

United States Department of Agriculture  
Natural Resources Conservation Service

**Date Received:**

**Control No:**

**Field Office and TSP Certification Plan Review Checklist**

**Agricultural Energy Management Plan  
Conservation Activity Code (128)**

(Refer to CAP 128 Criteria for a complete listing of required documentation)

**Purpose:** The purpose of the checklist is to provide guidance for elements that need to be addressed or included in the Conservation Activity Plan (CAP). The checklists are recommended for use by NRCS staff and Technical Service Providers (TSP), but are not required. TSPs can use the checklist for a general guidance of elements to include in the plan, but it is still the TSP's responsibility to follow the CAP Plan Development Criteria for specific elements and the detail of each element to be included.

<b>Agricultural Energy Management Plan</b>	
<b>State/County:</b>	<b>Date Plan Submitted:</b>
<b>Producer/Owner:</b>	<b>Technical Service Provider:</b>
<p><b>Definition: An Agricultural Energy Management Plan (AgEMP) CAP 128</b> is a detailed documentation of energy consuming components and practices of the current farming operation and the opportunities available to the producer that address their on-farm energy conservation concerns and objectives.</p> <p><b>Minimum components of an AgEMP, CAP 128 shall include:</b></p>	

<b>A.</b>	<b>General AgEMP Criteria:</b>
<input type="checkbox"/>	<p><b>The CAP 128</b> shall be developed by a certified Technical Service Provider (TSP). A listing of AgEMP, CAP 128 certified TSPs is located at the website: <a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp/">http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp/</a></p>
<b>B.</b>	<b>Criteria for Specific Elements of an AgEMP:</b>
<b>1.</b>	<b>Cover Page</b>
<input type="checkbox"/>	<p>The AgEMP must have a cover page providing the following:</p> <ol style="list-style-type: none"> <li>1. Farm name, owner name (if different from farm), street address, and county/state</li> <li>2. Primary phone number of producer</li> <li>3. Primary enterprise of the farm</li> <li>4. TSP name, mailing address, primary phone number</li> <li>5. Date that the AgEMP was completed and delivered to the producer</li> </ol>

<b>2.</b>	<b>Summary Report of Energy Practices</b>
<input type="checkbox"/>	The information contained in Tables 1, 2, and 3 (included at the end of this checklist), must be displayed in tabular form. It is not required to have the three tables exactly as shown, only that all the information contained in the tables be shown in tabular form in this section of the report.
<b>3.</b>	<b>Background and Site Information – The AgEMP will provide a narrative for:</b>
<input type="checkbox"/>	a. Facility location(s).
<input type="checkbox"/>	b. Type and size of the operation (e.g., description of the poultry, dairy, or swine, etc. as well as production levels, and any unusual factors that affect energy use).
<input type="checkbox"/>	c. Producer concerns and objectives for the enterprise (i.e., description of why the producer wants an on-farm energy audit and their specific objectives).
<input type="checkbox"/>	d. All structures and fields operations that were evaluated should be labeled on an aerial photograph or on a drawing. The farming operation should include all structures, practices and fields contained in the AgEMP (e.g. animal housing, shops, grain storage, processing, field boundaries, etc.).
<b>4.</b>	<b>Documentation of Current Equipment and Baseline Energy Use:</b> The AgEMP will provide comprehensive documentation of the current energy resources (e.g., electricity, natural gas, etc.) used as a part of the primary farming enterprise (See Table 4, ASABE S612 – Table 1, “Suggested Components within Major Activities by Farm Enterprises for Audit Assessment”) for all major activities. Each component examined shall be documented with:
<input type="checkbox"/>	The usage and costs for the prior year energy consumption shown by energy resource.
<input type="checkbox"/>	A description of the components, primary equipment, and/or details of the activity, as appropriate according to the amount of energy used, such as: <ul style="list-style-type: none"> <li>a. Type and size of equipment</li> <li>b. Component equipment ratings such as HP, BTU input, BTU output, efficiency</li> <li>c. Auxiliary items - that enhance management such as thermostats, timers, and manual overrides of automatic system.</li> </ul>
<input type="checkbox"/>	Provide an estimate of the annual energy usage for each activity
<input type="checkbox"/>	Provide an estimate of hours in use per year for each component evaluated.
<b>NOTE</b>	If a major activity is not applicable to the farm enterprise or the major activity has no opportunities for improved energy use, the report <b>must</b> state this.
<b>5.</b>	<b>Energy Improvement Measures:</b> The AgEMP will identify potential energy improvement practices that will reduce energy use and provide appropriate estimated energy savings relative to the baseline energy use for each examined improvement. For each improvement measure examined, the report must present:
<input type="checkbox"/>	a. The estimated energy savings—first in the common sale units (KWH, gallons, etc.) and secondly in the energy units of millions of British thermal units (MMBTU)
<input type="checkbox"/>	b. The estimated energy cost savings (\$/yr.)
<input type="checkbox"/>	c. The estimated installed cost (\$)
<input type="checkbox"/>	d. The simple payback period in years
<input type="checkbox"/>	e. Estimated Life in years of the recommended measure

