

BIOMASS ENERGY

TRAINING CURRICULUM

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This curriculum was developed through a Southern SARE grant and collaboration between Tennessee State University, the University of Tennessee, eXtension.org, and USDA-Rural Development. The objective of this curriculum is to provide training on biomass energy to extension agents and local officials so that they may deliver this information to their stakeholders.



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Biomass Energy Training Curriculum

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Cover design: Brett Seybert

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Jason de Koff, h.

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Part II: On-farm Biodiesel Production

Rural Energy for America Program (REAP)

Learning objectives:

- Participants will be able to explain the eligibility requirements for REAP
- Participants will be able to identify the types of funds available through REAP
- Participants will be able to assist farmers with filing applications for REAP

Materials:

- PowerPoint® slides “Rural Energy for America Program”
- Lesson guide: Use the notes in this lesson guide to present information for each presentation slide.
- Handout: REAP application.
- Questions found at the end of this lesson guide can be used to test participants’ knowledge at the end of the presentation. This can be combined with clickers to improve audience engagement and create discussion.
- An evaluation form for the presentation can be found in this lesson guide following the lesson questions.
- Find current program information, forms and resources online at www.rd.usda.gov/reap

Topics:

Examples of renewable energy systems

Examples of energy efficiency improvements

Eligibility for REAP

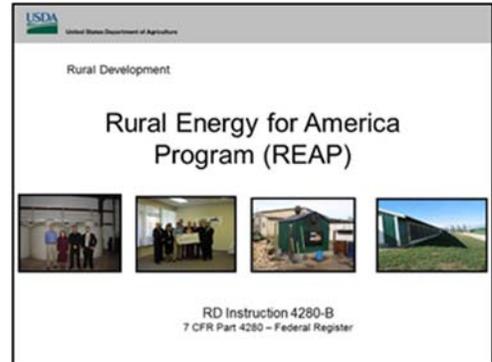
Grants and Loans available

How to apply



Slide 1

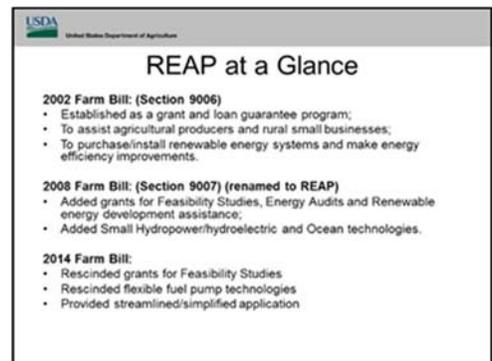
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Slide 1

Slide 2

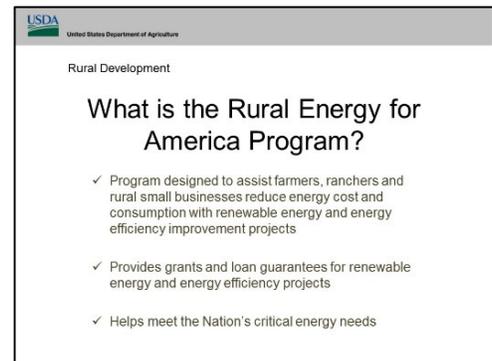
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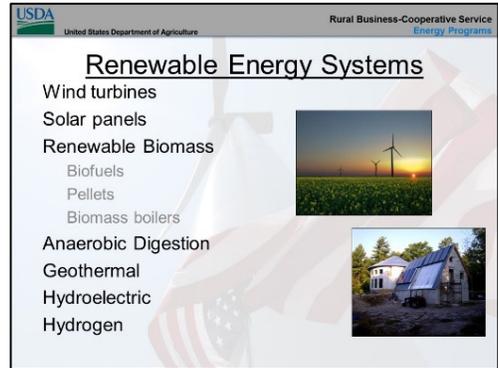


Slide 3



Slide 4

Most of the Tennessee projects fall under the solar panels projects. We do have a few through the year that involve renewable biomass such as biofuel or pellets. We also have seen some geothermal projects where they are providing heat for their own businesses. Anaerobic digesters always come up in discussions in Tennessee but they are a big undertaking and we have not seen a complete application.



Slide 4

Slide 5

105 solar panels were installed at Littlestown Veterinary Hospital in Littlestown, PA, in 2010. The Littlestown Veterinary Hospital received a REAP grant to install solar panels to help reduce their carbon footprint and to have cost effective electric power for the hospital.

Outcome: Reduced operating expenses by 30-40%; generated 35,600 KWH in 2012.

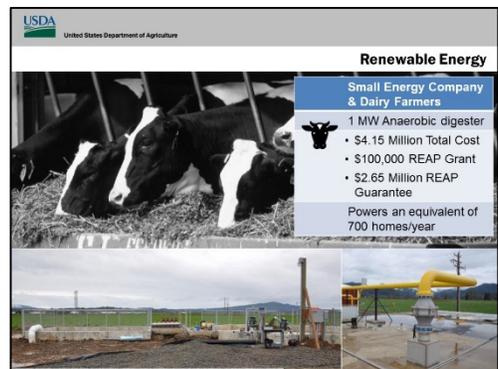


Slide 5

Slide 6

Farm Power Tillamook, Tillamook, OR: \$100,000 REAP grant and a \$2.65 million loan guarantee for construction of a 1 megawatt anaerobic digester. Located adjacent to a cluster of dairy farms, the digester processes approximately 60,000 gallons of animal waste produced by 2,000 cows at eight dairies each day. The digester captures methane from the animal waste and converts it into enough electricity to power 700 homes a year.

Other benefits: The captured methane is prevented from entering the atmosphere as a greenhouse gas. In addition, the digester removes odors and pathogens from the byproducts. The leftover solids come out as a clean, fluffy plant material that can be used as odor-, weed- and pathogen-free compost or even as animal bedding material back in the dairy barn. The liquid byproduct can be field-applied as a nutrient-rich fertilizer without the excessive odors or the concentration of harmful bacteria that could threaten water quality.



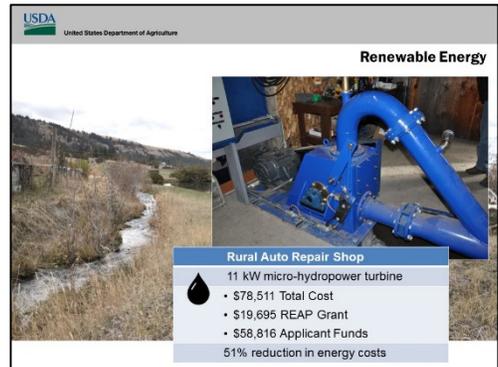
Slide 6



Slide 7

SPS of Oregon, Wallowa, OR: \$19,695 REAP grant, with \$58,816 in applicant funds to install an 11kW micro-hydro system that generates power from the downhill flow of water in a small stream on the owner's adjacent property. (This is not a fish-bearing water body.)

