V(A). Planned Program (Summary)

Program # 3

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
123	Management and Sustainability of Forest Resources	18%		1%	
124	Urban Forestry	10%		0%	
205	Plant Management Systems	0%		37%	
401	Structures, Facilities, and General Purpose Farm Supplies	14%		0%	
402	Engineering Systems and Equipment	8%		4%	
403	Waste Disposal, Recycling, and Reuse	25%		16%	
404	Instrumentation and Control Systems	5%		0%	
511	New and Improved Non-Food Products and Processes	0%		20%	
601	Economics of Agricultural Production and Farm Management	0%		8%	
605	Natural Resource and Environmental Economics	20%		12%	
606	International Trade and Development	0%		1%	
609	Economic Theory and Methods	0%		1%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	83.7	0.0	2.0	0.0
Actual Paid Professional	51.3	0.0	4.0	0.0
Actual Volunteer	892.0	0.0	0.0	0.0

2. Institution Name: Cornell University

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
426730	0	598054	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
426730	0	1056867	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

2. Institution Name: NY State Agricultural Experiment Station

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	92955	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	134741	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This is a program entailing a wide range of applied research activities and multiple education methods depending on local context and need. Campus-based faculty and extension associates, regional specialists and county-based educators all are involved in designing, implementing, and evaluating tailored applied research and educational efforts depending on the focus and scope of their role. In spring 2010 we launched a major statewide educational initiative based on a team of four specialists located regionally, four campus faculty in leadership roles, and several program work teams. The team continues to be focussed on biofuels and agricultural energy, household energy, community energy planning, and youth involvement in energy.

2. Brief description of the target audience

Agricultural/horticulture/natural resource and supporting businesses are targeted both regarding bioenergy production opportunities and information regarding alternative energy sources and

conservation. Policy education efforts relate to development of agriculture and natural resources based alternative energy sources.

Consumers, property managers, and community leaders are targeted for information regarding energy supply alternatives and energy conservation options for residential, facilities, and transportation needs. Citizens, community agencies and organizations are targeted for energy-related policy education efforts particularly as related to development of alternative energy sources and the interaction between land use and energy conservation.

Residents and property owners are targeted with stewardship and waste reduction and management in their homes and on their properties. Businesses, organizations, and producers are targeted with information about reducing impacts of their operations. Environmental planners and managers and technical assistance providers are targeted with in-depth information related to their audiences/constituents. Workforce development professionals receive information on energy and green economy career pathways. Teachers and youth professionals and volunteers are provided with curriculum and training. Youth are targeted with age appropriate education.

Agricultural/horticulture/natural resource and supporting businesses are targeted both regarding bioenergy production opportunities and information regarding alternative energy sources and conservation. Policy education efforts relate to development of agriculture and natural resources based alternative energy sources. Consumers, property managers, and community leaders are targeted for information regarding energy supply alternatives and energy conservation options for residential, facilities, and transportation needs. Citizens, community agencies and organizations are targeted for energy-related policy education efforts particularly as related to development of alternative energy sources and the interaction between land use and energy conservation.

Residents and property owners are targeted with stewardship and waste reduction and management in their homes and on their properties. Businesses, organizations, and producers are targeted with information about reducing impacts of their operations.

Local government and community leaders are targeted with information related to governmental management of waste, such as relationship between waste management and land use, effective recycling programs, and roadkill management. Environmental planners and managers and technical assistance providers are targeted with in-depth information related to their audiences/constituents. Teachers and youth professionals and volunteers are provided with curriculum and training. Youth are targeted with age appropriate education.

3. How was eXtension used?

Cornell Cooperative Extension supports and promotes eXtension communities of practice, the eXtension public site and the professional development offered through eXtension.org. Staff across the state are encouraged to be involved in appropriate COPs, and the link to eXtension is promoted on the front page of the Cornell Cooperative Extension public staff site. Currently 347 staff are registered users of eXtension. Staff have cited the usefulness of COPs - particularly where there are identified national projects - such as wit the Financial Security for All community.

Examples of participation in COPs in this plan of work area include:

- Sustainable Ag Energy
- Farm Energy

- Home Energy
- NEWBio-Northeast Woody/Warm-season Biomass

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	56121	1168258	19417	410469

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

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	1	89	90

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- (3.1a) # of agricultural producers and agribusiness representatives completing educational programs on the potential for development of biologically-based fuels.
  Not reporting on this Output for this Annual Report

Output #2

Output Measure

- (3.1b) # of local and state leaders completing educational programs on the potential for development of biologically-based fuels such as biodiesel, ethanol, methane, recycled vegetable oils, space heating fuels etc.
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- (3.1c) # of agricultural producers and agribusiness, and natural resource business representatives completing educational programs about cropping for bio-energy production.