<b>6.</b>	<b>Signature Page:</b> The AgEMP must have a signature page providing the following:
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>a. Farm identification</li> <li>b. Farm name, owner name, street address, and county</li> <li>c. Primary enterprise of the farm</li> </ul>
<input type="checkbox"/>	<p>TSP certification statement:</p> <ul style="list-style-type: none"> <li>a. A statement to the effect that the auditor possesses the technical expertise and experience to perform on-farm energy audits and that the report meets all the requirements of ASABE S612 (per §6.1) and NRCS CAP 128</li> <li>b. The signature of the TSP and date.</li> </ul>
<input type="checkbox"/>	<p>Producer acceptance statement:</p> <ul style="list-style-type: none"> <li>a. A statement to the effect that the Plan correctly lists the farm identifying information, addresses the primary farm enterprise under the Producer's control, adequately represents the baseline conditions of the farm enterprise, adequately represents the Producer's concerns and objectives, and that the Producer has received a final copy of the Plan.</li> <li>b. Spaces for the signature of Producer and date.</li> </ul>

Yes	No	Checklist Approval
		I have reviewed this Agricultural Energy Management Plan, and have found the documentation to meet the Criteria for Conservation Activity Plan 128.
<b>Agromony Approval Signature</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		
NRCS Representative Name and Title (print or type):		
NRCS Representative Signature		Date:
<b>Engineering Approval Signature</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		
NRCS Representative Name and Title (print or type):		
NRCS Representative Signature		Date:
Notes (If "No" is checked Checklist Approval Section, include reasons for denial, comments, missing items that need to be added, etc.):		

**Table 1: Summary of Energy Improvements (Examples of recommended measures shown.)**

Recommended Measure	Estimated Annual Reduction in Energy Use					Estimated Costs, Savings, Payback, and Prioritization for Implementation			
	Electric Savings (KWh)	Natural Gas Savings (ccf)	Propane Savings (gal)	Other <sup>1</sup>	Energy Savings (MMBTU)	Installed Cost [a]	Annual Cost Savings [b]	Payback in Years [a/b]	Est. Life in Years
Lighting	25,210				86	\$1,740	\$2,094	0.8	7
Seal Air Leaks			477		44	\$1,500	\$809	1.9	8
Insulate Brood Curtain			98		9	\$450	\$167	2.7	10
Exposed Foundation Wall Insulation			383		35	\$5,621	\$651	8.6	20
Curtain to Solid Insulated Sidewalls			442		41	\$7,168	\$754	9.5	20
<b>Totals:</b>	<b>25,210</b>		<b>1,400</b>		<b>215</b>	<b>\$16,479</b>	<b>\$4,475</b>	<b>3.7</b>	

- 1) Use the *Other* column to aggregate any miscellaneous sources of energy.
- 2) Estimated Life column is the expected useful life of the equipment recommended with standard O&M activities.
- 3) Provide specific recommendations for landowner to implement (e.g. replace lighting in offices, add occupancy sensor)