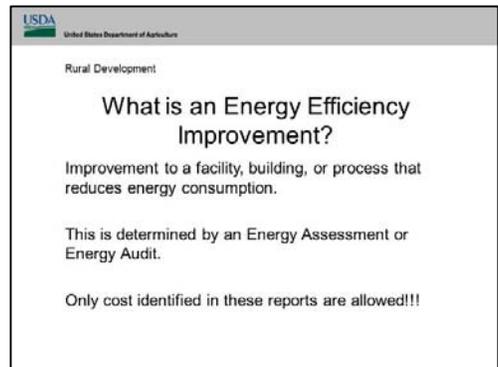
Outcome: 51% reduction in energy costs



Slide 7

Slide 8

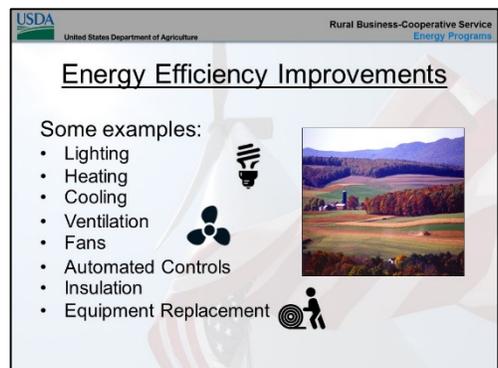
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Slide 8

Slide 9

Most of the projects in TN involve LED lighting substitution to their existing lighting systems in commercial buildings. New HVAC systems. And a growing number of projects are energy improvements to grocery stores such as replacing their refrigerator doors or lighting systems. We are also seeing a lot of poultry houses doing energy efficient improvements.



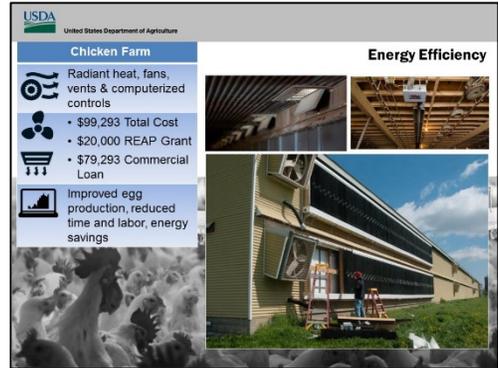
Slide 9



Slide 10

Roxanne Molnar Farm, Grantville, PA: Roxanne and Matthew Molnar were awarded a \$20,000 REAP grant.

New radiant heaters keep 80,000 chickens warm during Pennsylvania winters. On warm days, ceiling vents provide passive venting of heat out of the building; when chicken house temperatures are estimated to be above 90 degrees, fans come on, pulling air through water evaporator elements lowering air temperature down 10-15 degrees and flows along the length of the poultry house, creating a tunnel of cooled air.



Slide 10

The benefits to the chickens are heat and excess moisture removal; minimized dust and odor; limited buildup of ammonia and carbon dioxide; and oxygen for respiration. Chickens need to be kept at a comfortable temperature to remain productive. All of these systems are computer controlled allowing owner, Roxanne Molnar, to run the farm by herself and raise two small boys. The computer controls of the new system automate many of the daylong tasks allowing the Molnar's to run their family farm.

Outcome: Improves egg production, saves time and labor, saves 122,631 KWH per year.

Slide 11

Tara Kraft, owns and operates Colonial Cleaners and Laundromat in the Worthington community in rural Minnesota. Ms. Kraft wanted to replace all washers and dryers to save energy and improve experiences for customers. A FY 2013 REAP grant replaced five of the dryers with more energy efficient units. This was the last phase of a complete equipment replacement process.

Total Project Cost \$42,040

Grant Funds \$ 10,510

Outcome: 52% energy savings (\$1,731/year); The owner was able to hire a part-time employee with the savings realized by the entire project. The greater efficiency in the drying time allow customers to finish laundry faster.



Slide 11

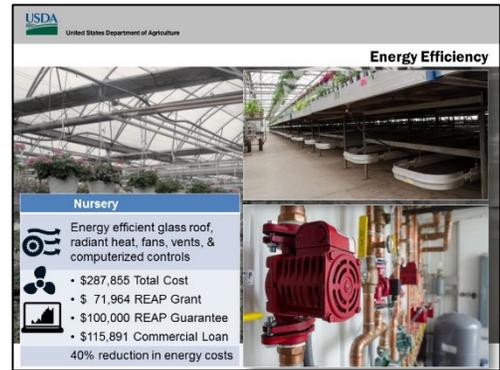


Slide 12

Good Harvest Farm in Strasburg, PA: A water-filled fin-tube heating element was installed under plant tables, along with an energy efficient glass roof with curtains that block or trap heat, radiant heaters in or above the floor, and the replacement of oil-fired hot-air furnaces with propane fueled boilers.

Outcomes: 40% reduction in energy costs (\$20,000 savings/year)

Other benefits: Plant health and quality have improved with computer controlled, evenly-distributed temperature and humidity. Utilizing sensors and a roof mounted weather station, the system can maintain four different climate zones, 24 hours a day. Two 1,000,000 BTU propane fueled boilers heat the water to 190 degrees for the 8,000 feet of fin-tube which was embedded in a new cement foundation. After traveling through the energy efficient system, water only loses 20 degrees. When temperatures become too hot, motorized roof vents open to allow rising heat to escape; a 98% energy savings from massive fans that previously forced air out. Both systems create a microclimate in and around the plant trays in the growing and sales room.



Slide 12

Slide 13

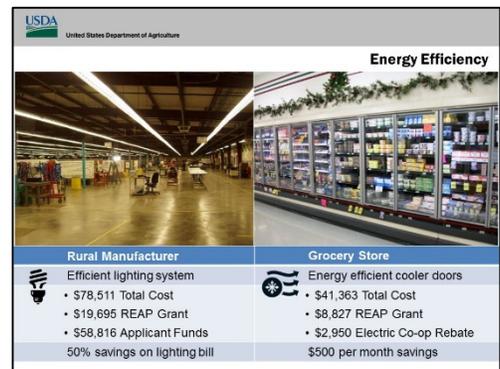
LEFT: The main assembly plant building at Compass Components, Inc. in Deming, New Mexico is now equipped with a more efficient lighting system. By replacing the old fluorescent light system the company is now saving 50% on its lighting bill.

RIGHT: Rush Foods, a small family-owned grocery chain serving SE Minnesota, used REAP funds to install doors on coolers at their Rushford, MN, location in 2012 to reduce operating costs. Rebates from the Tri-County Electric Cooperative and Southern Minnesota Municipal Power Agency also helped offset project costs.

- Installed 84 feet of doors the store
- Installed 42 feet of island covers
- Added energy efficient LED lighting in the display cases

Savings:

- Total energy savings (2013) was more than 69,000 KWH or 11%.
- Energy bill reduced by \$500 a month



Slide 13



The store manager explains that with the doors comes temperature consistency. “The temperature consistency will not only extend the shelf life of our fresh foods, but also it will keep foods fresh longer in our customers’ refrigerators.” He also said that customers have shown their appreciation for how much warmer the store feels, which makes shopping more enjoyable.

