathias Ag Program funding to implement the measures outlined in this report. We also recommend following the maintenance guidelines from the user manual provided with the new ventilation fans to ensure efficient performance of the equipment over its entire useful life. Finally, we recommend that any contractors you consider for implementation of your measures perform industry best practices.

Funding for the Mathias Ag Program is provided through the American Recovery and Reinvestment Act (ARRA). If you decide to leverage non-ARRA financial resources to expand your project beyond the scope estimated to be fundable using your Mathias Ag Program grant, please keep in mind that if you commingle other funds with your Mathias Ag Program grant for additional measures, you will be required to comply with all ARRA reporting requirements.

We can confirm that the proposed project is eligible to receive Mathias Ag Program funds and verify that the project will reduce energy consumption and/or generate clean energy. If you would like to discuss this analysis in greater detail, please contact Kyle Booth at kyleb@ensave.com.

Please follow up with Maureen McNulty, your compliance coordinator, for guidance in beginning the procurement process at your earliest convenience. On the following page, please find a checklist of next steps that must be completed to receive your formal project approval.

Sincerely,



Kyle Booth
MEA Technical Assistance Team Energy Auditor
EnSave, Inc.
kyleb@ensave.com
(802) 434-1844

PROJECT APPROVAL: A CHECKLIST

Your compliance coordinator will work closely with you to help you meet the following milestones in the process of reaching project approval.

The target for completion of these steps is December 2012.



NEPA Allowable Measures

The measures outlined in this audit report are all NEPA allowable.



Historic Preservation

An exemption request has been filed on your behalf. The exemption has been granted.



ARRA-compliant Procurement

Plan to work in lockstep with your compliance coordinator to assure that you meet all flow-down requirements as outlined in the federal regulations (10 CFR § 600.236). Some highlights include:

- Outreach to certified MBE/DBE firms
- ARRA-compliant RFP (that outlines all terms, including applicability of Davis Bacon wage rates)
- Flow-down provisions attached to any bid documents
- Preparation of ARRA-compliant contract with required terms

You will select a preferred bid (or bids) but **DO NOT SIGN A CONTRACT BEFORE YOU RECEIVE FORMAL PROJECT APPROVAL.**



Waste Management Plan, Part I¹⁸

Work with your selected contractor(s) to develop an estimate of the type and volume of waste to be generated through your project and a plan for its safe disposal.

When all four of these requirements are satisfied, your compliance coordinator will submit the project on your behalf to MEA for formal project approval. MEA will then issue your grant agreement indicating the exact dollar value of your grant.

¹⁸ Your compliance coordinator will provide you with the grant documents you will need prior to project approval.

Compliance Monitoring Checklist

**KATHLEEN A. P. MATHIAS
AGRICULTURE ENERGY
EFFICIENCY PROGRAM**



Site Visit Compliance Check List

This list represents items to check on to determine Federal Requirement compliance during site visits by MEA managers.

Sub-Grantee Name:

Grant Number:

Check List Dates

1) Before site visit:

2) Site Visit:

3) Post Site Visit

Check List of Items for Non-Financial Site Visits	
1. Before Site Visit	
<input type="checkbox"/>	a. Contact Grantee to verify date, location, and type of work being performed. <ul style="list-style-type: none"> • Ask for cut sheets to compare items installed. • Make sure that work will be occurring (for Davis Bacon interview(s))
<input type="checkbox"/>	b. Check Grant Contract for Scope of Work to compare with work being performed, job address, products to be installed, any other relevant information to the site visit.
<input type="checkbox"/>	c. Obtain a copy of the contract with the contractor. The contract <u>must</u> include: <ul style="list-style-type: none"> i. A clear and accurate description of the technical requirements for the material, product, or service to be procured per the Grant’s Scope of Work. ii. Pricing for materials, components, labor and other cost elements. iii. Requirements for completing the waste management disposal plan, Part 2 of the Maryland Mathias Ag Program Waste Management Template. iv. The Attachment D from the grant contract (<i>ARRA Special Terms and Conditions</i>). The ARRA Special Terms and Conditions are required to flow down to all contractors. v. The sub-grantee has conducted all procurements in a manner providing full and open competition, and will refrain from <ul style="list-style-type: none"> i. placing unreasonable requirements on firms in order for them to qualify to do business; ii. requiring unnecessary experience and excessive bonding; iii. allowing noncompetitive pricing practices between firms or between affiliated companies; iv. allowing noncompetitive awards to consultants that are on retainer contracts; v. having organizational conflicts; vi. specifying only a “brand name” product instead of allowing “an equal” product to be offered and describing the performance of other relevant requirements of the procurement; vii. engaging in any arbitrary action in the procurement process.
2. During Site Visit	
Procurement	
<input type="checkbox"/>	a. Ensure that the names of the contractors/sub-contractors have been verified using the Excluded parties list (www.epls.gov).
<input type="checkbox"/>	b. Has the sub-grantee signed and returned the Procurement Checklist?
<input type="checkbox"/>	c. The sub-grantee has established a contract administration system.

<input type="checkbox"/>	d. The sub-grantee has developed a written code of standards of conduct governing the performance of employees engaged in the award and administration of contracts.
<input type="checkbox"/>	e. The sub-grantee has determined that no employee, officer or agent of their organization has a conflict of interest that would prevent them from participating in the selection or award of a contract for goods or services.
<input type="checkbox"/>	f. The sub-grantee has ensured that no employee, officer or agent of their organization will solicit or accept gratuities, favors or anything of monetary value from contractors, potential contractors, or their subcontractors or potential subcontractors.
<input type="checkbox"/>	g. The sub-grantee has protest procedures in place to handle and resolve disputes relating to their procurement and has agreed to disclose always to MEA any information regarding a protest.
<input type="checkbox"/>	h. The sub-grantee will maintain records sufficient to detail the history of any procurement (see record retention).
<input type="checkbox"/>	i. The sub-grantee did not allow in-State or local geographical preferences in their procurement processes
<input type="checkbox"/>	j. The sub-grantee has developed written selection procedures for all procurement transactions.
<input type="checkbox"/>	k. The sub-grantee has performed adequate outreach to MBE/DBE firms during procurement.
<input type="checkbox"/>	L. The sub-grantee met the requirements for the following: <ul style="list-style-type: none"> • Procurements of \$100,000 or Less; or • Procurements Exceeding \$100,000
Davis Bacon Compliance	
<input type="checkbox"/>	a. Ensure that the Davis-Bacon compliance poster (WH 1321, Employee Rights), and wage rates are prominently displayed.
<input type="checkbox"/>	b. Use the “Employee Interview Record” sheet to interview workers. The sheet is attached to the end of this check list.
Waste Management Compliance	
<input type="checkbox"/>	a. Ensure that all waste generated through the Mathias Ag Program sub-grant is disposed of in a manner consistent with the waste management disposal process outlined in Attachment B of their sub-grant. Under the Mathias Ag Program grant agreement, sub-grantees are required to pass on all ARRA requirements, including waste management requirements, to all vendors and contractors receiving contracts through an their sub-grant (flow-down provisions). <ul style="list-style-type: none"> • Visually inspect job site, dumpsters, trash bins, etc... to verify the waste is being disposed of in an appropriate manner. • Ensure all proceeds from waste disposal (scrap metal, etc...) are either used to “grow” the project, or will be deducted from the invoice.
Record Retention	
<input type="checkbox"/>	a. Visually inspect and verify that documents relating to this grant will be adequately retained. The file should be readily accessible for inspection and will need to be kept for 3 years after completion of the grant-funded project. Note: MEA will also have program files that will be kept at the MEA office.
Other Compliance Requirements	
<input type="checkbox"/>	a. Visually inspect job site to note whether: <ol style="list-style-type: none"> i. Other work is going on concurrently. ii. Work being performed matches work described on Scope of Work. iii. Job address matches with address on approved project.
<input type="checkbox"/>	b. Ensure the “Equal Opportunity” poster and the “Whistleblower Protection” poster are prominently displayed.
3. Post Site Visit	
<input type="checkbox"/>	a. Ensure that the contractor and sub-contractors have provided certification of compliance with the Davis-Bacon and related acts, as well as original copies of weekly payroll records for the period in which the work was performed. <ul style="list-style-type: none"> • Follow-up on Davis Bacon phone interviews if necessary.
<input type="checkbox"/>	b. Verify that total hours worked and total overtime hours worked are correct.
<input type="checkbox"/>	c. Verify rate of regular hours rate of pay and rate of pay for overtime hours.
<input type="checkbox"/>	d. Ensure proper compliance documentation is received and that photo documentation of work performed “after-the-fact” has been received, is satisfactory, and in file.

Davis-Bacon Act Interview Record

Sub-Grant Receipt: _____

Sub- Grant Number: _____

I. Employee Interview: (To be completed by the Sub-Grantee)

Name of Contractor or Subcontractor (Employer): _____

Name of Employee being interviewed: _____

Home -Street Address _____ City _____ State _____ Zip Code _____

Employee Interview Questions

1. What is your Work Classification? _____
2. What is your regular (non-overtime) Davis-Bacon Hourly Rate of Pay? _____
3. Please describe your Duties: _____
4. Are you paid at Least Time and One-half for All Overtime hours worked? ____ Yes ____ No
(In Maryland, overtime is paid for work that exceeds 40 hours/week)
5. Have you ever been Threatened, Intimidated, or Coerced into Giving up Any Part of Your Pay? ____ Yes ____ No
6. What Tools or Equipment do you use?: _____

Site Observations

7. Is the Davis-Bacon Act Compliance Poster posted on the worksite? ____ Yes ____ No
8. Are the Davis-Bacon wage rate determinations posted on the worksite? ____ Yes ____ No

Duties Observed by Interviewer: _____

Comments by Employee: _____

Comments by Interviewer: _____

Name of Interviewer: _____

Signature of Interviewer: _____ Date: _____

Signature of Employee: _____ Date: _____

Sensitive Information. The information collected on this form is considered sensitive. Records must be maintained with appropriate administrative, technical, and physical safeguards to ensure their security and confidentiality. In addition, these records should be protected against any anticipated threats or hazards to their security or integrity that could result in substantial harm, embarrassment, inconvenience, or unfairness to any individual on whom the information is obtained. All information provided shall be kept confidential.

II. Desktop Monitoring After Interview: (Completed by MEA once the Interview Record is received from the Sub-Grantee)

Verification from Payroll Number for Week Ending: _____

Total Regular (non-overtime) Hours Worked: _____

Total Overtime Hours Worked: _____

Rate of Pay for Davis-Bacon Regular (non-overtime) Hours: _____

Rate of Pay for Davis-Bacon Overtime Hours: _____

Does Information agree to US Dept of Labor published Davis Bacon Wage Rates? Yes No

If No, Explain: _____

Mail completed forms to:
Maryland Energy Administration
Mathias Ag Grant Program
60 West Street, Suite 300
Annapolis, MD 21401

Please note: Forms cannot be faxed or e-mailed

EMPLOYEE RIGHTS UNDER THE DAVIS-BACON ACT

FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

- PREVAILING WAGES** You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

- OVERTIME** You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

- ENFORCEMENT** Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

- APPRENTICES** Apprenticeship rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

- PROPER PAY** If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

Bukola Edmondson-Deigh

phone: (410) 260-2610

email: bedeigh@energy.state.md.us

or contact the U.S. Department of Labor's Wage and Hour Division.



For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627



WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Employment Standards Administration | Wage and Hour Division

WH 1321 (Revised April 2008)



Know Your Rights Under the Recovery Act!

Did you know?

The American Recovery and Reinvestment Act of 2009 ¹provides protections for certain employees of non-federal employers who make specified disclosures relating to possible fraud, waste and/or abuse of Recovery Act funds.

Who is protected?

Employees of non-federal employers receiving recovery funds. This includes State and local governments, contractors, subcontractors, grantees or professional membership organizations acting in the interest of recovery fund recipients.

How are Whistleblowers Protected?

You cannot be discharged, demoted or otherwise discriminated against as a reprisal for making a protected disclosure.

What types of disclosures are protected?

The disclosure must be made by the employee to the Recovery Accountability and Transparency Board, an Inspector General, the Comptroller General, a member of Congress, a state or federal regulatory or law enforcement agency, a person with supervisory authority over the employee, a court or grand jury, or the head of a federal agency or his/her representatives. The disclosure must involve information that the employee believes is evidence of:

- gross mismanagement of an agency contract or grant relating to recovery funds;
- a gross waste of recovery funds;
- a substantial and specific danger to public health or safety related to the implementation or use of recovery funds;
- an abuse of authority related to the implementation or use of recovery funds; or
- a violation of law, rule, or regulation related to an agency contract or grant awarded or issued relating to recovery funds.

Take Action! Log on to Recovery.gov for more information about your rights and details on how to report at www.recovery.gov.

¹Section 1553 of Division A, Title XV of the American Recovery and Reinvestment Act of 2009, P.L. 111-5

Equal Employment Opportunity is **THE LAW**

Private Employers, State and Local Governments, Educational Institutions, Employment Agencies and Labor Organizations

Applicants to and employees of most private employers, state and local governments, educational institutions, employment agencies and labor organizations are protected under Federal law from discrimination on the following bases:

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Title VII of the Civil Rights Act of 1964, as amended, protects applicants and employees from discrimination in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment, on the basis of race, color, religion, sex (including pregnancy), or national origin. Religious discrimination includes failing to reasonably accommodate an employee's religious practices where the accommodation does not impose undue hardship.

DISABILITY

Title I and Title V of the Americans with Disabilities Act of 1990, as amended, protect qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, barring undue hardship.

AGE

The Age Discrimination in Employment Act of 1967, as amended, protects applicants and employees 40 years of age or older from discrimination based on age in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment.

