Agricultural Energy Management Plan - Headquarters Criteria
Conservation Activity Plan Practice Code (122) (No.)

1. Definition of an AgEMP

An Agricultural Energy Management Plan- Headquarters (AgEMP) is a detailed documentation of the energy consuming activities and components of the current operation, the previous year's on-farm energy consumption, and the strategy by which the producer will explore and address their on-farm energy conservation concerns, objectives, and opportunities.

2. Definition of Terms

- **Energy**—for the purposes of these criteria, is the resource used to power equipment to do mechanical work or to generate heat, light or cooling.
- **Energy Resource**—Source from which energy is obtained, including gasoline, diesel fuel, biofuel, propane, natural gas, electricity, solar, wind, wood, biomass, geothermal, etc.
- **Farm Enterprise**—Production category of a farm. For example, a farm may include a field crop enterprise and a livestock enterprise. (See Table 1 ASABE S612).
- **Major Activity**—a discrete activity associated with a farm enterprise that utilizes an energy resource or that heavily impacts energy resource use. For example, an enterprise may include grain drying, confined livestock or crop processing (grapes) associated with headquarters operations. (See ASABE standard S612 table 1)
- **Prior Year Energy Consumption**—the energy consumption for the previous 12 months, previous tax year, or previous annual cycle of another applicable farm enterprise cycle. Where weather or other extreme events alter the typical energy use in the previous 12 months alternate years may be used for the evaluation with complete documentation and reasoning included in the final report.

3. AgEMP-Headquarters Criteria

A. General Criteria

An AgEMP - Headquarters shall be developed by a certified Technical Service Provider (TSP). In accordance with Section 1240 (A) of the 2008 Farm Bill, the Environmental Quality Incentives Program (EQIP) provides funding support through contracts with eligible producers to obtain services of certified TSPs for development of an AgEMP- Headquarters. The TSP proficiency criteria required to develop an AgEMP - Headquarters for an EQIP eligible producer is located on the TSP registry (TechReg) web site at:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp . The **AgEMP - Headquarters** will meet the Type 2 "on-farm energy audit" minimum criteria established in the ***ANSI/ASABE S612 (July2009) Performing On-farm Energy Audits*** standard.

B. Criteria for Specific Elements of an AgEMP

- **Cover Page**

  The AgEMP must have a cover page providing the following:

  a) Farm identification
     (1) Farm name, owner name (if different from farm), street address, and county/state
     (2) Primary phone number of producer

(3) Primary Enterprise of the farm

b) TSP identification

(1) Name, mail address, and primary phone number

c) Date AgEMP was finalized

- **Summary Reporting of Recommended Measures**

The summary tables illustrated below must be presented (in their exact formats) near the beginning of the AgEMP report. Summary Table 1 will contain each of the various recommended measures, prioritized according to pay-back period.

a) The estimated reduction in energy use (electricity, propane, other), estimated energy savings, estimated installation cost, estimated energy cost savings, and estimated reduction in greenhouse gas emissions and air pollutants must be provided for each energy improvement measure.

b) The Payback in Years column determines the sequence in which the recommended measures should be listed in the Summary Table. This sequence can provide guidance to the producer on the recommended sequence of implementation—from shortest time of payback to longest time of payback.

c) Recommended measures with payback periods exceeding 10 years may be presented in the body of the report but shall not be included in the Summary of Energy Efficiency Improvements.

Table 1. Summary of Energy Efficiency Improvements

		Estimated Reduction in Energy Use				Estimated Costs, Savings, Payback, and Prioritization for Implementation			Environmental Benefits				
									Greenhouse Gases[3]			Air Pollutant Co-Benefits[3]	
Recommended Measure[1]	Electric Savings (kWh)	Natural Gas Savings (ccf)	Propane Savings (Gal)	Other[4]	Energy Savings[2] (mBTU)	Installed Cost [a]	Energy Cost Savings [b]	Payback in Years [a / b]	Estimated CO2 (lbs)	Estimated N2O (lbs)	Estimated CH4 (lbs)	Estimated SO2 (lbs)	Estimated NOx (lbs)
Example: Lighting	25,210				8	$1,740	$2,094	0.8	30,988	0.562		0.038	0.020
Example: Seal Air Leaks			477		4	$1,500	$809	1.9	5,962	0.043		0.000	0.003
Example: Insulate Brood Curtain			9 8		9	$450	$167	2.7	1,226	0.009		0.000	0.001
Example: Exposed Foundation Wall Insulation			383		3	$5,621	$651	8.6	4,788	0.034		0.000	0.002
Example: Curtain to Solid Insulated Sidewalls			444		4	$7,168	$754	9.5	5,550	0.040		0.000	0.003
Totals	**25,210**		**1,402**		**21**	**$16,478**	**$4,475**	**3.7**	**48,514**	**0.688**		**0.038**	**0.029**

