

**V(A). Planned Program (Summary)**

**Program # 8**

**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
132	Weather and Climate	25%		0%	
402	Engineering Systems and Equipment	25%		0%	
605	Natural Resource and Environmental Economics	25%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	25%		0%	
	<b>Total</b>	100%		0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.9	0.0	0.0	0.0
Actual Paid Professional	2.0	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	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
20212	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
20212	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
27366	0	0	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

- Clean Energy - Ag - "Plug and play" media presentations made available to Extension agents
- Clean Energy - Ag - Agricultural energy audits conducted
- Clean Energy - Ag - Agricultural energy research projects
- Clean Energy - Ag - Gallons of on-farm biofuels consumed
- Clean Energy - Ag - Graduate students working in bioenergy labs
- Clean Energy - Ag - Increased revenue estimated from bioenergy crops and/or production (in dollars)
- Clean Energy - Ag - Number of acres for oilseed crops as biofuels
- Clean Energy - Ag - Undergraduates working in bioenergy labs
- Clean Energy - Ag - Number of variety trials for crops as biofuels
- Clean Energy - Annual savings estimated from investments in energy efficiency and/or renewable energy (in dollars)
  - Clean Energy - Capital invested in energy efficiency and/or renewable energy (in dollars)
  - Clean Energy - Certified Master Volunteers (of those related to Volunteers)
  - Clean Energy - Community Coalitions, Collaborations, Alliances Formed to Address a Specific Issue [list specific groups/issue]
    - Clean Energy - Community Meetings Convened [examples: Advisory Groups, Councils, Coalition Meetings, Boards]
    - Clean Energy - Community Meetings Facilitated [examples: Focus Group, Citizen Forum, Round Table Dialogue, Strategic Planning Process]
  - Clean Energy - Direct Communication/Education by telephone and/or e-mail
  - Clean Energy - Educational materials distributed
  - Clean Energy - Energy Masters - Certificates of completion for teacher license renewals
  - Clean Energy - Energy Masters - CEUs earned by realtors in the Colorado Association of Realtors
  - Clean Energy - Energy Masters - Counties offering the Colorado Energy Master program
  - Clean Energy - Energy Masters - Educational contacts
  - Clean Energy - Energy Masters - Energy block parties
  - Clean Energy - Energy Masters - Home energy assessments
  - Clean Energy - Energy Masters - Non-volunteers successfully completing all Energy Master coursework
    - Clean Energy - Energy Masters - Value of volunteer hours
    - Clean Energy - Energy Masters - Volunteer hours
    - Clean Energy - Energy Masters - CEUs earned by US Green Building Council LEED professionals
    - Clean Energy - External Grant Dollars
    - Clean Energy - New Technologies Expected to be Adopted by Producers
    - Clean Energy - Newsletters (This is number of newsletters, not number mailed or number of Coloradoans who received them.)
      - Clean Energy - Peer Reviewed Publications, including Fact Sheets & Curricula
      - Clean Energy - Press/News Release or Column (number submitted)
      - Clean Energy - Trainings for Extension Staff
      - Clean Energy - Trainings for Volunteers
      - Clean Energy - Trainings/Classes/Workshops, Field Days, Activity Days
      - Clean Energy - User Fees
      - Clean Energy - Volunteers (total) in Planned Program
      - Clean Energy - Websites (number of hits)
      - Clean Energy - Websites (number of Websites)

## 2. Brief description of the target audience

1) We have two main audiences - agricultural professionals such as Extension agents and NRCS personnel as well as the agricultural producers they serve.

2) The program is available to all adults as well as to high school juniors and seniors so as to offer youth an opportunity to get involved in their communities and pursue a topic not traditionally taught in school.

- The program offers professional development credits (CEUs) for realtors, LEED professionals, and teachers. In addition to these groups, retirees (particularly retired engineers), sustainability professionals, environmental educators, other CSU "Master" volunteers, and community college, University, and high school students will be targeted.

- The program will be capable of training individuals with little prior knowledge of energy issues in the basics of energy efficiency and renewable energy as well as how to conduct a basic home energy assessment, possibly to include a home "solar audit" using utility bill history, a rooftop analysis, a Solar Pathfinder, and web-based analysis tools.