SEX (WAGES)

In addition to sex discrimination prohibited by Title VII of the Civil Rights Act, as amended, the Equal Pay Act of 1963, as amended, prohibits sex discrimination in the payment of wages to women and men performing substantially equal work, in jobs that require equal skill, effort, and responsibility, under similar working conditions, in the same establishment.

GENETICS

Title II of the Genetic Information Nondiscrimination Act of 2008 protects applicants and employees from discrimination based on genetic information in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. GINA also restricts employers' acquisition of genetic information and strictly limits disclosure of genetic information. Genetic information includes information about genetic tests of applicants, employees, or their family members; the manifestation of diseases or disorders in family members (family medical history); and requests for or receipt of genetic services by applicants, employees, or their family members.

RETALIATION

All of these Federal laws prohibit covered entities from retaliating against a person who files a charge of discrimination, participates in a discrimination proceeding, or otherwise opposes an unlawful employment practice.

WHAT TO DO IF YOU BELIEVE DISCRIMINATION HAS OCCURRED

There are strict time limits for filing charges of employment discrimination. To preserve the ability of EEOC to act on your behalf and to protect your right to file a private lawsuit, should you ultimately need to, you should contact EEOC promptly when discrimination is suspected: The U.S. Equal Employment Opportunity Commission (EEOC), 1-800-669-4000 (toll-free) or 1-800-669-6820 (toll-free TTY number for individuals with hearing impairments). EEOC field office information is available at www.eeoc.gov or in most

telephone directories in the U.S. Government or Federal Government section. Additional information about EEOC, including information about charge filing, is available at www.eeoc.gov.

Employers Holding Federal Contracts or Subcontracts

Applicants to and employees of companies with a Federal government contract or subcontract are protected under Federal law from discrimination on the following bases:

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Executive Order 11246, as amended, prohibits job discrimination on the basis of race, color, religion, sex or national origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment.

INDIVIDUALS WITH DISABILITIES

Section 503 of the Rehabilitation Act of 1973, as amended, protects qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, barring undue hardship. Section 503 also requires that Federal contractors take affirmative action to employ and advance in employment qualified individuals with disabilities at all levels of employment, including the executive level.

DISABLED, RECENTLY SEPARATED, OTHER PROTECTED, AND ARMED FORCES SERVICE MEDAL VETERANS

The Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, 38 U.S.C. 4212, prohibits job discrimination and requires affirmative action to employ and advance in employment disabled veterans, recently separated veterans (within three years of discharge or release from active duty), other protected veterans (veterans who served during a war or in a campaign or expedition for which a campaign badge has been authorized), and Armed Forces service medal veterans (veterans who, while on active duty, participated in a U.S. military operation for which an Armed Forces service medal was awarded).

RETALIATION

Retaliation is prohibited against a person who files a complaint of discrimination, participates in an OFCCP proceeding, or otherwise opposes discrimination under these Federal laws.

Any person who believes a contractor has violated its nondiscrimination or affirmative action obligations under the authorities above should contact immediately:

The Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210, 1-800-397-6251 (toll-free) or (202) 693-1337 (TTY). OFCCP may also be contacted by e-mail at OFCCP-Public@dol.gov, or by calling an OFCCP regional or district office, listed in most telephone directories under U.S. Government, Department of Labor.

Programs or Activities Receiving Federal Financial Assistance

RACE, COLOR, NATIONAL ORIGIN, SEX

In addition to the protections of Title VII of the Civil Rights Act of 1964, as amended, Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination on the basis of race, color or national origin in programs or activities receiving Federal financial assistance. Employment discrimination is covered by Title VI if the primary objective of the financial assistance is provision of employment, or where employment discrimination causes or may cause discrimination in providing services under such programs. Title IX of the Education Amendments of 1972 prohibits employment discrimination on the basis of sex in educational programs or activities which receive Federal financial assistance.

INDIVIDUALS WITH DISABILITIES

Section 504 of the Rehabilitation Act of 1973, as amended, prohibits employment discrimination on the basis of disability in any program or activity which receives Federal financial assistance. Discrimination is prohibited in all aspects of employment against persons with disabilities who, with or without reasonable accommodation, can perform the essential functions of the job.

If you believe you have been discriminated against in a program of any cause discrimination in providing services under such programs. Title IX of the institution which receives Federal financial assistance, you should immediately Education Amendments of 1972 prohibits employment discrimination on the contact the Federal agency providing such assistance.

EEOC 9/02 and OFCCP 8/08 Versions Useable With 11/09 Supplement EEOC-P/E-1 (Revised 11/09)

Issues requiring attention:

Procurement Checklist Packet



**THE KATHLEEN A. P. MATHIAS
AGRICULTURE ENERGY EFFICIENCY PROGRAM**

Procurement Checklist Packet

Procurement Checklist 50
**EXHIBIT 1: Template for Request for Proposal (including Special Terms &
Conditions)..... 9**
EXHIBIT 2: Contract Template..... 48

Mathias Ag Program

Procurement Checklist

Recipients of Maryland Energy Administration (MEA) Mathias Agriculture Energy Efficiency Program grants are obligated to adhere to the procurement terms and conditions detailed below. **Failure to follow the procurement terms and conditions may lead to the denial of grant funding.** It is imperative that all selected grantees read and understand the steps listed below regarding procurement procedures. Your commitment letter specifies that the process for awarding a grant for the Kathleen A. P. Mathias Agriculture Energy Efficiency Program (Mathias Ag Program) is contingent upon receipt of a fully compliant bid on which your award amount will be based. All grant funds are paid by MEA to the grant recipient in arrears, for costs already incurred by the grant recipient. MEA will not advance funds. The funding-source requirements necessitate that all Mathias Ag Program recipients meet all requirements of the American Recovery and Reinvestment Act (ARRA), including the procurement provisions contained in 10 CFR § 600.236. MEA is unable to reimburse grantee project costs until all ARRA requirements have been met. Specific questions regarding procurement requirements may be directed to the MEA compliance coordinator assigned to your grant.

I. Preliminary Steps Related to All Procurements

1. I have read and understand and agree to abide by all provisions of the Code of Federal Regulations (CFR) federal procurement requirements contained in 10 CFR § 600.236.
 2. I have established a contract administration system to ensure that contractors from whom I procure goods or services perform in accordance with the terms, conditions and specifications of their contracts or purchase orders.
 3. I have developed a written code of standards of conduct governing the performance of my employees engaged in the award and administration of contracts.
 4. I have determined that no employee, officer or agent of my organization has a conflict of interest that would prevent them from participating in the selection or award of a contract for goods or services. A conflict would exist when the employee, officer or agent, any member of their immediate family, any partner of theirs, or any organization which employs or is about to employ any of the above, has a financial or other interest in the contractor selected for award.
 5. I have ensured that no employee, officer or agent of my organization will solicit or accept gratuities, favors or anything of monetary value from contractors, potential contractors, or their subcontractors or potential subcontractors.
 6. I have reviewed all proposed procurements to avoid the purchase of unnecessary or duplicative items, and I have considered consolidating or breaking out procurements to obtain a more economical purchase.
 7. I agree that I will only make awards of contracts to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement, considering factors such as integrity, compliance with public policy, record of past performance, and financial and technical resources.
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8. I agree that I will maintain records sufficient to detail the history of any procurement undertaken by my organization, including but not limited to the rationale for the method of procurement, the selection of a contract type, the contractor selection or rejection, and the basis for the contract price.
9. I agree to refrain from using time and material type contracts in all procurements for goods or services unless no other contract type is suitable and the contract includes a ceiling price that the contractor exceeds at its own risk (**please notify MEA if you intend to use a time and material type contract for your procurement**).
10. I have protest procedures in place to handle and resolve disputes relating to my procurement and agree to disclose always to MEA any information regarding a protest.
11. I agree to conduct all procurements in a manner providing full and open competition, and will refrain from (i) placing unreasonable requirements on firms in order for them to qualify to do business; (ii) requiring unnecessary experience and excessive bonding; (iii) allowing noncompetitive pricing practices between firms or between affiliated companies; (iv) allowing noncompetitive awards to consultants that are on retainer contracts; (v) having organizational conflicts; (vi) specifying only a "brand name" product instead of allowing "an equal" product to be offered and describing the performance of other relevant requirements of the procurement; and (vii) engaging in any arbitrary action in the procurement process.
12. I agree to not allow in-State or local geographical preferences in my procurement processes, including in the evaluation of bids or proposals received as part of any procurement.
13. I have developed written selection procedures for all procurement transactions. The written procedures shall include a clear and accurate description of the technical requirements for the materials, product or service to be procured.

II. Steps for Procurements of \$100,000 or Less

1. I have obtained price or rate quotations from an adequate number of qualified sources. MEA considers an "adequate number" to be three (3) or more price or rate quotations. I have prepared a request for proposals (RFP) identifying all evaluation factors and their relative importance. (MEA recommends that you utilize the template RFP attached as Exhibit 1.)
2. I have attempted to obtain price or rate quotations from at least three qualified minority business firms or women owned (MBE/DBE) businesses.
3. I have publically advertised my RFP and identified the evaluation factors I will be using to determine my award.

III. Steps for Procurements Exceeding \$100,000

1. I have sought competitive proposals to procure necessary goods or services from contractors.
2. In conducting my competitive proposal procurement, I have prepared a request for proposals (RFP) identifying all evaluation factors and their relative importance. (MEA recommends that you utilize the template RFP provided by MEA, attached as Exhibit 1). I have also sought proposals from an adequate number of qualified sources. MEA considers an "adequate number" to be three (3) or more.
3. I have in place a method for conducting technical evaluations of the proposals received and for selecting contractors.
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4. I agree to only select a contractor that is the most responsible firm whose proposal is most advantageous to my business, with price and other factors considered. (Please consult with MEA should you wish to procure architectural or engineering services as part of your procurement.)
5. I have taken all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible. Affirmative steps including the following:
- Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
 - MEA considers an "adequate number" to be three (3) or more.
 - Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
 - Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;
 - Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;
 - Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce; and
 - Requiring the prime contractor, if subcontracts are to be let to also take these affirmative steps in subcontracting.
6. I have performed a cost or price analysis in connection with my procurement action. (This is especially required for instances where adequate price competition is lacking or for any sole source procurements. Please contact MEA for more information regarding necessary cost/price analysis requirements.)
7. I am prepared to make available to MEA, upon request, the following documents:
- The technical specifications on proposed procurements/projects. This review generally will take place, if it is requested at all, before the specification is incorporated into a solicitation document like an RFP.
 - Pre-award review procurement documents, such as RFP's or invitations for bids, independent cost estimates, etc.
8. I have publically advertised my RFP and identified the evaluation factors I will be using to determine my award.

III. Final Steps Related to All Procurements

1. I have ensured that all of my procurement contracts include the specific provisions listed in 10 CFR § 600.236(i)(1)-(13). (MEA recommends that you utilize the template contract provided by MEA, attached as Exhibit 2).
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2. I have ensured that all of my procurement contracts include or incorporate by reference all “flow-down” contractual provisions and terms and conditions contained in attachments or addendums to my grant award from MEA. (MEA recommends that you utilize the template contract provided by MEA, attached as Exhibit 2).

IV. Procurement Checklist Sign-off

I, _____, certify that I have followed the provisions of the Code of Federal Regulations (CFR) federal procurement requirements contained (Name) in 10 CFR § 600.236.

Once you have signed off on the Procurement Checklist, send a signed copy to the MEA along with proof of MBE/DBE outreach, a list of contractors that bid on your project, and the bid that you selected.

Once MEA receives, reviews and determines the procurement has met the federal procurement requirements contained in 10 CFR § 600.236 and reviewed the winning bid to ensure it reflects the recommendations of the audit report provided to you when you received your commitment letter, your grant contract can then be awarded. The contract will need to be signed by both parties (you and the MEA). Once the contract has been executed you will receive a final copy.

DO NOT sign a contract with a contractor before receiving a copy of your executed MARYLAND ENERGY ADMINISTRATION KATHLEEN A. P. MATHIAS AGRICULTURE ENERGY EFFICIENCY PROGRAM GRANT AGREEMENT. Once you have received a copy of your executed grant contract you may then enter into a contract with the contractor you selected during your procurement. You are required to attach the DE-EE000357 1 /000 STATE OF MARYLAND ARRA SPECIAL TERMS AND CONDITIONS to any signed contract.

Procurement Checklist Resources¹⁹ for “Section 1: Preliminary Steps Related to All Procurements”

1. The Code of Federal Regulations (CFR) federal procurement requirements (10 CFR § 600.236) can be found here:

<http://www.gpo.gov/fdsys/pkg/CFR-2012-title10-vol4/pdf/CFR-2012-title10-vol4-sec600-236.pdf>

2. A Code of Conduct is a written collection of the rules, principles, values, and employee expectations, behavior, and relationships of an organization. The Code of Conduct is essentially the “dos and don’ts” of a company. Examples of a CODE OF BUSINESS CONDUCT AND ETHICS can be found here:

Sample Business: <http://contracts.onecle.com/51job/ethics.shtml> Note that this example has clauses relevant to stock trading that are not applicable to businesses not engaged in the buying/trading/selling of stocks.

Google: <http://investor.google.com/corporate/code-of-conduct.html>

3. Contract administration involves the process from when the contract is awarded to when the work is completed, payments have been made, all disputes have been resolved and/or the contract is terminated. This is how you/your business track a contract from inception to completion. This should be a written document:

Here is more information on “Preparing a Contract Administration Plan”:

<http://smallbusiness.chron.com/preparing-contract-administration-plan-40327.html>

Here is an example of a Contract Administration Plan (from Georgia Department of Administrative Services): [Contract Administration Plan Template - DOAS](#)

4. A written code of standards of conduct governing the performance of your employees engaged in the award and administration of contracts is essentially a section on “ethics”. Commonly there are segments on quality of work performed, following rules, avoiding conflicts of interests, not accepting items/gifts that can construed as bribes, etc.