Table 1 Notes

1) This example table was developed from data on a poultry operation.
2) A portion of the benefits for some of the improvements offset the benefits of others. For example, insulating side walls will actually seal up some of the air leaks and reduce the heat load in the winter.
3) CO_2 is a green-house gas; SO_2 and NOx are ambient air contaminants.
4) Major energy resources used on the farm should have a separate column. 'Other' is provided only to capture and aggregate less significant uses of the energy resources.

The energy savings by energy type, as a percent of total energy usage, will also be presented as shown in Table 2 below.

Table 2. Energy Savings of Recommendations

Fuel	Current Usage	MBtu Usage	Savings	MBtu	% Savings
Electricity (KWh)	135,920	464	1,903	6	1.4%
Natural Gas (ccf)	4,214	430	0	0	0
Propane (Gal)					
Other					
Totals		894		6	0.7%

- **Background and Site Information**

  The AgEMP will provide a narrative to include:
  a) Name of producer;
  b) Facility location(s);
  c) Type, size, and overall management scheme of the operation (e.g., a description of the poultry, dairy, or swine, etc., production levels, and any unusual factors that affect energy use);
  d) Producer concerns and objectives, for the enterprise (i.e., description of why the producer wants an on-farm energy audit and their specific objectives).

- **Current Equipment and Baseline Energy Use**

  The AgEMP will provide comprehensive documentation of the prior year energy consumption for the primary farm enterprise, as a minimum. The evaluation of energy usage must be broken down by the major activities listed in, but not limited to, the ASABE S612 standard for the primary farm enterprise.

  a) The report must at a minimum provide: for the primary farm enterprise, the usage and costs for the prior year energy consumption shown by energy resource.

  b) The AgEMP must document all major activities associated with the primary enterprise being audited by:
  (1) Describing the components, primary equipment, and/or details of the activity, as appropriate according to the amount of energy used, such as:
  (a) Manufacturer of equipment;
  (b) Component equipment factory ratings (hp, BTU input, BTU output, efficiency);
  (c) Management use efficiencies (eg. manual/automatic systems).
  (2) Provide an estimate of the annual energy usage of the activity.
  (3) The report must address all major activities for the primary farm enterprise even though the auditor may not have an improvement recommendation for every activity. The report must note any major activity which has no opportunity for improved energy use.

- **Energy Improvement Measures**

  The AgEMP will examine possible energy improvement measures that potentially reduce energy use and address the energy management concerns of the agricultural operation. The AgEMP must

provide appropriate energy savings (relative to the baseline energy use) for each examined improvement measure.

a) For each measure examined, the report must present:
(1) 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 (mBTU);
(2) the estimated energy cost savings;
(3) the estimated installed cost;
(4) the simple payback period in years;
(5) the estimated reductions in emissions with specific estimates for CO_2, N_2O, CH_4, SO_2, and NO_x. (Guidance on how to calculate greenhouse gas emission reductions and air pollutant co-benefits is provided in Appendix A); and
(6) equipment product information associated with recommendations and/or comparisons of specific products. (Provide size, model numbers here; specifications, more detail, etc. can be provided in references.)

b) The audit must reflect non-discounted prices for reporting the installation cost and payback period. Do not factor in EQIP payments or state energy incentives in installation cost. However, the mention of these separately and the recognition that these will shorten the payback period is encouraged.

c) The auditor must keep recommendations to those closely linked to energy efficiency improvements. Some improvements are primarily production improvement related. While it is worthwhile to note these, hold these out of energy analyses.

d) From the possible energy improvement measures examined, the report must clearly distinguish those measures which the auditor actually recommends. The auditor should explain why the others are not recommended.

e) Documentation for recommended improvement measures must be sufficient to allow for a third party to evaluate the recommendation and install equipment or practices that achieve similar results. (e.g., references to support assumptions of the percent savings, brand and model numbers to allow checking of efficiency, savings claims, etc.).

f) The auditor is encouraged to consider all improvement measures that are viable at the time of the audit without regard for which measures may be eligible for private or government financial assistance at the time of the audit or in the future.

g) The auditor is encouraged to organize the analyses by enterprise and major activity as listed in table 1 of the ASABE S612 standard.