Slide 14

Charles “Buddy” Paulsen, Budaroo’s, had a freezing cold store in the winter and an extremely hot store in the summer. An inefficient furnace/air conditioner paired with inadequate wall and ceiling insulation, was causing extremely high energy bills for the rural small business in Oshkosh, Nebraska. Buddy’s 21-year old business faced a hard decision with the high energy bills: could he continue to stay in business? The business upgraded its furnace/air conditioner with ductwork, added the insulation under the new roof, rearranged the floor plan and upgraded exterior walls and ceiling with insulation.



Slide 14

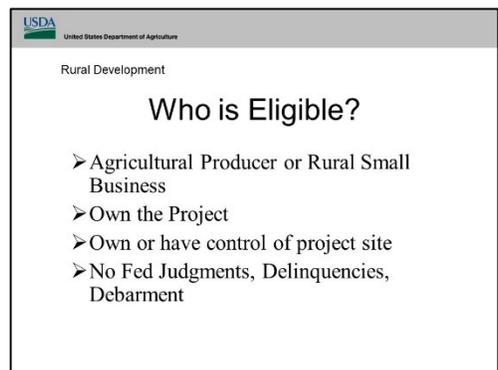
“The REAP grant is one tool that is available to small businesses that can make a huge difference in helping a business keep a store front on Main Street. This grant has made coming to work pleasant, however I found during the first few weeks after the upgrade I was dressing too warmly for the new environment!” said the store owner.

Nebraska State Bank Lender, Jim Levick, added “This was a very worthwhile project for our Main Street. It enhanced the value of the building and will lower the business’ utility expenses. Buddy used local contractors who did an excellent job. Nebraska State Bank is pleased with the results of this project and the support of the RD guaranteed loan program.”

Outcome: 60% reduction in energy costs compared to the previous year.

Slide 15

Follow material on presentation slide.



Slide 15



Slide 16

Agricultural Producers are eligible in urban areas. Many states are seeing growth in agricultural producers in very urbanized areas.

USDA
United States Department of Agriculture

Eligible Applicants

Agricultural Producer	Rural Small Business
<ul style="list-style-type: none">Individual or entity that receives 50 percent or more of their gross income from agricultural production – crops, livestock, aquaculture, forestry operations, nurseries, dairies	<ul style="list-style-type: none">For-profit small business - as defined by the Small Business Administration (SBA)Rural area or non-metro community of ≤ 50,000

Slide 16

Slide 17

Commercially available technology usually refers to technology that has been on the market for one year and has proven itself to be functional and reliable. It is supported by professional service providers and has warranties for its use.

Technical Merit part of the application package is much easier for the new forms developed in 2015. Most of the information can be provided on the form itself with an exception of a few attachments required as applicable to the size of the project.

USDA
United States Department of Agriculture

Rural Development

Eligibility Criteria

- Purchase a Renewable Energy System or Make Energy Efficiency Improvements
- Commercially Available Technology
- Technical Merit (Determined by Tech Report)
- Rural Area (Under 50,000 Population) - Business
- Applicant = Owner, control of O&M, 3rd party can be used to manage
- Site controlled by applicant for financing term
- Revenue sufficient to cover O&M, management, debt service for the life of the project.

Slide 17

The Rural Area definition, as mentioned in the slides before, only applies to small business applicants.

Slide 18

Follow material on presentation slide.

USDA
United States Department of Agriculture

Rural Development

What Cost Are Eligible?

- Purchase and installation of new or refurbished equipment
- Construction, Retrofitting, replacement and improvements in association with the RES or EEI project
- EEI identified in an Energy Audit or Assessment
- Permit and License Fees
- Professional Service Fees, except for application prep

Eligible Project Cost are only those that have been incurred after a Complete Application has been received.

Slide 18



Slide 19

Follow material on presentation slide.

USDA United States Department of Agriculture
Rural Development

What Cost are NOT Eligible?

- Pre-application cost or improvements incurred
- Residential improvements
- Energy efficiency improvements related to new construction
- Vehicles or Agricultural tillage equipment
- Lease payments or federal debts
- Application Preparation or grant writer fees
- Applicant in-kind contributions
- Any with a Conflict of Interest or the appearance thereof

Slide 19

Slide 20

Most EEI projects require little if any environmental review but we think it is important to highlight that all projects receiving assistance through REAP are subject to NEPA environmental reviews. To assist in determining the extent of the review, Form RD 1940-20, Request for Environmental Information, is part of the application.

Once the decision is made to file an application we recommend you consult with the energy coordinator and determine what the level of review will be.

USDA United States Department of Agriculture

Environmental Review

- Environmental review process should be initiated as early as possible with RD office
- Complete Form RD 1940-20, Request for Environmental Information
- This process can be started even before the application is submitted.
- Contact your local office at:
- http://www.rd.usda.gov/files/TN-ContactsMap_REAP.pdf or State Energy Coordinator to begin the process.

Slide 20

Slide 21

Follow material on presentation slides.

USDA United States Department of Agriculture

REAP Grant Assistance

Up to 25% of Eligible Project Costs

Renewable Energy Systems		Energy Efficiency Improvements	
Minimum Grant Request	\$2,500 Total eligible project costs > \$10,000	Minimum Grant Request	\$1,500 Total eligible project costs > \$6,000
Maximum Grant Request	\$500,000 Total eligible project costs > \$2 million	Maximum Grant Request	\$250,000 Total eligible project costs > \$1 million

Slide 21



Slide 22

Follow material on presentation slides.

USDA United States Department of Agriculture Rural Business-Cooperative Service Energy Programs

Application Submittal

- Applications can be submitted at any time
- Competition dates contained in regulation
 - ✓ No longer dependent upon annual notice
 - ✓ Allows public the ability to plan
 - ✓ Allows Agency the ability to plan
- Annual funding amount posted on website



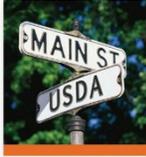
Slide 22

Slide 23

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USDA United States Department of Agriculture

Rural Development's Guaranteed Loan Programs



Backing the Business of Rural America

USDA Rural Development - the leading advocate for rural America at the federal level.

Slide 23

Slide 24

Follow material on presentation slides.

✓ **LOAN SIZE**

- Minimum Loan Amount: \$5,000
- Maximum Loan Amount: \$25,000,000 (Up to 75% of project cost)

✓ **GUARANTEE**

- 85% for loans \$600,000 or less.
- 80% for loans over \$600,000 up to \$5 Million
- 70% for loans over \$5 Million up to \$10 Million
- 60% for loans over \$10 Million



Slide 24



Slide 25

Collateral: Discounted collateral must be equal to loan amount using typical discount factors.

Typical discount factors; RE 80%, M&E 70%-75%, Inventory A/R 60%

Instead of complying with Business & Industry Regulation 4279.131(d) borrowers must demonstrate evidence of cash equity injection in the project of not less than 25% of total eligible project costs. Cash equity injection must be in the form of cash.

USDA
United States Department of Agriculture

✓ **MAXIMUM TERM LIMITS**

- Working Capital – 7 Years
- Machinery & Equipment – 15 Years (or useful life, which ever is less)
- Real Estate – 30 Years

✓ **OTHER FUNDS REQUIRED**

- 25% of project costs (cash equity)

✓ **INTEREST RATE**

- Fixed or Variable; if variable cannot adjust more than quarterly
- Negotiated between lender and borrower

USDA Rural Development - the leading advocate for rural America at the federal level.