Here is an example of a written code of standards of conduct governing the performance of employees engaged in the award and administration of contracts:

http://www.shrm.org/TemplatesTools/Samples/Policies/Pages/CMS_014093.aspx

5. This goes along with number four (4) above.
6. You need to review all proposed procurements to avoid the purchase of unnecessary or duplicative items. The invoices for your projects will be reviewed by MEA for unnecessary or duplicative items. If you get lump sum or other contracts that are charging too much for certain items, you should determine if it is possible to consolidate or break out the items in question to obtain a more economical purchase.
7. You may only make awards of contracts to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement, considering factors such as integrity, compliance with public policy, record of past performance, and financial and technical resources.

¹⁹ Note: MEA provides this list of resources only for informative purposes. MEA does not endorse any of the listed links or the information they provide.

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8. You will need to maintain records sufficient to detail the history of any procurement undertaken by your organization, including but not limited to the rationale for the method of procurement, the selection of a contract type, the contractor selection or rejection, and the basis for the contract price. Furthermore, you will need to have a file with all of the documents involved with your projects. The file should be readily accessible for inspection and will need to be kept for 3 years after completion of your grant-funded project.
 9. If possible, please refrain from using time and material type contracts in all procurements for goods or services.
 10. The "Grants Management Common Rule" states the following: "Grantees and sub-grantees will have protest procedures to handle and resolve disputes relating to their procurements." It is not uncommon that bids are protested so it is important to have protest procedures.
In this informative site from: [UNC Law Blog on protest procedures](#), the author recommends having the following at a minimum:
 - The unit's responsibility to notify bidders of the intent to award;
 - The deadline to file a protest;
 - Where and to whom (title and address) to direct the protest;
 - What the protest must contain (specific action(s) resulting in protest, how protester was harmed by that action, and what relief is requested);
 - A timeline for the unit's response to the protest; and
 - A description of the appeals process (who hears the appeal, how the protestor requests an appeal) and relevant deadlines for the appeal.
 11. Because of the Minority Business Enterprise (MBE) and Disadvantaged Business Enterprise (DBE) MBE/DBE requirement of ARRA-funded grants, you will need to provide outreach to provide an opportunity for MBE/DBE businesses to bid on your project(s). Thus, you will be having a competitive bid process.
The Minority Business Enterprise (MBE) and Disadvantaged Business Enterprise (DBE) Directory provides a reference source of firms certified by the Maryland Department of Transportation (MDOT) as MBE/DBEs. This website can be used to help comply with the procurement requirements of 10 CFR 600.236(e) which requires that sub-grantees take affirmative steps to ensure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.
Also, pay special attention to "(vi) specifying only a "brand name" product instead of allowing "an equal" product to be offered and describing the performance of other relevant requirements of the procurement" when soliciting for bids.
The MBE/DBE information is accessed by clicking on the box marked "MBE/DBE Directory." Directory users can search for MBE/DBE firms geographically by county and zip code, as well as by the type of service the firm provides. <http://mbe.mdot.state.md.us/directory/>
 12. You are not allowed to consider geographical preferences in your procurement processes.
 13. The results of your audit will have a clear and accurate description of the technical requirements for the materials, product or service to be procured.
-

EXHIBIT 1

**Name of building/site of project:
[Project type] Improvements**

REQUEST FOR PROPOSAL

by

**Farm/business name
Farm/business address
Phone
Fax**

Farm/business URL

RFP number

Proposal Submittal Deadline: Date

Issued: Date of RFP

REQUEST FOR PROPOSAL

TABLE OF CONTENTS

- 1. INTRODUCTION**
- 2. NOTICE TO PROPOSERS**
- 3. TERMS AND CONDITIONS**
- 4. LIST OF ATTACHMENTS**

5.**1. INTRODUCTION****1.1. General Information**

Located in County, Maryland, Name of building/site of project, circa Date of construction, is owned and operated by Farm/business name. [additional site details as appropriate]

1.2. Project Overview

Farm/business name has been awarded a Maryland Energy Administration (MEA) Kathleen A. P. Mathias Agriculture Energy Efficiency Program Grant funded through the American Recovery and Reinvestment Act (ARRA). Farm/business name intends to utilize this grant for [Project type] improvements to provide greater energy efficiency in the Name of building/site of project.

2. NOTICE TO PROPOSERS**2.1. Submittal Deadline:**

Proposals are due by **DATE at TIME.**

2.2. Farm/business name Contact

Contact
Title
Address
Phone
Email

2.3. Site Address

Address where work is to be performed

2.4. Site Visit

Site visits are required to provide a complete and accurate proposal. All site visits must be scheduled in advance.

2.5. Specific Proposal Requirements

2.5.1 Proposals must remain valid for 60 days.

2.5.2 Provide a list of references and relevant project experience.

2.5.3 Proposals may include some or all of the work outlined in the technical specifications.

2.5.4 Proposals shall contain a proposed contract schedule including material lead times, start date, and duration.

2.5.5 Material and labor shall be warranted for a period of 1 year after contract completion.

2.6. Minority Business Enterprises (MBEs) and Disadvantaged Business Enterprises (DBEs)

Farm/business name specifically encourages proposals from MBE and DBE firms.

3. TERMS AND CONDITIONS

3.1 Contract type and terms

All contracts will be lump sum. Farm/business name reserves the right to issue multiple contracts for separate portions of the work outlined in this RFP.

3.2 Criteria for Selection

Farm/business name shall utilize a Best Value approach for the project. Evaluations will include:

Cost of the work: ___%

Contractor's relevant experience: ___%

Material selections: ___%

GO/NO GO -- ability to complete the work in the required time frame.

3.3 Invoicing and Payment Terms

Payments will be made in accordance with an agreed upon payment schedule. All ARRA reporting requirements outlined in section 3.5 must be met in order to receive payment.

3.4 License and Insurance Requirements

3.4.1 Proposers must have a valid contractor's license, issued by a local jurisdiction.

3.4.2 Contractors shall carry at least the following levels of insurance.

3.4.2.1 Worker's Compensation Insurance, with statutory limits, and Employer's Liability Insurance, with limit of not less than \$1,000,000 per occurrence.

3.4.2.2 Commercial General Liability Insurance, including Blanket Contractual Liability, Broad Form Property Damage, with statutory limits, and Employer's Liability Insurance, with limit of not less than \$1,000,000 per occurrence.

3.4.2.3 Commercial Automobile Liability Insurance, covering all owned, non-owned or hired vehicles to be used by the Contractor, with coverage for at least \$1,000,000 combined Single Limit Bodily Injury and Property Damage.

3.5 ARRA Requirements

This is a project funded through the American Recovery and Reinvestment Act (ARRA). All bidders must adhere to the State of Maryland ARRA Special Terms and

Conditions, which is included in the attachments. In brief, the following terms apply to all contractors and subcontractors:

- 3.5.1 Flow-Down Requirement:** The State of Maryland ARRA Special Terms and Conditions must be included in any sub-award.
- 3.5.2 Waste Management Plan:** Document that all waste generated through the project was disposed of in appropriate facilities, per the Mathias Ag Program Waste Management Plan.
- 3.5.3 Davis Bacon Act:** Comply with all Davis-Bacon wage determinations, including Davis-Bacon labor and wage rates, submitting weekly certified payrolls, paying Davis-Bacon laborers and mechanics weekly, cooperating with Davis-Bacon interviews, and posting the Davis-Bacon posters during construction. Note that the Davis Bacon Act does not apply to contractors who are bona fide exempt owners (the business is incorporated, with a one-person owner and no employees).
- 3.5.4 MBE/DBE bid solicitations:** Unless specific subcontractors are named in your bid response, a minimum of three MBE/DBE bid solicitations will be required for the procurement of subcontracted labor.
- 3.5.5 Whistleblower Protection and Equal Employment Opportunity Commission (EEOC):** Comply with Whistleblower and EEOC requirements, including posting the respective posters during construction.
- 3.5.6 Monthly reporting requirements:** Comply with ARRA monthly reporting requirements as outlined in "State of Maryland ARRA Special Terms and Conditions," supplied with this RFP.

3.6 Technical Specifications

- 3.6.1 Energy efficiency measure type (Approximate value \$ [optional]):** Detailed description of measure, from Recommended Project(s) section of audit report.
- 3.6.2 Energy efficiency measure type (Approximate value \$ [optional]):** Detailed description of measure, from Recommended Project(s) section of audit report.
- 3.6.3 Energy efficiency / renewable energy measure type (Approximate value \$ [optional]):** Detailed description of measure, from Recommended Project(s) section of audit report.

4. ATTACHMENTS

- 4.1** State of Maryland ARRA Special Terms and Conditions
- 4.2** Mathias Ag Program Audit Report, date
- 4.3** Davis-Bacon Act wages for County, current as of date

Sample Contract

[NOTE: Name/Company references were removed for privacy.]

CONTRACT NO. 2013-001

THIS CONTRACT, made this 14th day of February in the year 2013, by and between -----, Inc., hereinafter called the **Contractor/Supplier**, and -----, hereinafter called **SUB-GRANTEE**.

WHEREAS, SUB-GRANTEE has requested and secured a grant through the Kathleen A. P. Mathias Agriculture Energy Efficiency Program funded through the U.S. Department of Energy and the American Recovery and Reinvestment Act (ARRA). The Mathias Agriculture Energy Efficiency Program is administered by the Maryland Energy Administration to provide funding to Maryland's agriculture sector in order to enable projects that increase energy efficiency by at least 15% per building(s) or, in certain cases, per measure.

WHEREAS, SUB-GRANTEE shall comply with all the provisions of the Mathias Agriculture Energy Efficiency Program;

AND WHEREAS, the Contractor/Supplier has secured all the necessary measurements for the TOTAL CONSTRUCTION TO PROVIDE 3 PHASE ELECTRIC SERVICE FROM POLE TO METER ONLY and has complied with all the procurement requirements set forth by SUB-GRANTEE;

NOW, THEREFORE THIS CONTRACT WITNESSETH, that the Contractor/Supplier does hereby covenant and agree with SUB-GRANTEE to complete the following terms of this agreement:

Section 1. The Contractor/Supplier shall provide and deliver TOTAL CONSTRUCTION TO PROVIDE 3 PHASE ELECTRIC SERVICE FROM POLE TO METER ONLY, of the required type and size for SUB-GRANTEE at ----- Road, -----, Maryland. Contractor/Supplier shall provide 3 phase, 75kva, 400 amp service to operate irrigation.

Section 2. Contractor/supplier shall comply with the requirements outlined within the waste management disposal plan as prepared by SUB-GRANTEE and submitted to the Maryland Energy Administration. The contractor/supplier shall provide sub-grantee with records of all waste generated and its disposition.

Section 3. SUB-GRANTEE has complied with the revised the Mathias Agriculture Energy Efficiency Procurement Checklist. All parties to this Contract also agree to comply with the ARRA Addendum-Special Terms and Conditions for ARRA-funded Grants attached to the Sub-grantee's Grant Agreement with MEA, "DE-EE000357 1 /000 STATE OF MARYLAND ARRA SPECIAL TERMS AND CONDITIONS" which is attached to this contract. This addendum, and its requirements, must be included in this contract and all subcontracts which involves this grant and money.

Section 4. SUB-GRANTEE shall comply, if applicable, with the requirements of Davis Bacon when using Contractor/Suppliers paid with Mathias Agriculture Energy Efficiency Grant funds as well as all other ARRA requirements that may apply. The Contractors/Supplier (and any sub-contractor) shall meet the requirements of the Davis-Bacon Act for employees working on this jobsite and on this project.

Section 5. The Contractor/Supplier shall provide and deliver to project building address the agreed upon TOTAL CONSTRUCTION TO PROVIDE 3 PHASE ELECTRIC SERVICE FROM POLE TO METER ONLY for the sum of \$8,676.00. Payment will be made prior to work beginning per -----, Inc.'s requirement.

Section 6. The Contractor/Supplier shall be responsible for replacing any and all goods and materials damaged in transport to project building address. Any damaged goods/supplies noted at time of delivery / up packing, will be refused, and payment of damaged goods/supplies will not be made until accepted goods/supplies are delivered.

Section 7. The Contractor/Supplier shall be responsible for ensuring that all aspects of the project meet the agreed upon standards and otherwise comply with all provisions of this Contract.

Section 8. The Contractor/Supplier may commence on-site laydown on February 14, 2013. Work on grain operation may begin on February 14, 2013 and must be completed (with satisfactory testing) by March 24, 2013. All work materials and waste must be off the site by March 24, 2013.

Section 9. The Contractor/Supplier will turn over all Warrantee information to the SUB-GRANTEE no later than March 30, 2013. Material and labor shall be warranted for a period of at least 1 year after contract completion

Section 10. The Contractor/Supplier will submit a final and complete invoice to the SUB-GRANTEE no later than March 30, 2013.

Section 11. Contractor/supplier agrees to maintain all licenses and insurance required by section 3.4 of the Request for Proposal. The insurance provided shall include, but not be limited to, insurance protecting MEA from bodily injury and property damage, including, but not limited to all workers' compensation insurance, and errors and omissions. All insurance provided by the contractor must name MEA as an additional insured.

Section 12. Contractor/supplier agrees to ascertain and abide by all applicable environmental standards set by federal, state or local laws, rules or regulations related to the performance of work under this contract.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

SUB-GRANTEE

CONTRACTOR/SUPPLIER

NAME
Owner

NAME
TITLE
 -----, Inc.