- **Signature Page**

The AgEMP must have a signature page providing the following:
a) Farm identification
(1) Farm name, owner name (if different from farm), street address, and county.
(2) Primary enterprise of the farm.
b) TSP certification statement

(1) 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 122;
(2) the signature of the TSP, and date.
Directly above this statement, or elsewhere on this page, may be an opportune place for the auditor to make any disclaimers and boast of the auditor's credentials.

c) Producer certification statement
(1) A statement to the effect that the Plan correctly lists the farm identifying information (owner name, street address, primary contact phone number, etc.), addresses the primary farm enterprise under the Producer's control, adequately represents the baseline conditions (current equipment, utility usage, etc.) of the farm enterprise, and adequately represents the Producer's concerns and objectives, and that the Producer has received a final copy of the Plan;
(2) Spaces for the signature of Producer, and date.

d) NRCS certification statement
(1) The statement "I have administratively reviewed this Agricultural Energy Management Plan – Headquarters, and the Plan meets all the criteria of Conservation Activity Plan 122";
(2) Spaces for the signature of an authorized NRCS Representative, and date.
(3) an additional space for the NRCS Representative to identify their Engineering Job Approval Authority (EJAA)

e) Placement
The recommended placement of the signature page is immediately behind the last page of the audit report, but preceding any appendices/references.

- **References**

The AgEMP must include technical documentation of sources used for the Headquarters AgEMP. The report should include the actual documents or web sites that contain technical information used to gain energy savings in the report, such as:

a) fact sheets
b) existing component product information or manufacturer product information sheets, etc.
c) product recommendations and or comparisons of specific products
d) journal articles

4. Deliverables and Certification

A. The auditor may generate separate reports for separate enterprises of a farm. In this case however, the auditor must provide an overall cover page and signature page, and the reports must be bound together and delivered as one unit.

B. Deliverables from the TSP to the Client include:

- a complete hardcopy and/or electronic copy of the finalized AgEMP-HQ report, with the TSP signature.
- a detachable or separate hardcopy signature page, signed by the TSP. This hardcopy signature page is to be signed by the Client and forwarded to the NRCS Field Office for the official files. A second complete hardcopy may be substituted for this single signature page.

C. Deliverables from the TSP to the NRCS Field Office include:

- a complete electronic copy of the finalized AgEMP HQ report. The preferred format is PDF, using software digital conversion rather than scanning, except for the signature page. The MS Word format is also acceptable.

D. Instructions to Client:

As noted above, the TSP must provide you a hardcopy signature page. You must indicate your acceptance of the finalized audit by signing this signature page and forwarding to your servicing NRCS Field Office.

E. Instructions to NRCS Field Office:

As noted above, the Client must forward the signature page to the Field Office. An authorized NRCS Representative must review the AgEMP to insure it contains the required elements outlined in Section 3. You are not asked to review the technical details of the report. Sign the signature page to indicate certification and place in the case file. Also, indicate your Engineering Job Approval Authority if required by your state policy.

APPENDIX A

ENVIRONMENTAL BENEFITS

Guidance on how to determine values for greenhouse gases and air pollutant co-benefits environmental benefits.

In order to estimate the environmental benefits associated with estimated energy savings, NRCS has developed a Quick Energy calculator that transforms energy saving measures for fuels and electricity into atmospheric emission reductions. The Quick Energy Tool relies on EPA's state- level aggregated emission factors for electricity, to generate estimates of emissions savings for electricity. The Quick Energy Tool relies on the EPA Energy Information Agency's emission factors for liquid and gaseous fuels, to generate estimates of emissions savings for liquid and gaseous fuels.

The Web link to the NRCS COMET Quick Energy Calculator for converting Energy Savings into Emissions Reductions is located at: http://www.comet2.colostate.edu/