Slide 25

Slide 26

One-time guarantee fee is (1%) X (% of Guarantee) X (Loan Amount). Annual Renewal fee determined each year. Annual Renewal fee is currently (¼%) X (outstanding principal loan balance) X (% of Guarantee calculated at the end of the calendar year).

Applicable Guarantee Percentages:

85% for loans of \$600,000 or less

80% for loans greater than \$600,000 up to and including \$5 Million

70% for loans greater than \$5 Million up to and including \$10 Million

60% for loans greater than \$10 Million

✓ **FEES**

- One-time guarantee fee of 1%
- ¼% annual renewal fee

✓ **COLLATERAL**

- ✓ Must be sufficient collateral
- ✓ Appraised Collateral discounted consistent with typical discount factors.
- ✓ Typical Discount Factors:
 - ✓ Real Estate – 80%
 - ✓ M&E – 70 to 75%
 - ✓ Inventory & A/R – 60%

Slide 26

Slide 27

B&I = Business and Industry

B&I/REAP Differences/Opportunities

- ✓ **Guarantee Percentage**
 - REAP allows for an 85% Guarantee on loans \$600,000 or less
- ✓ **Equity**
 - B&I has tangible balance sheet equity requirement
 - 10% of existing business
 - 20% for start up
 - 25-40% for energy projects
 - REAP requires that 25% project costs are other funds and could include:
 - Equity injections
 - Other borrowed funds (including a B&I loan)
- ✓ **Fees**
 - 1% (REAP) vs. 3% Guarantee Fee
 - 0.25% (REAP) vs. 0.50% Annual Renewal Fee

Slide 27



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Slide 29

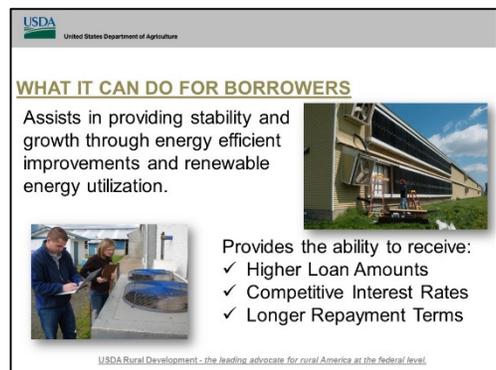
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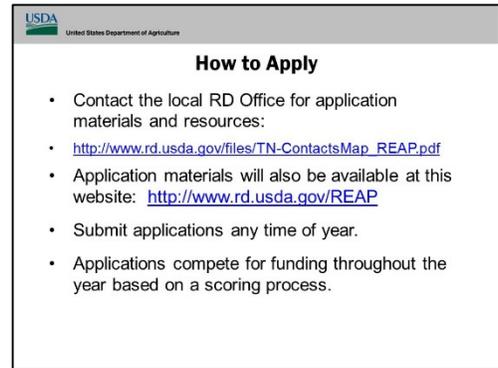


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Slide 31

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Slide 31

Use the application handouts in Appendix as guides for going through how to apply for REAP

Slide 32

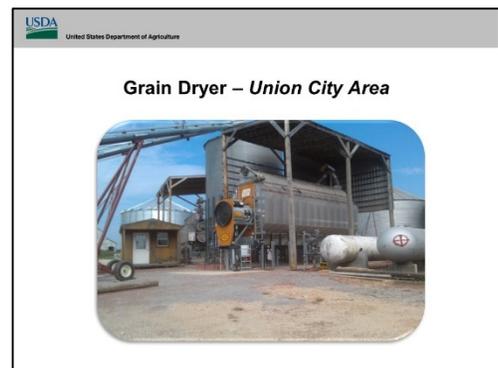
Biodiesel Refinery plant located in Cookeville, TN. It uses vegetable oil to produce biodiesel. Renewable Energy Grant.



Slide 32

Slide 33

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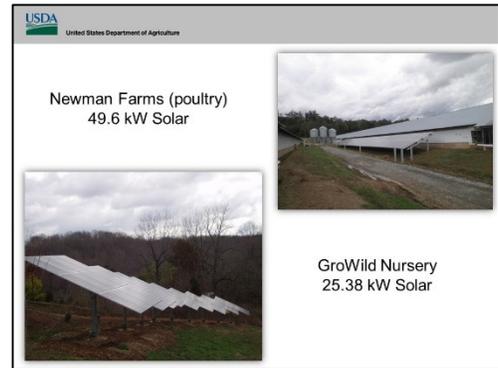


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Slide 35

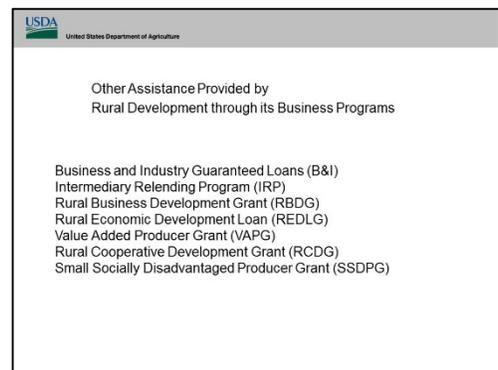
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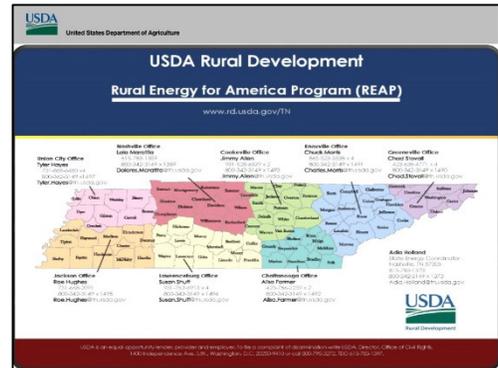


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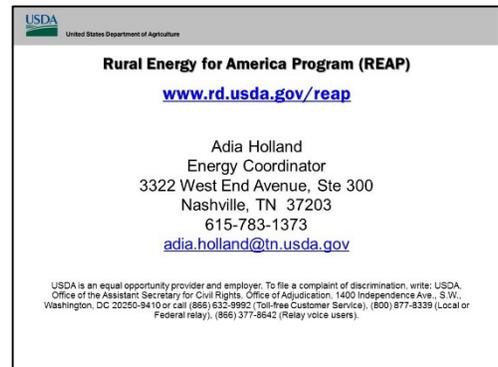
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Slide 37

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Follow material on presentation slides.



Slide 38

Test their Knowledge - Questions for the audience

The Rural Energy for America Program (REAP) can be used for energy efficiency improvements or renewable energy systems.

Q: Who is eligible for REAP?

A: Agricultural producers that receive over 50% of their income from the farm,
For-profit small businesses in a rural or non-metro community of <50,000 people
Agricultural producers can be from urban or rural areas.

Q: What loan amounts are eligible under REAP?

