

Conservation Activity Plan 128 Checklist

Purpose: Provide guidance for elements that shall be included in a Natural Resources Conservation Service (NRCS) Conservation Activity Plan (CAP) 128. This checklist is required to be used by NRCS review staff and is recommended for use by Technical Service Providers (TSPs) as a guide when developing a CAP. NRCS staff shall use the checklist for administrative and technical review of the CAP to ensure compliance with the CAP 128 Criteria. TSPs shall use the checklist for general guidance of elements to include in the plan, but it is still the TSPs responsibility to follow the CAP criteria for specific elements and the detail of each element to be included.

CAP 128 Criteria Checklist	
County:	Date Plan Submitted:
Participant:	TSP:
Part 1: Administrative Review Checklist (To be completed by NRCS Field Office Personnel)	
1.	General Requirements
<input type="checkbox"/>	a. Developed by a certified TSP
<input type="checkbox"/>	b. Contains the correct scope of work as required by the CAP contract (enterprises, animal units, acres, etc.)
<input type="checkbox"/>	c. Evaluates the entire farm operation by enterprise and major activity as defined by ASABE S612, Table 1. (Refer to Appendix A)
2.	Cover Page
<input type="checkbox"/>	a. Farm Identification: i. Farm name, participant name, street address, county/state ii. Primary phone number of participant iii. All enterprises of the farm
<input type="checkbox"/>	b. TSP Identification: name, mailing address, and primary phone number, names of all staff involved in the site visit, analysis, report writing
<input type="checkbox"/>	c. Date AgEMP was completed and delivered to the participant
3.	Summary Tables (Similar format as shown in Appendix B)
<input type="checkbox"/>	a. Table 1: Summary of Energy Improvements
<input type="checkbox"/>	b. Table 2: Annual Energy Savings if Recommendations are Fully Implemented
<input type="checkbox"/>	c. Table 3: Estimated Annual Reduction of Pollutants
4.	Background and Site Information
<input type="checkbox"/>	a. Facility location
<input type="checkbox"/>	b. Type, size, and overall management scheme of the operation
<input type="checkbox"/>	c. Participant concerns and objectives for the enterprise
<input type="checkbox"/>	d. An aerial map or equivalent drawing showing the farm operation and all of the structures, fields, etc.

5. Signature Page		
<input type="checkbox"/>	a. Farm identification: Farm name, participant name, street address, county, farm enterprise(s)	
<input type="checkbox"/>	b. TSP Certification Statement: i. A statement to the effect that the TSP 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. ii. TSP Signature and date	
<input type="checkbox"/>	c. Participant Acceptance Statement: i. A statement to the effect that the plan correctly lists the farm identifying information, addresses the primary farm enterprise under the participant's control, adequately represents the baseline conditions of the farm enterprise, adequately represents the participant's concerns and objectives, and that the participant has received a final copy of the Plan. ii. Participant signature and date	
6. Deliverables from the Participant to the NRCS Field Office		
<input type="checkbox"/>	a. A complete electronic and/or hard copy of the finalized CAP, with the TSP and Participant signatures	
Administrative Review Approval		
YES	NO	I have administratively reviewed this CAP 128 and it includes all items as required above.
<input type="checkbox"/>	<input type="checkbox"/>	Note: If "No" is checked, include reasons for denial, comments, missing items below that need to be added, etc.):
NRCS Field Office Approval: Name and Title		
Signature		Date:
Additional Comments (Attach additional pages as needed):		