3) In the Western Region Extension Survey of 2008, energy efficiency/conservation on the farm/ranch, wind energy, and bioenergy were identified as the three most common requests for information among Colorado agents. These requests were closely followed by energy efficiency/conservation in the home, solar PV, and energy costs and comparisons. Based on survey results, it is clear that our primary audiences are 1) rural energy users and 2) residents

## 3. How was eXtension used?

eXtension was not used in this program

## V(E). Planned Program (Outputs)

### 1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	801	16267	100	0

### 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	9	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of volunteers supporting clean energy

Year	Actual
2013	27

**Output #2**

**Output Measure**

- Number of partnering agencies/organizations around clean energy

Year	Actual
2013	27

**Output #3**

**Output Measure**

- Number of Extension Agents trained  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- Clean Energy - Energy Masters - CEUs earned by realtors in the Colorado Association of Realtors  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Clean Energy - Energy Masters - Certificates of completion for teacher license renewals  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Clean Energy - Energy Masters - Number of Counties offering the Colorado Energy Master program  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Clean Energy - Energy Masters - Number of Non-volunteers successfully completing all Energy Master coursework  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Clean Energy - Energy Masters - CEUs earned by US Green Building Council LEED professionals  
Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Clean Energy - Number of Community Coalitions, Collaborations, Alliances Formed to Address a Specific Issue

<b>Year</b>	<b>Actual</b>
2013	2

**Output #10**

**Output Measure**

- Clean Energy - Number of Community Meetings Convened [examples: Advisory Groups, Councils, Coalition Meetings, Boards]

<b>Year</b>	<b>Actual</b>
2013	2

**Output #11**

**Output Measure**

- Clean Energy - Number of Community Meetings Facilitated [examples: Focus Group, Citizen Forum, Round Table Dialogue, Strategic Planning Process]

<b>Year</b>	<b>Actual</b>
2013	1

**Output #12**

**Output Measure**

- Clean Energy - Energy Masters - Number of Energy block parties  
Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Clean Energy - Number of Press/News Releases or Columns submitted

<b>Year</b>	<b>Actual</b>
2013	6

**Output #14**

**Output Measure**

- Clean Energy - Number of Newsletters (This is number of newsletters, not number mailed or number of Coloradans who received them.)

<b>Year</b>	<b>Actual</b>
2013	1

**Output #15**

**Output Measure**

- Clean Energy - Ag - Number of Agricultural energy audits conducted  
Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Clean Energy - Number of Direct Communications/Education by telephone and/or e-mail

<b>Year</b>	<b>Actual</b>
2013	297

**Output #17**

**Output Measure**

- Clean Energy - Number of Educational materials distributed  
Not reporting on this Output for this Annual Report

**Output #18**

**Output Measure**

- Clean Energy - Energy Masters - Number of Home energy assessments  
Not reporting on this Output for this Annual Report

**Output #19**

**Output Measure**

- Clean Energy - Energy Masters - Value of volunteer hours (hours x \$21.62 nationally recognized value of volunteer time/hour, adjusted for Colorado)  
Not reporting on this Output for this Annual Report

**Output #20**

**Output Measure**

- Consumer - Number of Loans of energy audit equipment

<b>Year</b>	<b>Actual</b>
2013	44

**Output #21**

**Output Measure**

- Consumer - Number of Loans of power monitors  
Not reporting on this Output for this Annual Report

**Output #22**

**Output Measure**

- Clean Energy - Energy Masters - Number of Educational contacts  
Not reporting on this Output for this Annual Report

**Output #23**

**Output Measure**

- Clean Energy - Energy Masters - Number of Volunteer hours  
Not reporting on this Output for this Annual Report

**Output #24**

**Output Measure**

- Clean Energy - Amount of External Grant Dollars  
Not reporting on this Output for this Annual Report

**Output #25**

**Output Measure**

- Clean Energy - Amount of User Fees Collected

<b>Year</b>	<b>Actual</b>
2013	260

**Output #26**

**Output Measure**

- Clean Energy - Number of Websites (not number of Website hits)  
Not reporting on this Output for this Annual Report

**Output #27**

**Output Measure**

- Clean Energy - Number of Websites hits (not number of Websites)

<b>Year</b>	<b>Actual</b>
2013	104594

**Output #28**

**Output Measure**

- Consumer and Ag Energy - Number of Uploads of multimedia  
Not reporting on this Output for this Annual Report

**Output #29**

**Output Measure**

- Consumer and Energy Masters - Number of Entries using social media

<b>Year</b>	<b>Actual</b>
2013	80

**Output #30**

**Output Measure**

- Clean Energy - Annual savings in dollars) estimated from investments in energy efficiency and/or renewable energy  
Not reporting on this Output for this Annual Report

**Output #31**

**Output Measure**

- Clean Energy - Capital invested in energy efficiency and/or renewable energy (in dollars)  
Not reporting on this Output for this Annual Report

**Output #32**

**Output Measure**

- Clean Energy - Number of Certified Master Volunteers (of those related to Volunteers)  
Not reporting on this Output for this Annual Report

**Output #33**

**Output Measure**

- Clean Energy - Number of New Technologies Expected to be Adopted by Producers

<b>Year</b>	<b>Actual</b>
2013	1

**Output #34**

**Output Measure**

- Clean Energy - Number of Trainings for Extension Staff

<b>Year</b>	<b>Actual</b>
2013	4

**Output #35**

**Output Measure**

- Clean Energy - Number of Trainings for Volunteers

<b>Year</b>	<b>Actual</b>
2013	47

**Output #36**

**Output Measure**

- Clean Energy - Number of Trainings/Classes/Workshops, Field Days, Activity Days

<b>Year</b>	<b>Actual</b>
2013	42

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Clean Energy 1.1) Participants analyze options for cost-effective energy conservation, efficiency, and/or renewable energy measures.
2	Clean Energy 1.2) Participants take advantage of financial incentives for energy efficiency and/or renewable energy.
3	Clean Energy 1.3) Participants conduct a basic energy assessment.
4	Clean Energy 1.4) Participants implement cost-effective energy conservation, efficiency, and/or renewable energy measures.
5	Energy Masters 2.1) Participants more closely follow and better comprehend energy-related news.