 Attest

 Attest

Attachment 1: State of Maryland ARRA Special Terms and Conditions: DE-EE000357 1 /000 STATE OF MARYLAND ARRA SPECIAL TERMS AND CONDITIONS

Attachment 2: Request for Proposal dated January 16, 2013

DOE/DHCD Monthly Reporting Form

		Monthly Totals	Example 1	Project 1	Project 2	Project 3	Project 4	Project 5	Project 6	Definition
GENERAL PROJECT DATA		Monthly totals are self-calculating								<p>This section is for collecting general data about the project.</p> <p>Please assign a unique project ID number. Grantees may choose whatever ID numbering system best suits their needs. DOE will append a unique ID in front of the grantee-chosen ID in its database to establish unique IDs across BetterBuilding grantees.</p> <p>Assign a unique Building ID Number to the entire "site," where more than one "Project" may have occurred. If retrofit occurred in only common spaces, you do not need to enter a Unique Project ID above.</p> <p>A multifamily unit can be a unit in a building with two to four housing units—a structure that is divided into living quarters for two, three, or four families, or households in which one household lives above or beside another. This category also includes houses originally intended for occupancy by one family (or for some other use) that have since been converted to separate dwellings for two to four families. Typical arrangements in these types of living quarters are separate apartments downstairs and upstairs or one apartment on each of three or four floors. A multifamily unit can also be a unit in a building with five or more housing units—a structure that contains living quarters for five or more households or families and in which one household lives above or beside another.</p> <p>Enter a five-digit zip code. If a nine-digit zip code is preferred, leave this row blank and enter it in the next row.</p> <p>If preferable, enter a nine-digit zip code.</p> <p>Select the type of residence: owner-occupied single family, single family rental, multifamily, owner-occupied mobile, renter-occupied mobile, or shelter.</p>
Unique Project ID Number		0								
If Multifamily: Unique Building ID Number		0								
Location: Zip Code (#####)										
Location: Zip Code (#####-####)										
If applicable, building type (drop down)										
GENERAL BUILDING DATA										<p>This section is for collecting general data about the building on which the retrofit work will be performed.</p> <p>Please enter the year that the construction of the building was completed. This field is voluntary. If the data are collected by your program, it will be helpful to report. We prefer to have the year that the building was built. If the exact year is not known, please provide an estimate.</p> <p>The floor area of the housing unit that is enclosed by exterior walls. The following are included: basements, whether or not they contain finished space; finished and/or heated space in attics; and garages, if they have a wall in common with the house. Not included are: crawl spaces, even if they are enclosed from the weather; and sheds and other buildings that are not attached to the house.</p> <p>Enter the average number of occupants that lived in the home during the past year. "Occupant" means that the housing unit was the person's usual or permanent place of residence at the time of the first field contact. Household members include babies, lodgers, boarders, employed persons who live in the housing unit, and persons who usually live in the household but are away traveling or in a hospital.</p> <p>Not included as household members are: (1) persons who are normally members of the household but who were away from home as college students or members of the armed forces at the time of the interview; (2) persons temporarily visiting with the household if they have a place of residence elsewhere; (3) persons who take their meals with the household but usually lodge or sleep elsewhere; (4) domestic employees or other persons employed by the household who do not sleep in the same housing unit; or (5) former members of the household who are inmates of correctional, penal, or mental institutions, homes for the aged or needy, nursing homes, hospitals, hospices, convents or monasteries, or other places in which residents may remain for long periods of time. By definition, in the RECS tables and analyses, the number of households is the same as the number of occupied housing units.</p>
Year Constructed										
Building Floorspace (square feet)		0								
Number of Occupants (if applicable)										

Energy Services	Electricity Service Provider Name									Please enter the name of electricity service provider that bills the building customer.
	Natural Gas Service Provider Name (ignore if natural gas does not apply, and see next section)									Please enter the name of the natural gas service provider that bills the building customer.
	Other Fuel Type (drop down) (ignore if electricity and natural gas are the only fuels that the building owner uses.)									If the building uses an energy source other than electricity or natural gas, select one of the fuels that the building uses.
Agriculture Sub Sector NAIC code										
	Low Income? (1 if yes)	0								Go to Building Type Look-up Tab to see what NAIC codes are applicable for Agriculture Buildings Low-income is defined as being qualified for Federal assistance which is characterized as being below 200 percent of poverty line or 80 percent of median state income.
COMPLETED BUILDING AUDITS										
	Date of Audit Completion	0								This section is for collecting information about agricultural building audits. Please indicate when the audit was completed. If multiple audits were completed, please report the audit that is most relevant to enabling a subsequent retrofit to be undertaken. The audit data can be updated in future reports by ensuring that the unique ID # is used consistently.
	Was direct installation a component of the audit? (Y/N)									Direct installation refers to the placement of energy saving low-cost measures, which can be done in conjunction with a home energy audit. Potential measures include compact fluorescent light bulbs, low-flow showerheads and faucet aerators, water heater wraps, water pipe insulation, furnace filters, refrigerator/freezer thermometers, and setback thermostats.
	Auditor Business Name (Did auditor conform to certain standards when performing the audit?)									Full name of the company who performed the audit. Select any standards that the auditor may have used in conducting the audit.
	Audit Software/Type (drop down)									Please select the type of energy modeling used as part of the audit. Information on job hours could be requested from auditors and obtained on the audit report itself. Reporting audit job-hours may also be done through estimation following discussions with the auditors who are part of your program, based on an average number of hours per audit completed.
	Total Job Hours	0								For the audit costs, we are only requiring the total invoiced audit cost (i.e., what the contractor is ultimately being paid). Enter how much of the audit cost the customer paid out of pocket.
	Total Audit Invoiced Cost (\$)	\$ -								Enter the amount of funding from BetterBuildings that went to fund the audit.
	Customer Contribution to Total Audit Cost (\$)									Leveraged funds means an estimate of the third-party, in-kind contributions and the portion of the costs of a federally assisted project or program not borne by BetterBuildings grants or the customer.
	Amount of BetterBuildings Incentive (\$)									
	Other Leveraged Funds from Partners (\$)									
	Copy of Audit Report Uploaded (1 if yes)									Please indicate whether the audit report for this building is available to be uploaded (e.g., in PDF or a zip file) via a web portal.
Electricity	Estimated electricity saved per year (kWh)	0	1900							Include the estimate of kWh savings possible per year based on the audit report. If multiple recommendations on savings potential are available, please report the maximum potential savings without regard to cost-effectiveness.
	Estimated % savings of kWh per year		26%							To determine the estimated percent energy savings, divide the estimated electricity savings (kWh) per year by the building owner's electricity use (kWh) over the past 12 months. Depending on the program, homeowners may receive annual energy use data from audit software or from their utility bill.

Natural Gas	Estimated natural gas savings per year (therms)	\$	300							Include the estimate of possible thermo savings per year based on the audit report. If multiple recommendations on savings potential are available, please report the maximum potential savings without regard to cost-effectiveness. If the building does not use natural gas, go to the next section.
	If CCF units preferred, enter estimated CCF saved per year instead.	0								Include the estimate of possible CCF savings per year based on the audit report. If multiple recommendations on savings potential are available, please report the maximum potential savings without regard to cost-effectiveness. If the building does not use natural gas, go to the next section.
	Estimated % savings natural gas per year		20%							To determine the estimated percent energy savings, divide the estimated natural gas savings (therms or CCF) per year by the building owner's natural gas use (same units) over the past 12 months. Depending on the program, homeowners may receive annual energy use data from audit software or from their utility bill.
Other Primary Fuel	IF OTHER FUELS ARE APPLICABLE: Select energy fuel (drop down)									If the building uses an energy source other than electricity or natural gas, please indicate the appropriate units and the quantity of potential fuel savings estimated by the audit.
	Units for the energy fuel indicated above									Please select the appropriate units from the dropdown menu.
	Expected annual energy savings per year (in units above)									Please include the estimated other primary fuel saved (in the above selected units) based on the audit report.
	Estimated % savings per year									To determine the estimated percent energy savings, divide the estimated savings (specified units) per year by the building owner's energy usage (same units) over the past 12 months. Depending on the program, homeowners may receive annual energy use data from audit software or from their utility bill.
RETROFIT INFORMATION		\$								This section is for collecting information relating to retrofits that were performed.
Retrofit Start Date (mm/dd/yyyy)										Please enter the date the retrofit started. A retrofit is defined as a project that is anticipated to achieve at least 13% energy savings over the course of the BetterBuildings program. A project site can undergo multiple retrofits to achieve greater than or equal to 15% energy savings.
Retrofit Completion Date (mm/dd/yyyy)	0									Please enter the date on which the retrofit was completed. A retrofit is defined as a project that is anticipated to achieve at least 13% energy savings. If multiple retrofits were completed, indicate the last retrofit completed, and the cumulative results from the work. The retrofit data can be updated in future reports by ensuring that the unique ID # is used consistently.
Name of Contractor Company										Enter the full name of the company who performed the retrofit.
Total Retrofit Job Hours	0									Please indicate how many job hours (persons multiplied by hours worked) total were needed to complete the project.
Total Retrofit Invoiced Cost	\$ -									Enter the total cost of the retrofit (customer contribution plus BetterBuildings funds plus other leveraged funds.) Other leveraged funds can include those from both Federal and non-Federal sources (USCBG, SER, financial institutions listed in the LOAN PRODUCT INFO tab, etc.)
Direct Customer Contribution (\$)	\$ -									Enter the amount of the loan(s) taken on by the customer.
BetterBuildings Funds (\$)	\$ -									Estimate the cost that the customer ultimately paid or will pay out of pocket that was not included in a loan.
Amount of Tax Credits (\$)	\$ -									Enter the amount of funding from BetterBuildings that went to fund the retrofit.
Tax Credits Source	\$ -									Enter the amount of funding from tax credits.
Amount of Rebates (\$)	\$ -									Indicate the source of the tax credits (federal, state, local, non-profit, utility, other).
Rebate Source	\$ -									Enter the amount of funding from rebates.
Other Leveraged Funds (\$)	\$ -									Indicate the source of the rebates (federal, state, local, non-profit, utility, other).
Other Leveraged Funds Source	\$ -									Other leveraged funds are an estimate of third-party, in-kind contributions, and other portions of the costs of the retrofit not borne by the BetterBuildings grant. Exclude tax credits and rebates that were already included above.
	\$ -									Indicate the source of any other leveraged funds, other than tax credits or rebates (federal, state, local, non-profit, utility, other).

INSTALLED MEASURES / NEW EQUIPMENT								These measures were suggested by MAESTRO.
VENTILATION								
Ventilation Fans or Box Fans 24" - 36" - retrofit (LVHS)	0							
Ventilation Fans or Box Fans 36" - retrofit (LVHS)	0							
Ventilation Fans or Box Fans 48" - retrofit (LVHS)	0							
Ventilation Fans or Box Fans 52" - 60" - retrofit (LVHS)	0							
Ventilation Fans or Box Fans 24" - 26" - new (LVHS)	0							
Ventilation Fans or Box Fans 30" - new (LVHS)	0							
Ventilation Fans or Box Fans 48" - new (LVHS)	0							
Ventilation Fans or Box Fans 52" - 60" - new (LVHS)	0							
4 High Volume Low Speed Fans 16 Ft Diameter	0							
LIGHTING								
T-8 or T-5 Lamp and Electronic Ballast L290 - 4 foot lamp removed (T12 replacement only)	0							
T-8 or T-5 Lamp and Electronic Ballast L290 - 8 foot lamp removed (T12 replacement only)	0							
Screw-In Compact Fluorescent Lamp, 14-28 watts	0							
Screw-In Compact Fluorescent Lamp, >=27watts	0							
HID Fixture, Exterior Pulse Start L972-180 - 175 watts mercury vapor basecase	0							
HID Fixture, Exterior Pulse Start L979 => 176 watts mercury vapor basecase	0							
Interior High Bay Linear Fluorescent: L292 - 400W basecase up to 244W replacement	0							
Interior Metal Halide Pulse Start Retrofit Fixture L968 (400W probe start MH to 320W pulse start MH)	0							
LED Exit Sign LA02 CFL base case	0							
LED Exit Sign LA01 incandescent base case	0							
Photocell	0							
Timeclock	0							
LIVESTOCK & WINERIES								
Milk Precoolers	0							
Milk Transfer Pump Variable Speed Drive	0							
Milking Vacuum Pump Variable Speed Drive	0							
Compressor Heat Recovery Units (electric water heaters)	0							
Scroll Compressors for Bulk Tanks	0							
Tank Insulation - indoor location	0							
Tank Insulation - outdoor location	0							
Heat Exchangers	0							
VSD	0							
AMIC Inlets	0							
Heating Padc for Swine	0							
Insulated Brood Curtains	0							
Fan Covers	0							
MOTORS								
Premium Efficiency Motor - 5 HP	0							
Premium Efficiency Motor - 7.5 HP	0							

OTHER INSTALLATIONS (ADD BELOW)												
Other (write within parenthesis to specify)	0											
Other (write within parenthesis to specify)	0											
Other (write within parenthesis to specify)	0											
Other (write within parenthesis to specify)	0											
Other (write within parenthesis to specify)	0											
Other (write within parenthesis to specify)	0											
<p>This section is for indicating the installation of other equipment. If you have other equipment you want to add, indicate the equipment's name in column C of this row. If you have other equipment you want to add, indicate the equipment's name in column C of this row. If you have other equipment you want to add, indicate the equipment's name in column C of this row. If you have other equipment you want to add, indicate the equipment's name in column C of this row. If you have other equipment you want to add, indicate the equipment's name in column C of this row. If you have other equipment you want to add, indicate the equipment's name in column C of this row.</p>												
INSTALLED MEASURES / OLD EQUIPMENT												
Ventilation or Box Fans	0											
Type (drop down)	0											
Fluorescent Lighting (# lights)	0											
Type (drop down)												
Milking Pumps (#)	0											
Type (drop down)	0											
Motors (#)	0											
Type (drop down)	0											
Motors (#)	0											
Type (drop down)	0											
Sprinklers	0											
Type (drop down)	0											
Electric Water Heaters (1 if yes)	0											
Type (drop down)												
Model Numbers												
Gas Water Heaters (1 if yes)	0											
Type (drop down)												
Model Numbers												
Solar Water Heaters (1 if yes)	0											
Model Numbers												
[Other Agricultural equipment - write over this field]	0											
[Other Agricultural equipment - write over this field]	0											