Year	Actual
2013	0

Output #4

Output Measure

- (3.2a) # of agricultural/horticulture/ natural resource and supporting business representatives completing educational programs about the availability and pros and cons of alternative energy sources and/or about potential energy savings in operations.
  Not reporting on this Output for this Annual Report

Output #5

Output Measure

- (3.3a) # of consumers and community leaders completing educational programs about the availability and pros and cons of alternative energy.
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- (3.4a) # of consumers, property managers, and/or housing officials completing educational programs about potential energy cost savings, including selecting energy providers, and energy conservation strategies and measures especially related to housing and transportation.
  Not reporting on this Output for this Annual Report

Output #7

Output Measure

- (3.5a) # of community members, leaders and officials completing education programs about the relationships between development patterns and energy use/costs.
  Not reporting on this Output for this Annual Report

Output #8

Output Measure

- (3.5b) # of workforce professionals, economic developers and/or entrepreneurs participating in educational programs on energy workforce and business opportunities.
  Not reporting on this Output for this Annual Report

Output #9

Output Measure

- (3.5k) # municipalities involved in energy literacy trainings.
  Not reporting on this Output for this Annual Report

Output #10

Output Measure

- (3.6a) # of agricultural/ natural resources producers, organization and business representatives, community leaders, and/or residents completing educational programs on managing and reducing waste.
  Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	(3.1d) # of agricultural producers, agribusiness, or local and state leaders who demonstrate knowledge gains about the potential for development of biologically based fuels.
2	(3.1e) # of forest owners and purchasers of forest products who demonstrate knowledge or skills gains about current markets for firewood and chips/pellets and associated cropping practices.
3	(3.1f) # of producers, economic development organizations and other groups who collaborate to establish bioenergy as a viable alternative crop.
4	(3.1g) # of existing or new producers documented to have modified existing practices or technologies and/or adopted best management practices for bio-energy production, harvesting, and/or storage systems.
5	(3.1h) # of of producers, horticulture businesses and/or natural resource managers reporting that cropping for and/or use of bio-energy leads to increased economic returns to their enterprises.
6	(3.2b) # of agricultural/horticulture/ natural resource and supporting businesses who demonstrate knowledge or skills gains about the availability and pros and cons of alternative energy sources and/or potential energy savings in operations.
7	(3.2c) # of agricultural/horticultural/ natural resource businesses documented to have adopted appropriate alternative energy sources and/or energy conservation practices.
8	(3.2d) # of producers/horticulture businesses/natural resource managers documented to have improved economic returns to agricultural/ horticultural business profitability and vitality resulting from adopting alternative energy sources and/or energy conservation.
9	(3.3b) # of consumers and/or community leaders who demonstrate knowledge or skills gains about the availability and pros and cons of alternative energy sources especially related to housing and transportation.
10	(3.3c) # of consumers documented to have adopted appropriate alternative energy sources.
11	(3.3d) # of consumers who report savings on energy costs attributable to adopting alternative energy sources.
12	(3.4b) # of consumers, property managers, and/or housing officials who demonstrate knowledge or skills gains and/or can articulate specific actions they will take related to energy cost controls and conservation measures especially related to housing and transportation.
13	(3.4c) # of consumers reporting to have adopted appropriate energy cost control and/or conservation practices.
14	(3.4d) # of property managers, and/or housing officials documented to have taken measures to improve energy cost control or efficiency of existing and new buildings.
15	(3.4e) # of consumers who report savings on energy costs attributable to adopting energy conservation measures.
16	(3.5c) # of community members, leaders, and officials who demonstrate knowledge gains about the relationships between development patterns and energy use/costs.

17	(3.5d) # of workforce professionals, economic developers and/or entrepreneurs demonstrating knowledge gains related to energy workforce and business opportunities.
18	(3.5e) # of communities documented to have assessed local energy development proposals and/or the relationships between current policies and regulations and energy conservation.
19	(3.5f) # of community agencies/ organizations documented to have adopted appropriate alternative energy sources.
20	(3.5g) # of new workers trained and energy-related businesses established at least in part due to participation in the program.
21	(3.5h) # of communities documented to have established or modified land use and development policies to promote energy conservation.
22	(3.5i) # of community agencies/organizations reporting savings on energy costs attributable to adopting alternative energy sources.
23	(3.5j) # of communities that report increased diversification of their local economies attributable at least in part to participation in the program.
24	(3.5l) # of municipalities that demonstrate knowledge gains about systems approaches to energy transitions.
25	(3.5m) # of communities that adapt or revise policies in response to large scale energy development (e.g., Marcellus shale development) and/or include energy as a component of their comprehensive plans.
26	(3.6b) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents who demonstrate knowledge gains about waste management and reduction.
27	(3.6c) agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have modified existing practices or technologies and/or adopted new practices to manage and reduce waste. (150)
28	(3.6d) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have reduced costs through improved waste management practices.
29	Energy and Climate Change Statewide Program Team Build Capacity for Cooperative Extension