A: \$5,000 to \$25 million (up to 75% of project costs)

Evaluation

Please give us your feedback regarding this activity. Your feedback will help us improve the activities you attend in the future.

Name of Activity: Rural Energy for America Program (REAP)	Date of Activity:
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A. Instruction	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. The specialist was well prepared.	①	②	③	④	⑤	⑥
2. The specialist presented the subject matter clearly.	①	②	③	④	⑤	⑥

B. General Learning and Change	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. I have a deeper understanding of the subject matter as a result of this session.	①	②	③	④	⑤	⑥
2. I have situations in which I can use what I have learned in this session.	①	②	③	④	⑤	⑥
3. I will change my practices based on what I learned from this session.	①	②	③	④	⑤	⑥

C. Specific Learning How much <i>did you / do you</i> know about these subjects?	Before this program I knew...					Now I know....				
	Very little	Little	Some	Much	Very Much	Very little	Little	Some	Much	Very Much
1. The grants available through the REAP program	①	②	③	④	⑤	①	②	③	④	⑤
2. What the REAP program could be used for	①	②	③	④	⑤	①	②	③	④	⑤
3. How to apply for the REAP program	①	②	③	④	⑤	①	②	③	④	⑤

D. Specific Practices To what degree <i>did you / will you</i> do the following?	Before this program I did...					In the future I will realistically do....				
	Very little	Little	Some	Much	Very Much	Very little	Little	Some	Much	Very Much
1. Talk to UT/TSU Extension or USDA Rural Development more about the REAP program	①	②	③	④	⑤	①	②	③	④	⑤
2. Seek assistance in applying for the REAP program	①	②	③	④	⑤	①	②	③	④	⑤

E. Satisfaction with Activity	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. I would recommend this program to others.	①	②	③	④	⑤	⑥

F. Other comments?	
--------------------	--

Thank you for completing this survey!



Rural Energy for America Program Renewable Energy & Energy Efficiency

What does this program do?

Provides guaranteed loan financing and grant funding to agricultural producers and rural small businesses to purchase or install renewable energy systems or make energy efficiency improvements.

Who may apply?

- Agricultural producers with at least 50% of gross income coming from agricultural operations, and
- Small businesses in **eligible rural areas**.

NOTE: Agricultural producers and small businesses must have no outstanding delinquent federal taxes, debt, judgment or debarment.

What is an eligible area?

- Businesses must be in an area other than a city or town with a population of greater than 50,000 inhabitants and the urbanized area of that city or town. **Check eligible business addresses.**
- Agricultural producers may be in rural or non-rural areas.

How may the funds be used?

Funds may be used for the purchase, installation and construction of renewable energy systems, such as:

- Biomass (for example: biodiesel and ethanol, anaerobic digesters, and solid fuels).
- Geothermal for electric generation or direct use.
- Hydropower below 30 megawatts.
- Hydrogen.
- Small and large wind generation.
- Small and large solar generation.
- Ocean (tidal, current, thermal) generation.

Funds may also be used for the purchase, installation and construction of energy efficiency improvements, such as:

- High efficiency heating, ventilation and air conditioning systems (HVAC).
- Insulation.
- Lighting.

- Cooling or refrigeration units.
- Doors and windows.
- Electric, solar or gravity pumps for sprinkler pivots.
- Switching from a diesel to electric irrigation motor.
- Replacement of energy-inefficient equipment.

What funding is available?

- Loan guarantees on loans up to 75% of total eligible project costs.
- Grants for up to 25% of total eligible project costs.
- Combined grant and loan guarantee funding up to 75% of total eligible project costs.

What are the loan guarantee terms?

- \$5,000 minimum loan amount.
- \$25 million maximum loan amount.
- Up to 85% loan guarantee.
- Rates and terms negotiated with the lender and subject to USDA approval.
- Maximum term of 30 years for real estate.
- Maximum term of 15 years, or useful life, for machinery and equipment.
- Maximum term of 7 years for capital loans.
- Maximum term of 30 years for combined real estate and equipment loans.



Rural Energy for America Program Renewable Energy & Energy Efficiency

What are the grant terms?

Renewable Energy System Grants:

- \$2,500 minimum.
- \$500,000 maximum.

Energy Efficiency Grants:

- \$1,500 minimum.
- \$250,000 maximum.

Are there additional requirements?

- Applicants must provide at least 75% of the project cost if applying for a grant only.
- Applicants must provide at least 25% of the project cost if applying for loan, or loan and grant combination.
- Projects greater than \$200,000 require a technical report.
- Energy efficiency projects require an energy audit or assessment.

How do we get started?

Applications for this program are accepted year round at your **local office**.

Who can answer questions?

Contact your **State Rural Development Energy Coordinator**.

What governs this program?

- Basic Program – **7 CFR 4280, Subpart B**
- This program is authorized by Title IX of the **Agricultural Act of 2014**, (2014 Farm Bill)

Why does USDA Rural Development do this?

This program helps increase American energy independence by increasing the private sector supply of renewable energy and decreasing the demand for energy through energy efficiency improvements. Over time, these investments can also help lower the cost of energy costs for small businesses and agricultural producers.

4. Provide the average number of employees for the business over the last 12 months (Attach documentation):	
---	--

5. (a) Provide primary North American Industry Classification System (NAICS) code: NAICS Code: Corresponding NAICS size limitation: —OR If using alternative size standard: (b) The maximum tangible net worth of the Applicant and its Affiliates is not more than \$15,000,000 <input type="checkbox"/> Yes <input type="checkbox"/> No and Average net income (after federal income taxes) for the preceeding two years, is not in excess of \$5,000,000 <input type="checkbox"/> Yes <input type="checkbox"/> No Attach Documentation: 20 \$ 20 \$ Average: \$

B. Agricultural Producers, provide agricultural income data from 3 most recent tax years:	Annual Average
1. Income directly related to agricultural products: 20 \$ 20 \$ 20 \$	\$
2. Total Income: (Includes W-2, Schedule C, & Non-ag income) 20 \$ 20 \$ 20 \$	\$
3. Percent Agricultural Income (Line 1 ÷ Line 2):	%
4. NAICS Code:	

V. Technical Report - Type of Project (check one): (See FMI for descriptions.)

Renewable Energy System (Complete Block VI) which is either an Energy Generation System or Energy Replacement System **OR**

Energy Efficiency Improvement (Complete Block VII):

A. Project Description. Provide a detailed description of the technology and project:

B. Location and description of the project site:

C. Commercially Available. A system that meets the requirements of either C or D: (D is for Renewable Energy Systems only.) (The Agency reserves the right to request additional information to substantiate statements.)

Proposed domestic or foreign system.