INSTALLED MEASURES / MODELED OR ESTIMATED ENERGY SAVINGS																				Grantees should report energy savings from program activities. These savings can be calculated using whichever method optimizes the accuracy of the prediction and the reporting time required.
Source or method for prediction (drop down)																				Grantees should report estimated energy savings based on what was actually installed during the retrofit. Please specify what estimation methodology was used (e.g., post-retrofit quality assurance/quality control assessment, modeled savings, deemed savings, or other methodology)
Electricity	Expected kWh saved per year for installed measures	0																		Include the estimated kWh savings based on the measures installed during the retrofit. This information may be obtained from a post-retrofit quality assurance/quality control assessment, modeled savings, deemed savings, or another method.
	Expected % savings kWh for installed measures per year																			To determine the estimated percent energy savings, divide the estimated electricity savings (kWh) per year for the installed measures by the building owner's electricity use (kWh) over the past 12 months. Depending on the program, homeowners may receive annual energy use data from audit software or from their utility bill.
Natural Gas	Expected therms saved per year for installed measures	0																		Include the estimated therms savings based on the measures installed during the retrofit. This information may be obtained from a post-retrofit quality assurance/quality control assessment, modeled savings, deemed savings, or another method.
	If CCF units are preferred, indicate expected CCFs saved per year for installed measures	0																		If preferred, indicate the estimated CCF savings based on the measures installed during the retrofit. This information may be obtained from a post-retrofit quality assurance/quality control assessment, modeled savings, deemed savings, or another method.
	Expected % savings natural gas for installed measures per year																			To determine the estimated percent energy savings, divide the estimated natural gas savings (therms or CCF) per year for the installed measures by the building owner's natural gas savings (therms or CCF) over the past 12 months. Depending on the program, homeowners may receive annual energy use data from audit software or from their utility bill.
	IF OTHER FUELS ARE APPLICABLE: Select energy fuel from the drop down menu Units for the energy fuel indicated above																			
Other Primary Fuel	Expected energy saved per year for installed measures (in units above)																			If the home is heated by an energy source other than natural gas or electricity, please indicate the appropriate units for that fuel.
	Estimated % savings for installed measures per year																			Include the estimated energy fuel saved (in the above selected units) based on the measures installed during the retrofit. This information may be obtained from a post-retrofit quality assurance/quality control assessment, modeled savings, deemed savings, or another method.
	Estimated annual cost savings (\$)	5																		To determine the estimated percent energy savings, divide the estimated heating oil/propane/LPG savings per year for the installed measures by the building owner's heating oil/propane/LPG savings over the past 12 months (in the same units). Depending on the program, homeowners may receive annual energy use data from audit software or from their utility bill.
RENEWABLE ENERGY SYSTEMS INSTALLED																				
Type of Renewable Installation (drop down)																				This section is for capturing information related to any renewable energy systems that were installed as part of the retrofit.
Units (drop down)																				Select the renewable energy system that was installed with this project. Eligible renewable energy systems are defined by the EECBG ARRA reporting requirements: solar, wind, solar thermal (i.e., solar water heaters), geothermal (i.e., ground source heat pumps), biomass, and hydropower.
Nameplate System Capacity																				Select the appropriate units to designate the capacity of the renewable energy installation. The following are the expected units that would be reported with each renewable energy system: Solar [kW], wind [kW], solar thermal (i.e., solar water heater) [square feet], ground source geothermal systems (i.e., ground source heat pumps) [tons], biomass [kW] for non-transport applications, otherwise [gallons per year], hydropower [kW], capacity of other systems [BTU/h]. Report the capacity of the renewable energy system.
Total Renewable System Job Hours		0																		Include the number of job-hours that were required to install the renewable energy system. Include the hours from the contractor and the crew.
Total Renewable Energy System Invoiced Cost (\$)		5																		Enter the total cost of the renewable energy system.
Customer Contribution (\$)																				Estimate the cost of the renewable energy installation to the customer (ultimate out-of-pocket expense).
Amount of BetterBuildings Subsidy (\$)																				Enter the amount of funding from BetterBuildings that went to fund the renewable energy installation.
Other Leveraged Funds (\$)																				Other leveraged funds are an estimate of third-party, in-kind contributions, and other portions of the costs of the renewable energy system installation not borne by the BetterBuildings grant.
UTILITY/ENERGY ACCOUNT PERMISSIONS																				
Electric utility account and permission [1 if yes]		0	1																	This section is for indicating whether permission has been received to access utility account data.
Gas utility account and permission [1 if yes]		0	1																	Please indicate whether you have the electric utility account number for the building owner and a signed utility bill waiver that enables collecting 12-month pre- and post-retrofit data from the utility. Utility bill data will be uploaded separately.
Other Fuel Suppliers for Fuel oil, LPG, etc [1 if yes]		0																		Please indicate whether you have the gas utility account number for the building owner and a signed utility bill waiver that enables collecting 12-month pre- and post-retrofit data from the utility. Utility bill data will be uploaded separately.
																				Please indicate whether you have the utility account number for the building owner and a signed utility bill waiver that enables collecting 12-month pre- and post-retrofit data from the energy supplier. Utility bill data will be uploaded separately.
QA/QC	If a job report review was completed, mark a "1"	0																		QA/QC should be reported as it is completed; ensure that the unique ID # is linked to the activity. A job report review process typically involves review of retrofit project paperwork or other off-site review that checks program compliance and provides for follow-up with the contractor when necessary.
	If on-site field inspections were conducted, mark a "1"	0																		QA/QC should be reported as it is completed. Ensure that the unique ID # is linked to that activity. On-site inspectors focus on evaluating a participating contractor's performance of a home energy assessment, development of a scope of work of eligible improvements, and/or proper installation of the improvements selected by the customer.

Mathias Ag Program Videos

The following program videos can be viewed at: <http://energy.maryland.gov/Business/mathiasag>.

Improving Energy Efficiency on Maryland Poultry Farms

Growing Energy Efficiency on Maryland Grain Farms

Improving Energy Efficiency on Maryland Dairy Farms

Expanding Aquaculture through Energy Efficient Upgrades

Maryland Crab Cakes, Energy Efficient Style

Growing a Nursery through Energy Efficient Upgrades

APPENDIX D: DE-EE000357 1 /000 STATE OF MARYLAND ARRA SPECIAL TERMS AND CONDITIONS

ATTACHMENT D

DE-EE0003571/000 STATE OF MARYLAND
ARRA SPECIAL TERMS AND CONDITIONS

Subawardees who receive federal funds under an assistance agreement shall comply with the flow-down requirements for subawardees specified in the “Special Provisions Relating to Work Funded under American Recovery and Reinvestment Act of 2009” which apply to this award. Additionally, as required by 10 CFR 600.2(b), 10 CFR 600.236, and 10 CFR 600.237, any new, continuation, or renewal award and any subsequent subaward shall comply with any applicable federal statute, federal rule, Office of Management and Budget (OMB) Circular and Government-wide guidance in effect as of the date of such award. These requirements include, but are not limited to the following:

- a. DOE Assistance Regulations, 10 CFR Part 600 at <http://ecfr.gpoaccess.gov>.
- b. In addition to 10 CFR 600, Appendix A, Generally Applicable Requirements, the National Policy Assurances to Be Incorporated as Award Terms in effect on date of award at http://management.energy.gov/business_doe/1374.htm apply.
- c. 2 CFR 215, “Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations (OMB Circular A-110).”
- d. OMB Circular A-102, “Grants and Cooperative Agreements with State and Local Governments” Common Rules.
- e. OMB Circular A-21, “Cost Principles for Educational Institutions,” OMB Circular A-87, “Cost Principles for State, Local, and Indian Tribal Governments,” OMB Circular A-122, “Cost Principles for Non-Profit Organizations,” or FAR at 48 CFR Part 31, “Contract Cost Principles and Procedures,” for Profit Organizations, as applicable.
- f. OMB Circular A-133, “Audits of States, Local Governments, and Non-Profit Organizations.”
- g. Subawardee Application/proposal as approved by DOE.

The following pages set forth subgrant flow-down provisions suggested for use in issuing subawards.

Recipients are also advised that all contracts must include the provisions in 10 CFR 600.236, “Procurement”, Section (i) “Contract Provisions”, numbers 1-13.

Please be reminded that recipients are responsible for ensuring no more than 10% of the entire award allocation is expended on administrative costs, per EISA sec. 545(b)(3)(A). Subrecipients (vendors, sub-grantees, and subcontractors) are not subject to a 10% limitation on administrative costs for their individual awards, but all administrative costs expended on the prime EECBG

award, including the administrative costs incurred by subrecipients, count towards the 10% limitation. The recipient should be mindful of the limitation on administrative costs when drafting contracts and subawards to ensure that the 10% limitation is not exceeded.

SUBGRANT FLOW-DOWN PROVISIONS FOR EECBG FINANCIAL ASSISTANCE AWARDS
SPECIAL TERMS AND CONDITIONS

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1. RESOLUTION OF CONFLICTING CONDITIONS

Any apparent inconsistency between federal statutes and regulations and the terms and conditions contained in this award must be referred to the DOE Award Administrator for guidance.

2. LIMITATIONS ON USE OF FUNDS

- a. By accepting funds under this award, you agree that none of the funds obligated on the award shall be expended, directly or indirectly, for gambling establishments, aquariums, zoos, golf courses or swimming pools.
- b. Recipients may not use more than 50 percent of the amounts provided for the establishment of a loan loss reserve.
- c. Local government and Indian tribe Recipients may not use more than 20 percent of the amounts provided or \$250,000, whichever is greater (EISA Sec 545 (b)(3)(B)), for the establishment of revolving loan funds.
- d. Local government and Indian tribe Recipients may not use more than 20 percent of the amounts provided or \$250,000, whichever is greater (EISA Sec 545 (b)(3)(C)), for subgrants to nongovernmental organizations for the purpose of assisting in the implementation of the energy efficiency and conservation strategy of the eligible unit of local government or Indian tribe.

3. REIMBURSABLE INDIRECT COSTS AND FRINGE BENEFIT COSTS

- a. The Recipient is expected to manage their final negotiated project budgets, including their indirect costs and fringe benefit costs. DOE will not amend an award solely to provide additional funds for changes in the indirect and/or fringe benefit costs or for changes in rates used for calculating these costs. DOE recognizes that the inability to obtain full reimbursement for indirect or fringe benefit costs means the Recipient must absorb the underrecovery. Such underrecovery may be allocated as part of the Recipient's cost share.
- b. If actual allowable [\[indirect and/or fringe benefit\]](#) costs are less than those budgeted and funded under the award, the Recipient may use the difference to pay additional allowable direct costs during the project period. If at the completion of the award the Government's share of total allowable costs (i.e., direct and indirect), is less than the total costs reimbursed, the Recipient must refund the difference.

4. INDIRECT COSTS AND FRINGE BENEFITS ARE NOT REIMBURSABLE

[\[Use when indirect charges and/or fringe benefits are not reimbursable\]](#)

The budget for this award does not include [\[indirect costs or fringe benefits\]](#). Therefore, these expenses shall not be charged to nor reimbursement requested for this project nor shall the [indirect and fringe benefit costs](#) from this project be allocated to any other federally sponsored project. In addition, [indirect costs or fringe benefits](#) shall not be counted as cost

share unless approved by the Contracting Officer. This restriction does not apply to subawardees' [indirect or fringe benefit costs](#).

5. USE OF PROGRAM INCOME

If you earn program income during the project period as a result of this award, you may add the program income to the funds committed to the award and used to further eligible project objectives.

6. STATEMENT OF FEDERAL STEWARDSHIP

DOE will exercise normal federal stewardship in overseeing the project activities performed under this award. Stewardship activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing technical assistance and/or temporary intervention in unusual circumstances to correct deficiencies which develop during the project; assuring compliance with terms and conditions; and reviewing technical performance after project completion to ensure that the award objectives have been accomplished.

7. SITE VISITS

DOE's authorized representatives have the right to make site visits at reasonable times to review project accomplishments and management control systems and to provide technical assistance, if required. You must provide, and must require your subawardees to provide, reasonable access to facilities, office space, resources, and assistance for the safety and convenience of the government representatives in the performance of their duties. All site visits and evaluations must be performed in a manner that does not unduly interfere with or delay the work.

8. REPORTING REQUIREMENTS

- a. Requirements. The reporting requirements for this award are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to this award. Failure to comply with these reporting requirements is considered a material noncompliance with the terms of the award. Noncompliance may result in withholding of future payments, suspension or termination of the current award, and withholding of future awards. A willful failure to perform, a history of failure to perform, or unsatisfactory performance of this and/or other financial assistance awards, may also result in a debarment action to preclude future awards by federal agencies.
- b. Additional Recovery Act Reporting Requirements are found in the Provision below labeled: "REPORTING AND REGISTRATION REQUIREMENTS UNDER SECTION 1512 OF THE RECOVERY ACT."