Outcome #1

1. **Outcome Measures**

(3.1d) # of agricultural producers, agribusiness, or local and state leaders who demonstrate knowledge gains about the potential for development of biologically based fuels.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

(3.1e) # of forest owners and purchasers of forest products who demonstrate knowledge or skills gains about current markets for firewood and chips/pellets and associated cropping practices.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

(3.1f) # of producers, economic development organizations and other groups who collaborate to establish bioenergy as a viable alternative crop.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

Outcome #4

1. Outcome Measures

(3.1g) # of existing or new producers documented to have modified existing practices or technologies and/or adopted best management practices for bio-energy production, harvesting, and/or storage systems.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

Outcome #5

1. Outcome Measures

(3.1h) # of of producers, horticulture businesses and/or natural resource managers reporting that cropping for and/or use of bio-energy leads to increased economic returns to their enterprises.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	13

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

Outcome #6

1. Outcome Measures

(3.2b) # of agricultural/horticulture/ natural resource and supporting businesses who demonstrate knowledge or skills gains about the availability and pros and cons of alternative energy sources and/or potential energy savings in operations.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

(3.2c) # of agricultural/horticultural/ natural resource businesses documented to have adopted appropriate alternative energy sources and/or energy conservation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	65

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

Outcome #8

1. Outcome Measures

(3.2d) # of producers/horticulture businesses/natural resource managers documented to have improved economic returns to agricultural/ horticultural business profitability and vitality resulting from adopting alternative energy sources and/or energy conservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	48

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

Outcome #9

1. Outcome Measures

(3.3b) # of consumers and/or community leaders who demonstrate knowledge or skills gains about the availability and pros and cons of alternative energy sources especially related to housing and transportation.

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

(3.3c) # of consumers documented to have adopted appropriate alternative energy sources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	566

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #11

1. Outcome Measures

(3.3d) # of consumers who report savings on energy costs attributable to adopting alternative energy sources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	550

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #12

1. Outcome Measures

(3.4b) # of consumers, property managers, and/or housing officials who demonstrate knowledge or skills gains and/or can articulate specific actions they will take related to energy cost controls and conservation measures especially related to housing and transportation.

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

(3.4c) # of consumers reporting to have adopted appropriate energy cost control and/or conservation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry
403	Waste Disposal, Recycling, and Reuse
605	Natural Resource and Environmental Economics

Outcome #14

1. Outcome Measures

(3.4d) # of property managers, and/or housing officials documented to have taken measures to improve energy cost control or efficiency of existing and new buildings.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	43

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

Outcome #15

1. Outcome Measures

(3.4e) # of consumers who report savings on energy costs attributable to adopting energy conservation measures.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1258

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry
403	Waste Disposal, Recycling, and Reuse
605	Natural Resource and Environmental Economics

Outcome #16

1. Outcome Measures

(3.5c) # of community members, leaders, and officials who demonstrate knowledge gains about the relationships between development patterns and energy use/costs.

Not Reporting on this Outcome Measure

Outcome #17

1. Outcome Measures

(3.5d) # of workforce professionals, economic developers and/or entrepreneurs demonstrating knowledge gains related to energy workforce and business opportunities.

Not Reporting on this Outcome Measure

Outcome #18

1. Outcome Measures

(3.5e) # of communities documented to have assessed local energy development proposals and/or the relationships between current policies and regulations and energy conservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry
403	Waste Disposal, Recycling, and Reuse

Outcome #19

1. Outcome Measures

(3.5f) # of community agencies/ organizations documented to have adopted appropriate alternative energy sources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #20

1. Outcome Measures

(3.5g) # of new workers trained and energy-related businesses established at least in part due to participation in the program.

Not Reporting on this Outcome Measure

Outcome #21

1. Outcome Measures

(3.5h) # of communities documented to have established or modified land use and development policies to promote energy conservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry

Outcome #22

1. Outcome Measures

(3.5i) # of community agencies/organizations reporting savings on energy costs attributable to adopting alternative energy sources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse

Outcome #23

1. Outcome Measures

(3.5j) # of communities that report increased diversification of their local economies attributable at least in part to participation in the program.

Not Reporting on this Outcome Measure

Outcome #24

1. Outcome Measures

(3.5l) # of municipalities that demonstrate knowledge gains about systems approaches to energy transitions.