1. Has, for at least 1 year, both a proven and reliable operating history and proven performance data: Yes No
2. Is based on established design and installation procedures and practices and is replicable: Yes No
3. Has professional service providers, trades, large construction equipment providers, and labor who are familiar with installation procedures and practices: Yes No
4. Has proprietary and balance of system equipment that are readily available and available spare parts:
 Yes No
5. Has services that are readily available to properly maintain and operate the system; Yes No
6. Has an existing established warranty that is valid in the United States for major parts or labor: Yes No

OR

D. A domestic or foreign Renewable Energy System that has been certified by a recognized industry organization whose certification standards are acceptable to the Rural Business-Cooperative Service. Yes No

(Name of recognized industry organization):

E. Project Economic Assessment:

1. Project Cost Breakdown:	
Construction Item: <i>(list itemized costs or attach bids):</i>	Cost
	\$
	\$
	\$
	\$
	\$
a. Total Project Costs: <i>(Total Project Costs should be the same as in Form SF-424C, "Budget Information-Construction Programs.")</i>	\$
b. Eligible Project Costs: <i>(See FMI to determine eligible project costs.)</i>	\$

2. Estimated Project Energy Generation or Savings:	
a. For Renewable Energy Systems:	
i. Annual amount of renewable energy to be generated and unit of energy:	kWh <input type="checkbox"/> or BTU <input type="checkbox"/>
ii. If applicable, historical annual average energy used and unit of measure: The Agency may request additional information to substantiate the above numbers.	kWh <input type="checkbox"/> or BTU <input type="checkbox"/>
iii. Annual percentage of energy being replaced: If the above number exceeds 100 percent and the system is connected to the grid, the amount of energy above 100 percent will be used in 4c. below. If the amount of energy exceeds 150 percent and the system is connected to the grid, the entire amount of energy generated will be entered in 4c below.	$(i \div ii \times 100) =$ %
b. For Energy Efficiency Improvement projects: (Complete Block VII first with data from the Energy Audit or Energy Assessment.) Annual amount of energy to be saved and unit of measure:	kWh <input type="checkbox"/> or BTU <input type="checkbox"/>

3. Cost of Energy:	
a. Price per unit of energy paid in prior year: <i>(This is the retail cost of energy for Renewable Energy System replacement projects and Energy Efficiency Improvement projects.)</i>	\$
b. Price per energy unit to be sold to the grid: <i>(This is the price the utility will pay for energy put onto the grid.)</i>	\$

4. Energy Value: (See FMI for guidance.)	
a. Value of energy to be replaced via renewable system (if applicable): (2.a. x 3.a.):	\$
b. Value of energy to be saved via efficiency improvement (if applicable): (2.b. x 3.a.):	\$
c. Value of energy to be generated and sold to the grid (if applicable): (2.a. x 3.b.):	\$
d. Total value of energy replaced/saved/generated: 4a. + 4b. + 4c. = 4d:	\$

**Energy Efficiency Improvement projects can proceed to Number 9.
Renewable Energy System projects continue to next table.**

5. Other annual revenue: (List below, i.e. sale of byproducts)

(Do NOT include renewable energy credits, Government or utility incentives, or other incentives.)		
Source:	Price/Unit:	Total:
	\$	\$
	\$	\$
Total other annual revenue:		\$
6. Annual Revenue: (4.d. + 5):		\$
7. Annual Operating and Maintenance Costs:		\$
8. Earnings before Interest, Taxes, Depreciation, and Amortization (EBITDA): (6-7):		\$
9. Estimate Simple Payback:		
a. Energy replacement and Energy Efficiency Improvement projects: (1. b. ÷ 4.d.):	\$	÷ \$ = years
b. Energy generation projects: (1. b. ÷ 8):	\$	÷ \$ = years

F. Qualifications of Service Providers (Include information personnel and companies that will be working to construct and install the project, such as: Energy Auditor, site assessor, contractor, installer, electrician, etc.)

Project Role:			
Company Name:			
Name:		Title:	
Address:			
City/State/Zip Code:		Phone:	
Qualifications (Either attach a resume or complete below):			
Number performed on a similar system as proposed:			
Years of Relevant experience:			
Professional credentials (include training and/or education related to work, certificates, etc.):			
Licenses:			
Project Role:			
Company Name:			
Name:		Title:	
Address:			
City/State/Zip Code:		Phone:	
Qualifications (Either attach a resume or complete below):			
Number performed on a similar system as proposed:			
Years of Relevant experience:			
Professional credentials (include training and/or education related to work, certificates, etc.):			
Licenses:			

Project Role:			
Company Name:			
Name:		Title:	
Address:			
City/State/Zip Code:		Phone:	
Qualifications (Either attach a resume or complete below):			
Number performed on a similar system as proposed:			
Years of Relevant experience:			
Professional credentials (include training and/or education related to work, certificates, etc.):			
Licenses:			
<hr/>			
Project Role:			
Company Name:			
Name:		Title:	
Address:			
City/State/Zip Code:		Phone:	
Qualifications (Either attach a resume or complete below):			
Number performed on a similar system as proposed:			
Years of Relevant experience:			
Professional credentials (include training and/or education related to work, certificates, etc.):			
Licenses:			

VI. Renewable Energy System Projects - Technical Requirements: *(For Energy Efficiency Improvement Projects Complete Block VII.)* *If Hybrid project, submit specific technical information for each technology.

A. Project Information:

1. Will project be interconnected with electric utility grid? Yes No If yes, name of utility:
2. Will the proposed system be connected to a meter that is also connected to a residence? Yes No
 - a. If yes, will 51 percent or more of the energy to be generated from the proposed system be used by the business operation of the Rural Small Business or the Agricultural Producer? Yes No
 Amount of energy and unit of measure to be used by the business operation in a typical year?
 kWh or BTU
 - b. If the answer to question 2a. is no, the Applicant certifies that any excess power generated by the Renewable Energy System will be sold to the grid and will not be used by the Applicant for residential purposes. Yes No
 - c. If the answer to question 2b. is no, installation of a second meter (or similar device) that results in all of the energy generated being used for non-residential energy usage or sold to the grid will be required.

B. Renewable Resource Potential: (Additional information may be requested by the Agency to determine resource feasibility.)

1. Check which type of Renewable Energy System is being proposed. Ensure multiple types are checked for hybrid applications:
 Wind Solar Bioenergy Geothermal Electric Generation Geothermal Direct Generation
 Anaerobic Digester Hydrogen Hydroelectric/Ocean Energy Projects
2. An Agency approved Renewable Energy Site Assessment may be used to provide the Project Description, Resource Assessment, and Project Economic Assessment. In such instances, the technical report would consist of Section D and the Renewable Energy Site Assessment. If a renewable energy site assessment is provided, sections 3 and 4 do not need to be completed. If the site assessment does not include all this information, complete the portion of this form with the narratives below to supplement the assessment.

Agency-approved Site Assessment Completed:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Site Assessor Name:	
Site Assessor Qualifications:	

3. Provide adequate and appropriate data to demonstrate the amount of renewable resource available. For hybrid projects each technology being proposed must be address. Describe the quality, availability, and seasonality (if applicable) of the renewable energy resource:

4. Basis of determination:

There are several methods to determine resource potential on the site, describe below as applicable and attach as necessary:

Online Estimating Tool:	<input type="checkbox"/> Yes; List name of Tool: <input type="checkbox"/> No
Resource References (Wind Roses, Thematic Maps, etc.):	<input type="checkbox"/> Yes; List Resource Reference: <input type="checkbox"/> No
Site-Specific Evaluation Devices or Site Surveys:	<input type="checkbox"/> Yes; List device: <input type="checkbox"/> No
Photographs of Site:	<input type="checkbox"/> Yes; Attached to application. <input type="checkbox"/> No
Other:	Attach documentation if applicable.