9. PUBLICATIONS

- a. You are encouraged to publish or otherwise make publicly available the results of the work conducted under the award.
- b. An acknowledgment of DOE support and a disclaimer must appear in the publication of any material, whether copyrighted or not, based on or developed under this project, as follows:

Acknowledgment: “This material is based upon work supported by the Department of Energy [National Nuclear Security Administration] [add name(s) of other agencies, if applicable] under Award Number(s) [enter the award number(s)].”

Disclaimer: “This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.”

10. FEDERAL, STATE, AND MUNICIPAL REQUIREMENTS

You must obtain any required permits, ensure the safety and structural integrity of any repair, replacement, construction and/or alteration, and comply with applicable federal, state, and municipal laws, codes, and regulations for work performed under this award.

11. LOBBYING RESTRICTIONS

By accepting funds under this award, you agree that none of the funds obligated on the award shall be expended, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

12. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) REQUIREMENTS

You are restricted from taking any action using federal funds, which would have an adverse effect on the environment or limit the choice of reasonable alternatives prior to DOE providing either a NEPA clearance or a final NEPA decision regarding this project.

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share. If this award includes construction activities, you must submit an environmental evaluation report/evaluation notification form addressing NEPA issues prior to DOE initiating the NEPA process.

13. HISTORIC PRESERVATION

Prior to the expenditure of Project funds to alter any historic structure or site, the Recipient or subrecipient shall ensure that it is compliant with Section 106 of the National Historic Preservation Act (NHPA), consistent with DOE's 2009 letter of delegation of authority regarding the NHPA. Section 106 applies to historic properties that are listed in or eligible for listing in the National Register of Historic Places. If applicable, the Recipient or subrecipient must contact the State Historic Preservation Officer (SHPO), and the Tribal Historic Preservation Officer (THPO) to coordinate the Section 106 review outlined in 36 CFR Part 800. In the event that a State, State SHPO and DOE enter into a Programmatic Agreement, the terms of that Programmatic Agreement shall apply to all recipient and subrecipient activities within that State. SHPO contact information is available at the following link: <http://www.ncshpo.org/find/index.htm>.

THPO contact information is available at the following link: <http://www.nathpo.org/map.html> . Section 110(k) of the NHPA applies to DOE funded activities.

The Recipient or subrecipient certifies that it will retain sufficient documentation to demonstrate that the Recipient or subrecipient has received required approval(s) from the SHPO or THPO for the Project. Recipients or subrecipients shall avoid taking any action that results in an adverse effect to historic properties pending compliance with Section 106. The Recipient or subrecipient shall deem compliance with Section 106 of the NHPA complete only after it has received this documentation. The Recipient or subrecipient shall make this documentation available to DOE on DOE's request (for example, during a post-award audit). Recipient will be required to report annually on September 1 the disposition of all historic preservation consultations by category.

14. WASTE STREAM

The Recipient assures that it will create or obtain a waste management plan addressing waste generated by a proposed Project prior to the Project generating waste. This waste management plan will describe the Recipient's or subrecipient's plan to dispose of any sanitary or hazardous waste (e.g., construction and demolition debris, old light bulbs, lead

ballasts, piping, roofing material, discarded equipment, debris, and asbestos) generated as a result of the proposed Project. The Recipient shall ensure that the Project is in compliance with all federal, state and local regulations for waste disposal. The Recipient shall make the waste management plan and related documentation available to DOE on DOE's request (for example, during a post-award audit).

15. DECONTAMINATION AND/OR DECOMMISSIONING (D&D) COSTS

Notwithstanding any other provisions of this Agreement, the Government shall not be responsible for or have any obligation to the Recipient for (i) Decontamination and/or Decommissioning (D&D) of any of the Recipient's facilities, or (ii) any costs which may be incurred by the Recipient in connection with the D&D of any of its facilities due to the performance of the work under this Agreement, whether said work was performed prior to or subsequent to the effective date of the Agreement.

16. SUBGRANTS AND LOANS

- a. The Recipient hereby warrants that it will ensure that all activities by sub-grantee(s) and loan recipients to accomplish the approved Project Description or Statement of Project Objectives are eligible activities under 42 U.S.C. 171534(1)-(13). State recipients hereby warrant that they will ensure that all activities by sub-grantee(s) and loan recipients pursuant to 42 U.S.C. 17155(c)(1)(A) to accomplish the approved Project Description or Statement of Project objects are eligible activities under 42 U.S.C. 171534(3)-(13).
- b. Upon the Recipient's selection of the sub-grantee(s) and loan recipients, the Recipient shall notify (i.e. approval not required) the DOE Contracting Officer with the following information for each, regardless of dollar amount:
 - Name of Sub-Grantee
 - DUNS Number
 - Award Amount
 - Statement of work including applicable activities

State recipients shall notify the DOE Contracting Officer with the above information within 180 days of the award date in Block 27 of the Assistance Agreement Cover Page.

- c. In addition to the information in paragraph b. above, for each sub-grant and loan that has an estimated cost greater than \$10,000,000, the recipient must submit for approval by the Contracting Officer, a SF424A Budget Information – Nonconstruction Programs, and PMC 123.1 Cost Reasonableness Determination for Financial Assistance (available at <http://www.eere-pmc.energy.gov/forms.aspx>).

17. JUSTIFICATION OF BUDGET COSTS

This provision will be used if all costs were not released to the recipient through this award action.

- a. In the original application, the recipient did not provide sufficient information to justify the approval or release of funds for the proposed **activity/activities**. In order to receive

reimbursement for the costs associated with the [activity/activities](#) listed in the approved Statement of Project Objectives (SOPO), a justification for all proposed costs must be submitted to the DOE Contracting Officer.

b. The Recipient must provide justification for the following costs:

Delete any cost categories that do not apply

Personnel Costs:

The Recipient must submit cost justification for the following personnel costs for [Activity/Activities \[#___\]](#): [\[list all personnel costs that require submission of additional cost detail\]](#) for approval by the Contracting Officer.

Fringe Benefit Costs:

The Recipient must submit a fringe benefit rate proposal/agreement for [Activity/Activities \[#___\]](#) for approval by the Contracting Officer.

Travel Costs:

The Recipient must submit cost justification for the following travel costs for [Activity/Activities \[#___\]](#): [\[list all travel costs that require submission of additional cost detail\]](#) for approval by the Contracting Officer.

Equipment Costs:

The Recipient must submit vendor quotes for equipment with an individual item cost of \$50,000 or more, for [Activity/Activities \[#___\]](#) for approval by the Contracting Officer.

Supplies Costs:

The Recipient must submit cost justification for the following supplies costs for [Activity/Activities \[#___\]](#): [\[list all supplies costs that require submission of additional cost detail\]](#) for approval by the Contracting Officer.

Contractual Costs:

1. The recipient shall provide the following information for each individual or company that will receive EECBG funding, regardless of dollar amount:

- Name
- DUNS Number
- Award Amount
- Statement of work including applicable activities
- NEPA documentation, as applicable

2. In addition to the information in paragraph 1. above, for each individual or company that has an estimated cost greater than \$10,000,000, the Recipient must submit a separate SF424A Budget Information – Nonconstruction Programs, and Budget Justification. The DOE Contracting Officer may require additional

information concerning these individuals or companies prior to providing written approval.

Other Direct Costs:

The Recipient must submit cost justification for the following other direct costs for [Activity/Activities \[#___\]](#): [\[list all other direct costs that require submission of additional cost detail\]](#) for approval by the Contracting Officer.

Indirect Costs:

The Recipient must submit an indirect rate proposal/agreement for [Activity/Activities \[#___\]](#) for approval by the Contracting Officer.

- c. Upon written notification and/or approval by the Contracting Officer, the Recipient may then receive payment for the activities listed in the approved SOPO for allowable costs incurred in accordance with the payment provisions contained in the Special Terms and Conditions of this agreement. These written notifications and/or approvals will be incorporated into the award by formal modification at a future date.

18. ADVANCE UNDERSTANDING CONCERNING PUBLICLY FINANCED ENERGY IMPROVEMENT PROGRAMS

The parties recognize that the Recipient may use funds under this award for Property-Assessed Clean Energy (PACE) loans, Sustainable Energy Municipal Financing, Clean Energy Assessment Districts, Energy Loan Tax Assessment Programs (ELTAPS), or any other form or derivation of Special Taxing District whereby taxing entities collect payments through increased tax assessments for energy efficiency and renewable energy building improvements made by their constituents. The Department of Energy has published "Best Practices" (<http://www1.eere.energy.gov/wip/pace.html>) and other guidelines pertaining to the use of funds made available to the Recipient under this award pertaining to the programs identified herein. By accepting this award, the Recipient agrees to incorporate, to the maximum extent practicable, those Best Practices and other guidelines into any such program(s) within a reasonable time after award. The Recipient also agrees, by its acceptance of this award, to require its sub-recipients to incorporate to the maximum extent practicable the best practices and other guideline into any such program used by the sub-recipient.

19. SYSTEM FOR AWARD MANAGEMENT AND UNIVERSAL IDENTIFIER REQUIREMENTS

A. Requirement for Registration in the System for Award Management (SAM)

Unless you are exempted from this requirement under 2 CFR 25.110, you as the recipient must maintain the currency of your information in SAM until you submit the final financial report required under this award or receive the final payment, whichever is later. This requires that you review and update the information at least annually after the initial registration, and more frequently if required by changes in your information or another award term.

If you had an active registration in the CCR, you have an active registration in SAM.

B. Requirement for Data Universal Numbering System (DUNS) Numbers

If you are authorized to make subawards under this award, you:

1. Must notify potential subrecipients that no entity (see definition in paragraph C of this award term) may receive a subaward from you unless the entity has provided its DUNS number to you.
2. May not make a subaward to an entity unless the entity has provided its DUNS number to you.

C. Definitions

For purposes of this award term:

1. System for Award Management (SAM) means the federal repository into which an entity must provide information required for the conduct of business as a recipient. Additional information about registration procedures may be found at the SAM Internet site (currently at <https://www.sam.gov>).
 2. Data Universal Numbering System (DUNS) number means the nine-digit number established and assigned by Dun and Bradstreet, Inc. (D&B) to uniquely identify business entities. A DUNS number may be obtained from D&B by telephone (currently 866-705-5711) or the Internet (currently at <http://fedgov.dnb.com/webform>).
 3. Entity, as it is used in this award term, means all of the following, as defined at 2 CFR Part 25, subpart C:
 - a. A Governmental organization, which is a State, local government, or Indian Tribe;
 - b. A foreign public entity;
 - c. A domestic or foreign nonprofit organization;
 - d. A domestic or foreign for-profit organization; and
 - e. A federal agency, but only as a subrecipient under an award or subaward to a non-federal entity.
 4. Subaward:
 - a. This term means a legal instrument to provide support for the performance of
-

any portion of the substantive project or program for which you received this award and that you as the recipient award to an eligible subrecipient.

b. The term does not include your procurement of property and services needed to carry out the project or program (for further explanation, see Sec. __.210 of the attachment to OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations).

c. A subaward may be provided through any legal agreement, including an agreement that you consider a contract.

5. Subrecipient means an entity that:

a. Receives a subaward from you under this award; and

b. Is accountable to you for the use of the federal funds provided by the subaward.

20. SPECIAL PROVISIONS RELATING TO WORK FUNDED UNDER AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 (May 2009)

Preamble

The American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, (Recovery Act) was enacted to preserve and create jobs and promote economic recovery, assist those most impacted by the recession, provide investments needed to increase economic efficiency by spurring technological advances in science and health, invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits, stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive State and local tax increases. Recipients shall use grant funds in a manner that maximizes job creation and economic benefit.

The Recipient shall comply with all terms and conditions in the Recovery Act relating generally to governance, accountability, transparency, data collection and resources as specified in Act itself and as discussed below.

Recipients should begin planning activities for their first tier subrecipients, including obtaining a DUNS number (or updating the existing DUNS record), and registering with the Central Contractor Registration (CCR).

Be advised that Recovery Act funds can be used in conjunction with other funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related guidance. For projects funded by sources other than the Recovery Act, Contractors must keep separate records for Recovery Act funds and to ensure those records comply with the requirements of the Act.

The Government has not fully developed the implementing instructions of the Recovery Act,

particularly concerning specific procedural requirements for the new reporting requirements. The Recipient will be provided these details as they become available. The Recipient must comply with all requirements of the Act. If the recipient believes there is any inconsistency between ARRA requirements and current award terms and conditions, the issues will be referred to the Contracting Officer for reconciliation.

Definitions

For purposes of this clause, Covered Funds means funds expended or obligated from appropriations under the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5. Covered Funds will have special accounting codes and will be identified as Recovery Act funds in the grant, cooperative agreement or TIA and/or modification using Recovery Act funds. Covered Funds must be reimbursed by September 30, 2015.

Non-federal employer means any employer with respect to covered funds -- the contractor, subcontractor, grantee, or recipient, as the case may be, if the contractor, subcontractor, grantee, or recipient is an employer; and any professional membership organization, certification of other professional body, any agent or licensee of the federal government, or any person acting directly or indirectly in the interest of an employer receiving covered funds; or with respect to covered funds received by a State or local government, the State or local government receiving the funds and any contractor or subcontractor receiving the funds and any contractor or subcontractor of the State or local government; and does not mean any department, agency, or other entity of the federal government.

Recipient means any entity that receives Recovery Act funds directly from the federal government (including Recovery Act funds received through grant, loan, or contract) other than an individual and includes a State that receives Recovery Act Funds.

Special Provisions

A. Flow-Down Requirement

Recipients must include these special terms and conditions in any subaward.

B. Segregation of Costs

Recipients must segregate the obligations and expenditures related to funding under the Recovery Act. Financial and accounting systems should be revised as necessary to segregate, track and maintain these funds apart and separate from other revenue streams. No part of the funds from the Recovery Act shall be commingled with any other funds or used for a purpose other than that of making payments for costs allowable for Recovery Act projects.