### **Outcome #1**

#### **1. Outcome Measures**

Clean Energy 1.1) Participants analyze options for cost-effective energy conservation, efficiency, and/or renewable energy measures.

Not Reporting on this Outcome Measure

### **Outcome #2**

#### **1. Outcome Measures**

Clean Energy 1.2) Participants take advantage of financial incentives for energy efficiency and/or renewable energy.

Not Reporting on this Outcome Measure

### **Outcome #3**

#### **1. Outcome Measures**

Clean Energy 1.3) Participants conduct a basic energy assessment.

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	105

#### **3c. Qualitative Outcome or Impact Statement**

##### **Issue (Who cares and Why)**

Consumers tend to be most directly concerned with rising energy prices and financing renewable energy systems. To help consumers make financially sound energy decisions that also reduce greenhouse gas emissions, the Consumer Energy team directed its focus on creating and disseminating appropriate decision tools and publications.

##### **What has been done**

Created a DIY Home Energy Audit, a home energy audit loan program, and solar and wind decision tools.

### Results

105 participants conducted a basic energy assessment. We held a DIY energy audit class on Feb 9 (partnering with CSU Extension specialist Cary Weiner, Clear Creek Extension, and United Power), where 28 people from Gilpin and Clear Creek learned about energy efficiency and how to use the website [diyenergy.colostate.edu](http://diyenergy.colostate.edu) to find inefficiencies in their houses. Each household also received attic insulation (donated by an anonymous donor to Eagle Rock Youth with a Mission, and passed on to us). We also gave insulation to a few people who were not originally able to attend the class. In all, over 55,000 sf of insulation was given out, at a value of over \$10,000. 100% of the class attendees learned information they could use, and 100% indicated that they intended to make changes to improve the efficiency in their house. The Maintenance Department and Public Works were instrumental in moving the insulation from Eagle Rock to the old Road and Bridge building. -- Gilpin County

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

### Outcome #4

#### 1. Outcome Measures

Clean Energy 1.4) Participants implement cost-effective energy conservation, efficiency, and/or renewable energy measures.

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2013	49

#### 3c. Qualitative Outcome or Impact Statement

##### Issue (Who cares and Why)

Consumers tend to be most directly concerned with rising energy prices and financing renewable energy systems.

##### What has been done

A network of trained and educated volunteers disseminates information and offers services in Colorado communities. Volunteers serve as energy educators, home energy assessors (energy efficiency, solar, and wind), guest teachers, and in other roles according to their interests and

according to demand.

### **Results**

49 participants reported implement cost-effective energy conservation, efficiency, and/or renewable energy measures. "After having the home energy audit done by the students in the class (with the professional), the homeowner went finished the installation of insulation in the attic of his home. This was a direct response to the information given to him through the energy audit, which will have a direct effect on his heating/cooling bill for the upcoming months." Weld County

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

### **Outcome #5**

#### **1. Outcome Measures**

Energy Masters 2.1) Participants more closely follow and better comprehend energy-related news.

Not Reporting on this Outcome Measure

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

#### **Brief Explanation**

Colorado Extension planning and reporting functions are under revision; reporting against the POW is difficult because many outputs and outcomes have been changed.

### **V(I). Planned Program (Evaluation Studies)**

#### **Evaluation Results**

Participants report taking action as a result of knowledge gained through Extension programming.

#### **Key Items of Evaluation**

- "My participation in Colorado State University's Energy Master program has been richly rewarding. Working among a university staff committed to both educating and to learning made the Energy Master program a dynamic and fulfilling experience. Following my completion of the program, I accepted a position as a Field Energy Consultant with SolarCity, the nation's largest renewable energy utility company. I am looking forward to my continuing association with CSU and the Energy Master staff."
- " CSU's Energy Master Program provides an excellent foundation for learning about energy, energy efficiency, and alternative energies. Cary Weiner did a great job in developing/coordinating/conducting the program. He scheduled top notch speakers, including CSU professors, experts in the field, as well as himself, to conduct the webinars, and coordinated the Saturday field trip sessions. Anne Zander, CSU Boulder County Extension Agent, did an excellent job coordinating participants from six different counties and helping run the sessions, especially the Saturday sessions. Thanks to both of them for all their efforts in conducting this excellent program."