VII. Energy Efficiency Improvement Projects - Technical Requirements: *(If project is a Renewable Energy System, go to Block VIII.)*

A. Existing usage as per Energy Assessment or Energy Audit:

	Energy Used <i>(converting to BTU)</i>	Cost
Electricity (kWh)	x 3,412 btu/kWh=	\$
Propane/LP (gal)	x 91,502 btu/gal=	\$
Natural Gas (therm)	x 100,000 btu/therm=	\$
Diesel (gal)	x 139,000 btu/gal=	\$
Other	x =	\$
Total BTU Existing:		Total Existing Energy Cost: \$

B. Proposed (estimated) usage following completion of the project as per Energy Assessment or Energy Audit:

	Energy Used <i>(converting to BTU)</i>	Cost
Electricity (kWh)	x 3,412 btu/kWh=	\$
Propane/LP (gal)	x 91,502 btu/gal=	\$
Natural Gas (therm)	x 100,000 btu/therm=	\$
Diesel (gal)	x 139,000 btu/gal=	\$
Other	x =	\$
Total BTU Proposed:		Total Proposed Energy Cost: \$

Percent Energy Savings: (Total BTU Existing - Total BTU Proposed) ÷ Total BTU Existing: = %

Dollar Savings: Total Existing Energy Cost \$ - Total Proposed Energy Cost: \$ = \$ Dollars Saved

VIII. Describe how the proposed project will have a positive effect on:

A. Resource Conservation (e.g. water, soil, forest):
 Will the project save or replace fossil fuel consumption from finite resources? Yes No
 Will the project reduce water consumption? Yes No
 List additional resource conservation measures if applicable:

B. Public Health (e.g. potable water, improve air quality):
 Will the project decrease or replace fossil fuel consumption decreasing emissions leading to better air quality? Yes No
 List additional public health measures if applicable:

C. Environment (e.g. compliance with the U.S. Environmental Protection Agency (EPA) Renewable Fuel Standard (RFS), greenhouse gases, emissions, particulate matter):
 Will the project save or replace fossil fuel consumption reducing greenhouse gas emissions creating a healthier environment? Yes No
 List additional environmental measures if applicable:

IX. Commitment of Funds: Documentation is required to be attached for points under the commitment of funds scoring criteria.

Source:	Amount:\$	Attached: <input type="checkbox"/>
Source:	Amount:\$	Attached: <input type="checkbox"/>
Source:	Amount:\$	Attached: <input type="checkbox"/>
Source:	Amount:\$	Attached: <input type="checkbox"/>

X: Relationship:

This is to certify that I, as the Applicant, have a known or no known relationship or association with a Rural Development employee.

If there is a known relationship, please indicate the name of the Rural Development employee:

XI. Previous Funding:

I, the Applicant, have or have not, received any grants and/or guaranteed loans under the REAP program.

If grants or guaranteed loans have been received, identify each grant and/or guaranteed loan and describe the progress that has made on each project, including projected schedules and actual completions dates, if applicable:

XII. Good Standing:

I, the Applicant, being a legal entity, am or am not in good standing and operating in accordance with the laws of the State(s) or Tribe where I, the Applicant, have a place of business.

Not applicable, I am applying as a sole proprietor.

XIII. Certifications:

The Applicant certifies to each of the following: *(Check all that are applicable.)*

- A. The Applicant meets each of the Applicant eligibility criteria found in RD Instruction 4280.112.
- B. The proposed project meets each of the project eligibility requirements found in RD Instruction 4280.113(a), (b), (d), and (e).
- C. Per RD Instruction 4280.113(f), the Applicant acknowledges caution against taking any actions or incurring any obligations prior to the Agency's environmental review that limits the range of alternatives or has an adverse effect on the environment, such initiation of construction. If taken, it could result in project ineligibility.
- D. The Applicant meets the criteria for submitting an application for projects with Total Project Costs of \$80,000 or less.
- E. The Applicant or the Applicant's prime contractor assumes all risk and responsibilities of project development, including interim financing, including during construction. The Applicant is solely responsible for the execution of all contracts.
- F. Construction planning and performing development will be performed in compliance with RD Instruction 4280.119(c).
- G. The Applicant agrees not to request reimbursement from funds obligated under this program until after the project has been completed and is operating in accordance with the information provided in the application for the project.
- H. The Applicant will maintain insurance coverage as required under RD Instruction 4280.122(b).
- I. The design, engineering, testing, and monitoring will be sufficient to demonstrate that the proposed project will meet its intended purpose.
- J. The equipment required for the project is available, can be procured and delivered within the proposed project development schedule, and will be installed in conformance with manufacturer's specifications and design requirements. This would not be applicable when equipment is not part of the project.
- K. The project will be constructed in accordance with applicable laws, regulations, agreements, permits, codes, and standards.
- L. The Applicant will abide by the open and free competition requirements in compliance with RD Instruction 4280.124(a)(1).
- M. For bioenergy projects, that any and all woody biomass feedstock from National Forest System land or public lands cannot be used as a higher value wood-based product. (Check if applicable.)
- N. The Applicant will abide by the equal employment opportunity requirements in compliance with RD Instruction 4280.124(a)(2).
- O. The Applicant certifies that any excess power generated by the Renewable Energy System will be sold to the grid and will not be used by the Applicant for residential purposes. (Check if applicable.)

XIV. Attach the following if not already submitted:

- Form SF 424.
- Form SF-424C, "Budget Information-Construction Programs".
- Form SF-424D, "Assurances-Construction Programs".
- Form RD 1940-20 with documentation.
- Energy Audit or Energy Assessment.
- Matching funds documentation.
- Other. Describe:

XV. Certification of Documentation and Acceptance:**CERTIFICATION AND ACCEPTANCE**

I certify that, to the best of my knowledge and belief, the information included with this Application, including all attachments, are true and correct, and that I certify to each of the conditions specified in Section X-XIII of this application.

AGRICULTURAL PRODUCER \ RURAL SMALL BUSINESS

Signature (AGRICULTURAL PRODUCER \ RURAL SMALL BUSINESS NAME)

By: _____ (Officer, Member, Partner, Proprietor)

Title: _____

Date: _____

INSTRUCTIONS FOR FORM RD 4280-3A

The following information is based on the programmatic requirements for the Rural Energy for America Program (REAP) found in RD Instruction 4280 part B. If there are differences between the information found in this form and RD Instruction 4280 part B, RD Instruction 4280 part B will take precedence.

Block I. A. Self Explanatory.

Block I B, C, and D. The purpose of these questions are to gather race, ethnicity, and gender information about persons who apply and participate in this USDA program. The information provided will not be used when reviewing the application or determining eligibility to participate in this program. The answers provided are voluntary and are not required to be considered a complete application. The information provided will be used to improve the operation of this program, to help USDA design additional opportunities for program participation, and to monitor enforcement of laws that require equal access to this program for eligible persons. For entities, check all that apply. Information will be kept private to the extent permitted by law.