C. Prohibition on Use of Funds

None of the funds provided under this agreement derived from the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, may be used by any State or local government, or

any private entity, for any casino or other gambling establishment, aquarium, zoo, golf course, or swimming pool.

D. Access to Records

With respect to each financial assistance agreement awarded utilizing at least some of the funds appropriated or otherwise made available by the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, any representative of an appropriate inspector general appointed under section 3 or 8G of the Inspector General Act of 1988 (5 U.S.C. App.) or of the Comptroller General is authorized --

(1) to examine any records of the contractor or grantee, any of its subcontractors or sub-grantees, or any State or local agency administering such contract that pertain to, and involve transactions that relate to, the subcontract, subcontract, grant, or subgrant; and

(2) to interview any officer or employee of the contractor, grantee, sub-grantee, or agency regarding such transactions.

E. Publication

An application may contain technical data and other data, including trade secrets and/or privileged or confidential information, which the applicant does not want disclosed to the public or used by the Government for any purpose other than the application. To protect such data, the applicant should specifically identify each page including each line or paragraph thereof containing the data to be protected and mark the cover sheet of the application with the following Notice as well as referring to the Notice on each page to which the Notice applies:

Notice of Restriction on Disclosure and Use of Data

The data contained in pages ---- of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data here to the extent provided in the award. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the applicant.

Information about this agreement will be published on the Internet and linked to the website www.recovery.gov, maintained by the Accountability and Transparency Board. The Board may exclude posting contractual or other information on the website on a case-by-case basis when necessary to protect national security or to protect information that is not subject to disclosure under sections 552 and 552a of title 5, United States Code.

F. Protecting State and Local Government and Contractor Whistleblowers.

The requirements of Section 1553 of the Act are summarized below. They include, but are not limited to:

Prohibition on Reprisals: An employee of any non-federal employer receiving covered funds under the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, may not be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing, including a disclosure made in the ordinary course of an employee's duties, to the Accountability and Transparency Board, an inspector general, the Comptroller General, a member of Congress, a state or federal regulatory or law enforcement agency, a person with supervisory authority over the employee (or other person working for the employer who has the authority to investigate, discover or terminate misconduct), a court or grand jury, the head of a federal agency, or their representatives information that the employee believes is evidence of:

- gross management of an agency contract or grant relating to covered funds;
- a gross waste of covered funds;
- a substantial and specific danger to public health or safety related to the implementation or use of covered funds;
- an abuse of authority related to the implementation or use of covered funds; or
- as violation of law, rule, or regulation related to an agency contract (including the competition for or negotiation of a contract) or grant, awarded or issued relating to covered funds.

Agency Action: Not later than 30 days after receiving an inspector general report of an alleged reprisal, the head of the agency shall determine whether there is sufficient basis to conclude that the non-federal employer has subjected the employee to a prohibited reprisal. The agency shall either issue an order denying relief in whole or in part or shall take one or more of the following actions:

- Order the employer to take affirmative action to abate the reprisal.
- Order the employer to reinstate the person to the position that the person held before the reprisal, together with compensation including back pay, compensatory damages, employment benefits, and other terms and conditions of employment that would apply to the person in that position if the reprisal had not been taken.
- Order the employer to pay the employee an amount equal to the aggregate amount of all costs and expenses (including attorneys' fees and expert witnesses' fees) that were reasonably incurred by the employee for or in connection with, bringing the complaint regarding the reprisal, as determined by the head of a court of competent jurisdiction.

Nonenforceability of Certain Provisions Waiving Rights and Remedies or Requiring Arbitration: Except as provided in a collective bargaining agreement, the rights and remedies provided to aggrieved employees by this section may not be waived by any agreement, policy, form, or condition of employment, including any predispute arbitration agreement. No predispute arbitration agreement shall be valid or enforceable if it requires arbitration of a dispute arising out of this section.

Requirement to Post Notice of Rights and Remedies: Any employer receiving covered funds under the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, shall post notice of the rights and remedies as required therein. (Refer to section 1553 of the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, www.Recovery.gov, for specific requirements of this section and prescribed language for the notices.).

G. Reserved

H. False Claims Act

Recipient and sub-recipients shall promptly refer to the DOE or other appropriate Inspector General any credible evidence that a principal, employee, agent, contractor, sub-grantee, subcontractor or other person has submitted a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity or similar misconduct involving those funds.

I. Information in Support of Recovery Act Reporting

Recipient may be required to submit backup documentation for expenditures of funds under the Recovery Act including such items as timecards and invoices. Recipient shall provide copies of backup documentation at the request of the Contracting Officer or designee.

J. Availability of Funds

Funds obligated to this award are available for reimbursement of costs until 36 months after the award date.

K. Additional Funding Distribution and Assurance of Appropriate Use of Funds

Certification by Governor – For funds provided to any State or agency thereof by the American Reinvestment and Recovery Act of 2009, Pub. L. 111-5, the Governor of the State shall certify that: 1) the state will request and use funds provided by the Act; and 2) the funds will be used to create jobs and promote economic growth.

Acceptance by State Legislature -- If funds provided to any State in any division of the Act are not accepted for use by the Governor, then acceptance by the State legislature, by means of the adoption of a concurrent resolution, shall be sufficient to provide funding to such State.

Distribution -- After adoption of a State legislature's concurrent resolution, funding to the State will be for distribution to local governments, councils of government, public entities, and public-private entities within the State either by formula or at the State's discretion.

L. Certifications

With respect to funds made available to State or local governments for infrastructure investments under the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, the Governor, mayor, or other chief executive, as appropriate, certified by acceptance of this award that the infrastructure investment has received the full review and vetting required by law and that the chief executive accepts responsibility that the infrastructure investment is an appropriate use of taxpayer dollars. Recipient shall provide an additional certification that includes a description of the investment, the estimated total cost, and the amount of covered funds to be used for posting on the Internet. A State or local agency may not receive

infrastructure investment funding from funds made available by the Act unless this certification is made and posted.

21. REPORTING AND REGISTRATION REQUIREMENTS UNDER SECTION 1512 OF THE RECOVERY ACT

(a) This award requires the recipient to complete projects or activities which are funded under the American Recovery and Reinvestment Act of 2009 (Recovery Act) and to report on use of Recovery Act funds provided through this award. Information from these reports will be made available to the public.

(b) The reports are due no later than ten calendar days after each calendar quarter in which the Recipient receives the assistance award funded in whole or in part by the Recovery Act.

(c) Recipients and their first-tier subrecipients must maintain current registrations in the Central Contractor Registration (<http://www.ccr.gov>) at all times during which they have active federal awards funded with Recovery Act funds. A Dun and Bradstreet Data Universal Numbering System (DUNS) Number (<http://www.dnb.com>) is one of the requirements for registration in the Central Contractor Registration.

(d) The recipient shall report the information described in section 1512(c) of the Recovery Act using the reporting instructions and data elements that will be provided online at <http://www.FederalReporting.gov> and ensure that any information that is pre-filled is corrected or updated as needed.

22. NOTICE REGARDING THE PURCHASE OF AMERICAN-MADE EQUIPMENT AND PRODUCTS -- SENSE OF CONGRESS

It is the sense of the Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available under this award should be American-made.

*Special Note: Definitization of the Provisions entitled, "REQUIRED USE OF AMERICAN IRON, STEEL, AND MANUFACTURED GOODS – SECTION 1605 OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009" and "REQUIRED USE OF AMERICAN IRON, STEEL, AND MANUFACTURED GOODS (COVERED UNDER INTERNATIONAL AGREEMENTS) – SECTION 1605 OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009" will be done upon definition and review of final activities.

23. REQUIRED USE OF AMERICAN IRON, STEEL, AND MANUFACTURED GOODS – SECTION 1605 OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

If the Recipient determines at any time that any construction, alteration, or repair activity on a public building or public works will be performed during the course of the project, the Recipient shall notify the Contracting Officer prior to commencing such work and the following provisions shall apply.

(a) *Definitions.* As used in this award term and condition--

(1) *Manufactured good* means a good brought to the construction site for incorporation into the building or work that has been--

(i) Processed into a specific form and shape; or

(ii) Combined with other raw material to create a material that has different properties than the properties of the individual raw materials.

(2) *Public building and public work* means a public building of, and a public work of, a governmental entity (the United States; the District of Columbia; commonwealths, territories, and minor outlying islands of the United States; State and local governments; and multi-State, regional, or interstate entities which have governmental functions). These buildings and works may include, without limitation, bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, heavy generators, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals, and the construction, alteration, maintenance, or repair of such buildings and works.

(3) *Steel* means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements.

(b) *Domestic preference.*

(1) This award term and condition implements Section 1605 of the American Recovery and Reinvestment Act of 2009 (Recovery Act) (Pub. L. 111--5), by requiring that all iron, steel, and manufactured goods used in the project are produced in the United States except as provided in paragraph (b)(3) of this section and condition.

(2) This requirement does not apply to the material listed by the federal government as follows: None.

(3) The award official may add other iron, steel, and/or manufactured goods to the list in paragraph (b)(2) of this section and condition if the federal government determines that-

(i) The cost of the domestic iron, steel, and/or manufactured goods would be unreasonable. The cost of domestic iron, steel, or manufactured goods used in the project is unreasonable when the cumulative cost of such material will increase the cost of the overall project by more than 25 percent;

- (ii) The iron, steel, and/or manufactured good is not produced, or manufactured in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
 - (iii) The application of the restriction of section 1605 of the Recovery Act would be inconsistent with the public interest.
- (c) *Request for determination of inapplicability of Section 1605 of the Recovery Act.*
- (1)(i) Any recipient request to use foreign iron, steel, and/or manufactured goods in accordance with paragraph (b)(3) of this section shall include adequate information for federal government evaluation of the request, including--
 - (A) A description of the foreign and domestic iron, steel, and/or manufactured goods;
 - (B) Unit of measure;
 - (C) Quantity;
 - (D) Cost;
 - (E) Time of delivery or availability;
 - (F) Location of the project;
 - (G) Name and address of the proposed supplier; and
 - (H) A detailed justification of the reason for use of foreign iron, steel, and/or manufactured goods cited in accordance with paragraph (b)(3) of this section.
 - (ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed cost comparison table in the format in paragraph (d) of this section.
 - (iii) The cost of iron, steel, and/or manufactured goods material shall include all delivery costs to the construction site and any applicable duty.
 - (iv) Any recipient request for a determination submitted after Recovery Act funds have been obligated for a project for construction, alteration, maintenance, or repair shall explain why the recipient could not reasonably foresee the need for such determination and could not have requested the determination before the funds were obligated. If the recipient does not submit a satisfactory explanation, the award official need not make a determination.
- (2) If the federal government determines after funds have been obligated for a project for construction, alteration, maintenance, or repair that an exception to section 1605 of the Recovery Act applies, the award official will amend the award to allow use of the foreign iron, steel, and/or relevant manufactured goods. When the basis for the exception is nonavailability or public interest, the amended award shall reflect adjustment of the award amount, redistribution of budgeted funds, and/or other actions taken to cover costs associated with acquiring or using the foreign iron, steel, and/or relevant manufactured goods. When the basis for the exception is the
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unreasonable cost of the domestic iron, steel, or manufactured goods, the award official shall adjust the award amount or redistribute budgeted funds by at least the differential established in 2 CFR 176.110(a).

(3) Unless the federal government determines that an exception to section 1605 of the Recovery Act applies, use of foreign iron, steel, and/or manufactured goods is noncompliant with section 1605 of the American Recovery and Reinvestment Act.

(d) *Data.* To permit evaluation of requests under paragraph (b) of this section based on unreasonable cost, the Recipient shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Items Cost Comparison

Description	Unit of measure	Quantity	Cost (dollars)*
<i>Item 1:</i>			
Foreign steel, iron, or manufactured good	_____	_____	_____
Domestic steel, iron, or manufactured good	_____	_____	_____
<i>Item 2:</i>			
Foreign steel, iron, or manufactured good	_____	_____	_____
Domestic steel, iron, or manufactured good	_____	_____	_____

[List name, address, telephone number, email address, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.]

[Include other applicable supporting information.]

[*Include all delivery costs to the construction site.]

24. REQUIRED USE OF AMERICAN IRON, STEEL, AND MANUFACTURED GOODS (COVERED UNDER INTERNATIONAL AGREEMENTS) – SECTION 1605 OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

(a) *Definitions.* As used in this award term and condition--

Designated country --

(1) A World Trade Organization Government Procurement Agreement country (Aruba, Austria, Belgium, Bulgaria, Canada, Chinese Taipei (Taiwan), Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong,

Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea (Republic of), Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom;

(2) A Free Trade Agreement (FTA) country (Australia, Bahrain, Canada, Chile, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Israel, Mexico, Morocco, Nicaragua, Oman, Peru, or Singapore);

(3) A United States-European Communities Exchange of Letters (May 15, 1995) country: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, and United Kingdom; or

(4) An Agreement between Canada and the United States of America on Government Procurement country (Canada).

Designated country iron, steel, and/or manufactured goods –

(1) Is wholly the growth, product, or manufacture of a designated country; or

(2) In the case of a manufactured good that consist in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different manufactured good distinct from the materials from which it was transformed.

Domestic iron, steel, and/or manufactured good –

(1) Is wholly the growth, product, or manufacture of the United States; or

(2) In the case of a manufactured good that consists in whole or in part of materials from another country, has been substantially transformed in the United States into a new and different manufactured good distinct from the materials from which it was transformed. There is no requirement with regard to the origin of components or subcomponents in manufactured goods or products, as long as the manufacture of the goods occurs in the United States.

Foreign iron, steel, and/or manufactured good means iron, steel and/or manufactured good that is not domestic or designated country iron, steel, and/or manufactured good.

