V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Sustainable Energy

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	0%	100%	0%	23%
112	Watershed Protection and Management	0%	0%	0%	27%
302	Nutrient Utilization in Animals	0%	0%	0%	35%
403	Waste Disposal, Recycling, and Reuse	40%	0%	50%	0%
511	New and Improved Non-Food Products and Processes	0%	0%	0%	15%
601	Economics of Agricultural Production and Farm Management	60%	0%	40%	0%
801	Individual and Family Resource Management	0%	0%	10%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	1.0	4.0	6.0
Actual Paid	5.0	0.0	4.0	5.0
Actual Volunteer	4.0	0.0	4.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
170637	67828	249909	158825
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
170637	67828	249909	56384
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
146102	0	14392	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Short course and training seminars for industry personnel and growers;
- Conduct basic and applied research in alternative fuel sources, energy saving techniques and recycling of green waste products;
- Contribute to trade and peer reviewed journal publications.

2. Brief description of the target audience

- Nursery, greenhouse, poultry growers and managers;
- In-state bioenergy industry;
- Research community at large.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	620	4791	3624	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	4	21	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Alternative Energy Options and Energy Conservation & Efficiency (Agronomic, Poultry, Dairy & Green Industry): Number of workshops, seminars & twilight tours; Publications; Grants; Extension faculty engaged in programs.

Year	Actual
2014	45

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	1. Alternative Energy Options and Energy Conservation & Efficiency (Agronomic, Poultry, Dairy & Green Industry): Number of participants attending programs; Growers implementing new energy savings/conservation options; New energy systems installed.
2	Research: Providing Energy to Low-Income Households

Outcome #1

1. Outcome Measures

1. Alternative Energy Options and Energy Conservation & Efficiency (Agronomic, Poultry, Dairy & Green Industry): Number of participants attending programs; Growers implementing new energy savings/conservation options; New energy systems installed.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Every year thousands of low-income households are simply not able to afford energy services, fall into arrears, and end up at risk of being disconnected. For decades, analysts have argued that there are opportunities to decrease energy demand with low-cost behavior change. Whereas the barriers to such opportunities is still a hotly debated topic, recent evidence suggests that providing energy information can lead to short-term and long-term reduction in energy usage. But, important research questions remain about the effectiveness of different technologies for providing information to customers and about specific impacts on low-income households. For instance, energy education that aims to engage households in active learning about low-cost behavior change has been seen as a promising solution.

What has been done
Using a low-cost randomized experiment, MAES is investigating the role of energy education provided to low-income households that face the risk of disconnection from their utility services. The first goal is to evaluate whether energy education can lead to a decrease in energy demand. The second goal is to investigate the effectiveness of different educational technologies, such as providing education online versus in-person.

Results
The study is being implemented in collaboration with the Fuel Fund of Maryland (FF), a non-profit

organization that has provided energy assistance to low-income households for more than thirty years. Since 2008, FF has been running Watt Watchers (WW), a program that provides energy education, fostering the adoption of energy efficient behavior. WW is rolling out an online tool this year.The first complete analysis will not be out until mid-2015.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
403	Waste Disposal, Recycling, and Reuse
511	New and Improved Non-Food Products and Processes
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

Research: Providing Energy to Low-Income Households

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Low-income households allocate a disproportionally high share of their disposable income to energy expenses relative to other households. According to the Energy Information Administration, American households with an annual income lower than $20,000 spent at least 7.9% of their income on energy. This number is less than 0.3% for households earning more than $120,000 per year. As a result, policies that aim to internalize negative externalities in the energy sector are notoriously regressive. Every year, thousands of low-income households are simply not able to afford energy services, fall into arrears, and end up at risk of being disconnected.

What has been done

Using a low-cost randomized experiment, MAES is investigating the role of energy education provided to low-income households that face the risk of disconnection from their utility services. The first goal is to evaluate whether energy education can lead to a decrease in energy demand. The second goal is to investigate the effectiveness of different educational technologies, specifically comparing whether providing education online versus in-person has different impacts.

Results

Data are still being collected to perform the main analysis. To complete the research, 7,000 to 10,000 households must be enrolled in the energy education program. So far, about one-third of the required participants has enrolled. However, interim analysis has revealed interesting patterns regarding compliance rate. For instance, about 33% of participants in need of bill assistance that were required to graduate from an onsite "Watt Watchers" actually graduated from the class. For participants assigned to the online class, the graduation rate is 38%.

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Economy
Appropriations changes
Public Policy changes
Government Regulations
Competing Public priorities
Competing Programmatic Challenges

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Results to date with the "Providing Energy Education to Low-Income Households" have found that about 33% of participants in need of bill assistance that were required to graduate from an onsite Watt Watchers actually graduated from the class. For participants assigned to the online class, the graduation rate was 38%. The fact that graduation rate of the online class is only slightly higher is a surprise and an important finding. One of the main goal of creating the online class was to lower the hassle cost of attending the Watt

Watchers class. Several of the participants, are single mother working several jobs, for instance, which makes it hard for them to attend on-site classes.

Key Items of Evaluation