Not Reporting on this Outcome Measure

Outcome #25

1. Outcome Measures

(3.5m) # of communities that adapt or revise policies in response to large scale energy development (e.g., Marcellus shale development) and/or include energy as a component of their comprehensive plans.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	17

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #26

1. Outcome Measures

(3.6b) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents who demonstrate knowledge gains about waste management and reduction.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	9052

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems

Outcome #27

1. Outcome Measures

(3.6c) agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have modified existing practices or technologies and/or adopted new practices to manage and reduce waste. (150)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	283

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems

Outcome #28

1. Outcome Measures

(3.6d) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have reduced costs through improved waste management practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1971

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems

Outcome #29

1. Outcome Measures

Energy and Climate Change Statewide Program Team Build Capacity for Cooperative Extension

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a growing interest in farms and families learning to keep energy costs down, and in communities being agile in response to energy needs including building sustainable networks for alternative energy. To have statewide impact on these key issues, new programming, enhanced relationships to Cornell faculty and appropriate research, and education of extension associates was required.

What has been done
Sustainable Energy became part of our Plan of Work in 2011. Five regional specialists were hired to train educators to do energy audits and educate audiences. Relationships with faculty and Cornell staff were strengthened to extend research findings related to consumer energy practices, biofuels, a systems view of energy use. The team worked closely with current/previous

Federally Funded PIs: Professor Joe Laquatra (Department of Design and Environmental Analysis; residential energy efficiency), Professor Jerry Cherney (Department of Crop and Soil Sciences; warm season grasses for biomass), and Professor Larry Smart (Department of Horticulture; willow breeding). Funding for educational programs came in part from New York State Energy Research and Development Authority. The team improved energy efficiency in Cornell Cooperative Extension (CCE) facilities through energy audits, follow-up improvements, and staff trainings, coordinated training events for staff and 4-H camps (Biodiesels & Biofuels, 4-H Energy CSI, Solar Power & Solar Smoothie?s): and developed materials including the Biofuels Education Outreach Tool. Workshops and community trainings (Energy Conference, Small Farms Energy Tour, Save Energy, Save Dollars workshops) by staff across the state extended these efforts farther.

Results

Impacts include increasing the staff knowledge and capacity for delivering educational programs on energy and climate change issues throughout the CCE system; expanding and improving the quality of energy and climate change programming; and giving CCE a recognized role in energy and climate change education with local, state, and federal partners. Between FY10 and FY12, there was a 41% increase in the number of New York State residents reached by the programming on energy. In FY12, 39 Associations reported programming in energy conservation, providing 4,399 non-credit instructional activities to 832,211 NYS residents. Energy and climate change programming at 4-H summer camps reached over 1,000 youths. As of 2013 ? programs related to energy education were made available throughout the state. Programmatic efforts increased from: 1,972 educational activities offered in 2011 to 2,313 offered in 2013. In 2013 2,100 program participants reported that they adopted appropriate energy cost controls and/or conservation practices with 60% indicated a significant cost savings. Impacts are beginning to be reported at the community/policy making level.

4. Associated Knowledge Areas

KA Code	Knowledge Area
404	Instrumentation and Control Systems
605	Natural Resource and Environmental Economics

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
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The interaction between natural disasters, the economy, and energy costs is well documented. Weather in particular has interrupted supplies and dramatically influences heating and cooling costs. Appropriations, public policy, and regulations directly affect the

ability to pursue energy source alternatives, including bioenergy development, and to implement energy conservation alternatives, particularly for low-income households. Dramatic cuts in state funding for consumer energy education is a significant barrier. Public and private funders and CCE may have fewer fiscal resources and other resources to devote to energy matters.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In general, the evaluation approach included in our plan can more accurately be described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. Program documentation results are aggregated in a statewide accountability system which includes both qualitative and quantitative data for reporting and helping us to better understand our impacts.

Cornell Cooperative Extension works with the Cornell Office of Research and Evaluation (CORE) to strengthen evaluation practice and build evaluation capacity in CCE. CORE has developed a Protocol for evaluation that takes a systems approach, recognizing that individual programs and their evaluations are part of larger program portfolios and are shaped by needs and context at multiple levels of the Extension system. CORE has tested and refined this Protocol in partnership with CCE programs since 2006. A key step in the Protocol is to develop program models, in both familiar columnar form as logic models and in a visual form called pathway models. These models form the basis for focusing evaluation efforts in Extension programs.

Beginning in 2013, CORE and CCE partnered to initiate program modeling and evaluation planning at the level of the statewide Plans of Work. This effort, which is ongoing, will contribute to a framework for programming and evaluation at multiple levels. The Protocol is also being integrated into professional development in CCE, in collaboration with CCE leadership, to promote consistent approaches to evaluation of county-based, regional, and state-wide programs. CCE organizational development efforts are also being devoted to organizing common high-quality measures that can be used by a wide range of programs where applicable.

In 2013 the CORE cohort around statewide Plans of Work convened a Working Group of educators, faculty, and state Extension staff to develop an integrated program model for CCE's work in climate change, energy conservation, and natural resources. The broad program model developed by this group will serve as a foundation for identifying evaluation priorities going forward.

Key Items of Evaluation

See cross-cutting outcomes in state defined outcomes.