Manufactured good means a good brought to the construction site for incorporation into the building or work that has been

(1) Processed into a specific form and shape; or

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- (2) Combined with other raw material to create a material that has different properties than the properties of the individual raw materials.

Public building and public work means a public building of, and a public work of, a governmental entity (the United States; the District of Columbia; commonwealths, territories, and minor outlying islands of the United States; State and local governments; and multi-State, regional, or interstate entities which have governmental functions). These buildings and works may include, without limitation, bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, heavy generators, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals, and the construction, alteration, maintenance, or repair of such buildings and works.

Steel means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements.

(b) *Iron, steel, and manufactured goods.*

- (1) The award term and condition described in this section implements-

- (i) Section 1605(a) of the American Recovery and Reinvestment Act of 2009 (Pub. L. 111-5) (Recovery Act), by requiring that all iron, steel, and manufactured goods used in the project are produced in the United States; and
- (ii) Section 1605(d), which requires application of the Buy American requirement in a manner consistent with U.S. obligations under international agreements. The restrictions of section 1605 of the Recovery Act do not apply to designated country iron, steel, and/or manufactured goods. The Buy American requirement in section 1605 shall not be applied where the iron, steel or manufactured goods used in the project are from a Party to an international agreement that obligates the recipient to treat the goods and services of that Party the same as domestic goods and services. As of January 1, 2010, this obligation shall only apply to projects with an estimated value of \$7,804,000 or more.

- (2) The recipient shall use only domestic or designated country iron, steel, and manufactured goods in performing the work funded in whole or part with this award, except as provided in paragraphs (b)(3) and (b)(4) of this section.
- (3) The requirement in paragraph (b)(2) of this section does not apply to the iron, steel, and manufactured goods listed by the federal government as follows: None.
- (4) The award official may add other iron, steel, and manufactured goods to the list in paragraph (b)(3) of this section if the federal government determines that--
- (i) The cost of domestic iron, steel, and/or manufactured goods would be unreasonable. The cost of domestic iron, steel, and/or manufactured goods used in
-

the project is unreasonable when the cumulative cost of such material will increase the overall cost of the project by more than 25 percent;

(ii) The iron, steel, and/or manufactured good is not produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality; or

(iii) The application of the restriction of section 1605 of the Recovery Act would be inconsistent with the public interest.

(c) *Request for determination of inapplicability of section 1605 of the Recovery Act or the Buy American Act.*

(1)(i) Any recipient request to use foreign iron, steel, and/or manufactured goods in accordance with paragraph (b)(4) of this section shall include adequate information for federal government evaluation of the request, including--

(A) A description of the foreign and domestic iron, steel, and/or manufactured goods;

(B) Unit of measure;

(C) Quantity;

(D) Cost;

(E) Time of delivery or availability;

(F) Location of the project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign iron, steel, and/or manufactured goods cited in accordance with paragraph (b)(4) of this section.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed cost comparison table in the format in paragraph (d) of this section.

(iii) The cost of iron, steel, or manufactured goods shall include all delivery costs to the construction site and any applicable duty.

(iv) Any recipient request for a determination submitted after Recovery Act funds have been obligated for a project for construction, alteration, maintenance, or repair shall explain why the recipient could not reasonably foresee the need for such determination and could not have requested the determination before the funds were obligated. If the recipient does not submit a satisfactory explanation, the award official need not make a determination.

(2) If the federal government determines after funds have been obligated for a project for construction, alteration, maintenance, or repair that an exception to section 1605 of the Recovery Act applies, the award official will amend the award to allow use of the foreign iron, steel, and/or relevant manufactured goods. When the basis for the

exception is nonavailability or public interest, the amended award shall reflect adjustment of the award amount, redistribution of budgeted funds, and/or other appropriate actions taken to cover costs associated with acquiring or using the foreign iron, steel, and/or relevant manufactured goods. When the basis for the exception is the unreasonable cost of the domestic iron, steel, or manufactured goods, the award official shall adjust the award amount or redistribute budgeted funds, as appropriate, by at least the differential established in 2 CFR 176.110(a).

(3) Unless the federal government determines that an exception to section 1605 of the Recovery Act applies, use of foreign iron, steel, and/or manufactured goods other than designated country iron, steel, and/or manufactured goods is noncompliant with the applicable Act.

(d) *Data.* To permit evaluation of requests under paragraph (b) of this section based on unreasonable cost, the applicant shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Items Cost Comparison

Description	Unit of measure	Quantity	Cost (dollars)*
<i>Item 1:</i>			
Foreign steel, iron, or manufactured good	_____	_____	_____
Domestic steel, iron, or manufactured good	_____	_____	_____
<i>Item 2:</i>			
Foreign steel, iron, or manufactured good	_____	_____	_____
Domestic steel, iron, or manufactured good	_____	_____	_____

[List name, address, telephone number, email address, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.]

[Include other applicable supporting information.]

[*Include all delivery costs to the construction site.]

25. WAGE RATE REQUIREMENTS UNDER SECTION 1606 OF THE RECOVERY ACT

(a) Section 1606 of the Recovery Act requires that all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the federal government pursuant to the Recovery Act shall be paid wages at

rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code.

Pursuant to Reorganization Plan No. 14 and the Copeland Act, 40 U.S.C. 3145, the Department of Labor has issued regulations at 29 CFR parts 1, 3, and 5 to implement the Davis-Bacon and related Acts. Regulations in 29 CFR 5.5 instruct agencies concerning application of the standard Davis-Bacon contract clauses set forth in that section. Federal agencies providing grants, cooperative agreements, and loans under the Recovery Act shall ensure that the standard Davis-Bacon contract clauses found in 29 CFR 5.5(a) are incorporated in any resultant covered contracts that are in excess of \$2,000 for construction, alteration or repair (including painting and decorating).

(b) For additional guidance on the wage rate requirements of section 1606, contact your awarding agency. Recipients of grants, cooperative agreements and loans should direct their initial inquiries concerning the application of Davis-Bacon requirements to a particular federally assisted project to the federal agency funding the project. The Secretary of Labor retains final coverage authority under Reorganization Plan Number 14.

26. RECOVERY ACT TRANSACTIONS LISTED IN SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS AND RECIPIENT RESPONSIBILITIES FOR INFORMING SUBRECIPIENTS

(a) To maximize the transparency and accountability of funds authorized under the American Recovery and Reinvestment Act of 2009 (Pub. L. 111-5) (Recovery Act) as required by Congress and in accordance with 2 CFR 215.21 "Uniform Administrative Requirements for Grants and Agreements" and OMB Circular A-102 Common Rules provisions, recipients agree to maintain records that identify adequately the source and application of Recovery Act funds. OMB Circular A-102 is available at <http://www.whitehouse.gov/omb/circulars/a102/a102.html>.

(b) For recipients covered by the Single Audit Act Amendments of 1996 and OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations," recipients agree to separately identify the expenditures for federal awards under the Recovery Act on the Schedule of Expenditures of Federal Awards (SEFA) and the Data Collection Form (SF-SAC) required by OMB Circular A-133. OMB Circular A-133 is available at <http://www.whitehouse.gov/omb/circulars/a133/a133.html>. This shall be accomplished by identifying expenditures for federal awards made under the Recovery Act separately on the SEFA, and as separate rows under Item 9 of Part III on the SF-SAC by CFDA number, and inclusion of the prefix "ARRA-" in identifying the name of the federal program on the SEFA and as the first characters in Item 9d of Part III on the SF-SAC.

(c) Recipients agree to separately identify to each subrecipient, and document at the time of subaward and at the time of disbursement of funds, the federal award number, CFDA number, and amount of Recovery Act funds. When a recipient awards Recovery Act funds for an existing program, the information furnished to subrecipients shall distinguish the

subawards of incremental Recovery Act funds from regular subawards under the existing program.

(d) Recipients agree to require their subrecipients to include on their SEFA information to specifically identify Recovery Act funding similar to the requirements for the recipient SEFA described above. This information is needed to allow the recipient to properly monitor subrecipient expenditure of ARRA funds as well as oversight by the federal awarding agencies, Offices of Inspector General and the Government Accountability Office.

27. DAVIS-BACON ACT AND CONTRACT WORKHOURS AND SAFETY STANDARD ACT

Definitions: For purposes of this provision, “Davis Bacon Act and Contract Work Hours and Safety Standards Act,” the following definitions are applicable:

(1) “Award” means any grant, cooperative agreement or technology investment agreement made with Recovery Act funds by the Department of Energy (DOE) to a Recipient. Such Award must require compliance with the labor standards clauses and wage rate requirements of the Davis-Bacon Act (DBA) for work performed by all laborers and mechanics employed by Recipients (other than a unit of State or local government whose own employees perform the construction) Subrecipients, Contractors, and subcontractors.

(2) “Contractor” means an entity that enters into a Contract. For purposes of these clauses, Contractor shall include (as applicable) prime contractors, Recipients, Subrecipients, and Recipients’ or Subrecipients’ contractors, subcontractors, and lower-tier subcontractors. “Contractor” does not mean a unit of State or local government where construction is performed by its own employees.”

(3) “Contract” means a contract executed by a Recipient, Subrecipient, prime contractor, or any tier subcontractor for construction, alteration, or repair. It may also mean (as applicable) (i) financial assistance instruments such as grants, cooperative agreements, technology investment agreements, and loans; and, (ii) Sub awards, contracts and subcontracts issued under financial assistance agreements. “Contract” does not mean a financial assistance instrument with a unit of State or local government where construction is performed by its own employees.

(4) “Contracting Officer” means the DOE official authorized to execute an Award on behalf of DOE and who is responsible for the business management and non-program aspects of the financial assistance process.

(5) “Recipient” means any entity other than an individual that receives an Award of federal funds in the form of a grant, cooperative agreement, or technology investment agreement directly from the federal government and is financially accountable for the

use of any DOE funds or property, and is legally responsible for carrying out the terms and conditions of the program and Award.

(6) "Subaward" means an award of financial assistance in the form of money, or property in lieu of money, made under an award by a Recipient to an eligible Subrecipient or by a Subrecipient to a lower-tier subrecipient. The term includes financial assistance when provided by any legal agreement, even if the agreement is called a contract, but does not include the Recipient's procurement of goods and services to carry out the program nor does it include any form of assistance which is excluded from the definition of "Award" above.

(7) "Subrecipient" means a non-federal entity that expends federal funds received from a Recipient to carry out a federal program, but does not include an individual that is a beneficiary of such a program.

(a) Davis Bacon Act

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and, without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, *provided* that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section)

and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The Contracting Officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(2) The classification is utilized in the area by the construction industry;
and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *provided* that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The Department of Energy or the Recipient or Subrecipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the Contract, the Department of Energy, Recipient, or Subrecipient, may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the

Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) (A) The Contractor shall submit weekly for each week in which any Contract work is performed a copy of all payrolls to the Department of Energy if the agency is a party to the Contract, but if the agency is not such a party, the Contractor will submit the payrolls to the Recipient or Subrecipient (as applicable), applicant, sponsor, or owner, as the case may be, for transmission to the Department of Energy. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Department of Energy if the agency is a party to the Contract, but if the agency is not such a party, the Contractor will submit them to the Recipient or Subrecipient (as applicable), applicant, sponsor, or owner, as the case may be, for transmission to the Department of Energy, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the Recipient or Subrecipient (as applicable), applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent

who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 3729 of title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Department of Energy or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees—

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant

to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to

journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this Contract.

(6) Contracts and Subcontracts. The Recipient, Subrecipient, the Recipient's, and Subrecipient's contractors and subcontractor shall insert in any Contracts the clauses contained herein in(a)(1) through (10) and such other clauses as the Department of Energy may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Recipient shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of the paragraphs in this clause.

(7) Contract termination: debarment. A breach of the Contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this Contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Recipient, Subrecipient, the Contractor (or any of its subcontractors), and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(b) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No Contractor or subcontractor contracting for any part of the Contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The Department of Energy or the Recipient or Subrecipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Contracts and Subcontracts. The Recipient, Subrecipient, and Recipient's and Subrecipient's contractor or subcontractor shall insert in any Contracts, the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Recipient shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(5) The Contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the Contract for all laborers and mechanics, including guards and watchmen, working on the Contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records to be maintained under this paragraph shall be made available by the Contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Department of Energy and the Department of Labor, and the Contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

(c) Recipient Responsibilities for Davis Bacon Act

(1) On behalf of the Department of Energy (DOE), Recipient shall perform the following functions:

- (i) Obtain, maintain, and monitor all Davis Bacon Act (DBA) certified payroll records submitted by the Subrecipients and Contractors at any tier under this Award;
- (ii) Review all DBA certified payroll records for compliance with DBA requirements, including applicable DOL wage determinations;
- (iii) Notify DOE of any non-compliance with DBA requirements by Subrecipients or Contractors at any tier, including any non-compliances identified as the result of reviews performed pursuant to paragraph (ii) above;

- (iv) Address any Subrecipient and any Contractor DBA non-compliance issues; if DBA non-compliance issues cannot be resolved in a timely manner, forward complaints, summary of investigations and all relevant information to DOE;
- (v) Provide DOE with detailed information regarding the resolution of any DBA non-compliance issues;
- (vi) Perform services in support of DOE investigations of complaints filed regarding noncompliance by Subrecipients and Contractors with DBA requirements;
- (vii) Perform audit services as necessary to ensure compliance by Subrecipients and Contractors with DBA requirements and as requested by the Contracting Officer; and
- (viii) Provide copies of all records upon request by DOE or DOL in a timely manner.

(d) Rates of Wages

The prevailing wage rates determined by the Secretary of Labor can be found at <http://www.wdol.gov/>.