Part 2: Technical Review Checklist (To be completed by NRCS Engineering Staff)	
1.	Current Equipment and Baseline Energy Use: The AgEMP will provide comprehensive documentation of a typical prior year's energy consumption for all relevant enterprises, as a minimum.
<input type="checkbox"/>	a. Separate the evaluation of energy usage by the major activities listed in, but not limited to, the ASABE S612 production category for the primary farm enterprise, and any other relevant farm enterprises. Address the major activities that are shown in ASABE S612 Table 1 with an "X" next to them in the column for the enterprises. (Exception: The major activity for "cultural practices" is optional.)
<input type="checkbox"/>	b. The usage and costs for the prior year energy consumption separated by energy resource.
<input type="checkbox"/>	c. 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"> i. Type and size of equipment ii. Component equipment ratings such as hp, Btu input, Btu output, efficiency iii. Auxiliary items to enhance management such as thermostats, timers, and manual overrides of automatic systems
<input type="checkbox"/>	d. An estimate of the annual energy usage of the major activity
<input type="checkbox"/>	e. An estimate of hours in use per year for each component evaluated
2.	Energy Improvement Measures: For each measure examined, the report must include the following: (Note: This information should be included in the body of the report and should be the support data for the values listed in Tables 1, 2, and 3.)
<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 estimated reductions in emissions with specific estimates for CO ₂ , N ₂ O, CH ₄ , SO ₂ , and NO _x .
<input type="checkbox"/>	e. The simple payback period in years
<input type="checkbox"/>	f. Estimated lifespan, in years, of the recommended measure
<input type="checkbox"/>	g. Only practices that have a payback period less than the estimated life of the practice should be shown as recommended. Practices with payback periods longer than this may be deemed beneficial and included in the report, but would not be listed as recommended.
<input type="checkbox"/>	h. Documentation for recommended improvement measures must be sufficient to allow a third party to understand and evaluate the recommendations. Calculations or the basic data that was used to calculate the energy savings must be included within the report. Verify the assumptions and calculations made by the TSP are easily followed and are transparent to the reviewer.
<input type="checkbox"/>	i. The report must address all major activities for all farm enterprises even though the TSP may not have an improvement recommendation for every activity. The report must note any major activity which has no opportunity for improved energy use.
3.	References: The AgEMP must include technical documentation of sources used for the AgEMP. The report shall include the actual documents or electronic addresses that contain technical information used to derive energy savings in the report, such as:
<input type="checkbox"/>	a. Fact sheets, existing component product information or manufacturer product information sheets, product recommendations and/or comparisons of specific products, journal article citations, etc.

Appendix A: ASABE S612, Table 1

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 ^{1,7,10}	lamps, timers, sensors	X ⁶	x	x	x		x	x	X
Ventilation ^{2,7,10,11}	fans, control system, variable drives, humidity control	x ⁶	x	x	x		x	X(aeration)	x ^{8,9}
Refrigeration ^{5,7,10}	compressor, evaporator/chiller, motor, insulation	milk, products ⁶		eggs			commodity	x	Veg/cut flowers
Milk harvesting ^{7,10}	pumps, motors, controllers	x ⁶							
Controllers ^{7,10}	master system automation	x	x	x				x	x
Other motors/pumps ^{3,4,7,10}	Types, compressors	X ⁶	x	x	x	x	x	x	x
Water heating ^{7,10,12}	heater, energy source, insulation, recovery, waterers	x ⁶	x	x	x				
Air Heating/ Bldg environment ¹⁰	heater, energy source, insulation, recovery, variable drives	x	x	x	x		x		x ^{8,9}
Drying ¹⁰	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 ^{8,9}
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 ^{7,10}	equipment, motors, pumps	x ⁶	x	x	x	x	x	x	x
Irrigation ¹⁰	motors/engines, pumps, power source					x	x		x

Table 1 used courtesy of the American Society of Agricultural and Biological Engineers, ASABE S612, July 2009.

Appendix B: Examples of Tables 1, 2, and 3

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 ¹	Energy Savings (MMBtu)	Installed Cost [a]	Annual Cost Savings [b]	Payback in Years [a/b]	Est. Life in Years ²
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
Totals:	25,210		1,400		215	\$16,479	\$4,475	3.7	

Table 1 Notes

- 1) Use the *Other* column to aggregate any miscellaneous sources of energy.
- 2) Estimated Life is expected useful life of the equipment recommended with standard O&M activities.

Table 2: Annual Energy Savings if Recommendations are Fully Implemented

Fuel	Current Usage	MMBtu Usage	Savings	MMBtu Savings	% 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					
Totals		850		215	25.2%

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

Recommended Measure	Energy Savings (MMBtu)	Environmental Benefits				
		Greenhouse Gases			Air Pollutant Co-Benefits	
		Estimated CO ₂ (lbs)	Estimated N ₂ O (lbs)	Estimated CH ₄ (lbs)	Estimated SO ₂ (lbs)	Estimated NO _x (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
Totals:	215	55,618.8	1.18	3.26	125.56	49.12