**Table 2: Annual Energy Savings if Recommendations are Fully Implemented**

Fuel	Current Usage	Current Usage (MMBTU)	Savings	Savings (MMBTU)	Savings (%)
Electricity (KWh)	135,920	464	25,210	86	18.5%
Propane (gal)	4,214	386	1,400	129	33.2%
Natural Gas (ccf)					
Diesel Fuel (gal)					
Other					
<b>Totals</b>		<b>850</b>		<b>215</b>	<b>25.2%</b>

**Table 3: Estimated Annual Reduction of Pollutants. (Examples of environmental benefits for recommended measures from Table 1 shown.)**

Environmental Benefits						
Recommended Measure	Energy Savings (MMBtu)	Greenhouse Gases			Air Pollutant Co-Benefits	
		Estimated CO <sub>2</sub> (lbs)	Estimated N <sub>2</sub> O (lbs)	Estimated CH <sub>4</sub> (lbs)	Estimated SO <sub>2</sub> (lbs)	Estimated NO <sub>x</sub> (lbs)
Lighting	86	37,902.5	0.62	0.46	125.42	35.12
Seal Air Leaks	44	6,036.2	0.19	0.95	0.05	4.77
Insulate Brood Curtain	9	1,240.1	0.04	0.20	0.00	0.98
Exposed Foundation Wall Insulation	35	4,846.7	0.15	0.77	0.04	3.83
Curtain to Solid Insulated Sidewalls	41	5,593.3	0.18	0.88	0.04	4.42
<b>Totals:</b>	<b>215</b>	<b>55,618.8</b>	<b>1.18</b>	<b>3.26</b>	<b>125.56</b>	<b>49.12</b>

**Table 4: Courtesy of the American Society of Agricultural and Biological Engineers, ASABE S612, July 2009**

Table 1 – Suggested Components within Major Activities by Farm Enterprises for Audit Assessment

Major Activity	Components	Farm Enterprises							
		Dairy	Swine	Poultry	Beef/ veal	Field crops	Fruit/ vegetables	Aquaculture	Nursery/ Greenhouse
Lighting <sup>1,7,10</sup>	lamps, timers, sensors	X <sup>6</sup>	x	x	x		x	x	X
Ventilation <sup>2,7,10,11</sup>	fans, control system, variable drives, humidity control	x <sup>6</sup>	x	x	x		x	X(aeration)	x <sup>8,9</sup>
Refrigeration <sup>5,7,10</sup>	compressor, evaporator/chiller, motor, insulation	milk, products <sup>6</sup>		eggs			commodity	x	Veg/cut flowers
Milk harvesting <sup>7,10</sup>	pumps, motors, controllers	x <sup>6</sup>							
Controllers <sup>7,10</sup>	master system automation	x	x	x				x	x
Other motors/ pumps <sup>3,4,7,10</sup>	Types, compressors	X <sup>6</sup>	x	x	x	x	x	x	x
Water heating <sup>7,10,12</sup>	heater, energy source, insulation, recovery, waterers	x <sup>6</sup>	x	x	x				
Air Heating/ Bldg environment <sup>10</sup>	heater, energy source, insulation, recovery, variable drives	x	x	x	x		x		x <sup>8,9</sup>
Drying <sup>10</sup>	energy source, airflow (motors/fans), handling equipment					x			
Waste handling	collection and dispersal equipment/methods	x	x	x	x			x	
Air Cooling	energy source, airflow (motors/fans), control systems, evaporative	x	x	x	x				x <sup>8,9</sup>
Cultural Practices	planting, tilling, harvesting, engine driven equipment						x	x	
Crop/feed Storage					x	x	x	x	x
Water management	wells, reservoir, recycled	x	x	x	x	x	x	x	x
Material handling <sup>7,10</sup>	equipment, motors, pumps	x <sup>6</sup>	x	x	x	x	x	x	x
Irrigation <sup>10</sup>	motors/engines, pumps, power source					x	x		x