Block II. Self-Explanatory.

Block III. Each Applicant must have a Dun and Bradstreet Data Universal Number System (DUNS) number corresponding to their tax identification/social security number as provided on the SF424 form. Except for loan only requests, the DUNS number must be registered in the System for Award Management (SAM) (www.sam.gov). Upon successful registration, a Commercial and Government Entity (CAGE) code is assigned. Enter the assigned CAGE code and expiration date.

Block IV. Eligible Applicants must be either an Agricultural Producer or a Rural Small Business. Indicate under which category the applicant is applying. (An Agricultural Producer may apply as a Rural Small Business if they meet the size and Rural Area requirements identified below.)

Provide a description of the operation. This will assist the Agency in evaluating Applicant eligibility and identifying the appropriate North American Industry Classification System (NAICS) code, if unknown by the Applicant

The following definitions will assist in completing this Block.

Agricultural Producer. An individual or entity directly engaged in the production of agricultural products, including crops (including farming); livestock (including ranching); forestry products; hydroponics; nursery stock; or aquaculture, whereby 50 percent or greater of their gross income is derived from those products.

Rural Small Business. A Small Business that is located in a Rural Area or that can demonstrate the proposed project for which assistance is being applied for under this subpart is located in a Rural Area.

Small Business. An entity or utility, as applicable, that meets the Small Business Administration's (SBA) definition of small business as found in 15 U.S.C. 632 (13 CFR part 121.301 (a) or (b)) and as further defined in RD Instruction 4280.103.

Rural or Rural Area. Any area of a State not in a city or town that has a population of more than 50,000 inhabitants as further defined in RD Instruction 4280.103.

Affiliates. Defined in 13 CFR 121.103, an affiliation exists when one individual or entity controls or has the power to control another or when a third party or parties control or have the power to control both. Factors such as ownership, management's previous relationships with or ties to another entity, and contractual relationships are considered when determining whether affiliation exists. An "affiliate" includes but not limited to: (1) a parent company; (2) subsidiaries and other companies that are owned or controlled by the applicant; (3) companies in which an officer, director, general partner, managing member, or party owning 20 percent or more is also an officer, director, general partner, managing member, or 20 percent or greater owner of the Applicant; (4) companies or individuals with unexercised options to own 50 percent or more of the applicant's stock; and (5) companies that have entered into agreements to merge with the Applicant.

Annual Receipts. Annual Receipts as defined in 13 CFR 121.104. In general, Annual Receipts includes "total income" (or in the case of a sole proprietorship, "gross income") plus "cost of goods sold" as these terms are defined and reported on Internal Revenue Service tax return forms. Receipts are averaged over a concern's latest three (3) completed fiscal years to determine its average annual receipts.

Employees. The number of employees is the average number of persons employed for each pay period over the latest 12 calendar months.

Block IV. A. A Rural Small Business Applicant may qualify under either the industry size standards found in 13 CFR 121.301(a) or the alternative size standards found in 13 CFR 121.301(b)(2) which are described below. Attach documentation for the business such as tax returns and payroll records to verify income or employee numbers. If the business has affiliates, the Agency reserves the right to request additional information on annual receipts or number of employees for affiliates, in order to determine program eligibility.

Provide the NAICS code, if known, applicable to the Rural Small Business. (www.naics.com)

To qualify under the alternative size standard, the Rural Small Business Applicant, including any Affiliates, must meet the following:

- (1) Have a maximum tangible net worth for the Applicant and its Affiliates is not more than \$15,000,000; and
- (2) Have average net income after Federal income taxes (excluding any carry-over losses) for the Applicant and its affiliates, for the 2 full fiscal years before the date of the application, of not more than \$5,000,000.

Block IV. B. To qualify as an Agricultural Producer the Applicant must be engaged in agricultural production including the growing, raising labor, management, and field operations associated with the agricultural production. Fifty percent or more of Applicant's income must come from the production and raising of agricultural products. Agricultural production income includes: sale of crops, livestock, fish and seafood, and payments related to crops or livestock production, such as insurance and commodity payments. Agricultural income does not include purchase and resale of agricultural products, custom hire income, or conservation and land trust payments made to keep land out of production. Attach documentation such as tax returns. The Agency will use information from 3 most recent years to calculate and verify eligibility as an Agricultural Producer.

Block IV. B. 1. Income directly related to agricultural products. Examples include: income (less cost of goods sold) received from the sale of crops, livestock, timber, fish and seafood; crop insurance; and commodity payments. The Agency will average agricultural production income over the 3 most recent years.

Block IV. B. 2. Include all income sources W-2 income, Schedule C, and non-ag income. Include custom hire, cooperative dividends, payments received for taking land out of production such as conservation and land trust payments. The Agency will average total income over the 3 most recent years.

Block IV. B. 3. Average of 3 years agricultural production income (B.1) ÷ Average of 3 years total income (B.2).

Block IV. B. 4. Provide the NAICS code, if known, applicable to the agricultural production operation. (www.naics.com)

Block V. Indicate the type of project: Renewable Energy System or Energy Efficiency Improvement. For Renewable Energy System projects, the information for this section may be contained in an Agency approve Renewable Energy Site Assessment.

A Renewable Energy System is a system that produces usable energy from a renewable energy source (wind, solar, renewable biomass, ocean, geothermal, hydroelectric, or hydrogen derived from one of these renewable energy resources).

An Energy Efficiency Improvement is an improvement to or replacement of an existing building and/or equipment that reduces energy consumption on an annual basis. *Note: an Applicant proposing to install a Renewable Energy System may file an Energy Efficiency Improvement application, if an energy audit or energy assessment has been completed and indicates that there will be energy savings.*

Block V. A. Project description should include: Size of the project, projected energy generation (including energy generated for sale if applicable), intended purpose, (i.e. new facility and the energy produced by the Renewable Energy System will be used by the new facility for on-site use or replacing an existing fossil fuel energy source with a Renewable Energy System for on-site use and includes net metering agreement for any excess energy produced). Name of equipment and model numbers (as applicable) should be noted in detailed description.

Block V. B. Provide the location of the project site and a description of the site. Location can be an address or legal description. Include information about whether site is wooded, open, industrial park, or farm land. Is the project close to buildings, etc.

Block V. C.- D. For commercially available complete either part C or part D, as appropriate, for Renewable Energy Systems.

A Renewable Energy System can demonstrate commercial availability, if it has been certified by a recognized industry organization whose certification standards are acceptable to the Agency. Examples of recognized industry organization whose certification standards are acceptable to the Agency include, but are not limited to: *Small Wind Certification Council, Certified Wind Turbines*, <http://smallwindcertification.org/certified-small-turbines/>; Solar Rating and Certification Corporation (SRCC) <http://www.solar-rating.org/index.html>; *Florida Solar Energy Center*, <http://www.fsec.ucf.edu/en/>. A full list can be found in RD Instruction 4280.103.

Complete commercially available Block V. C. for Energy Efficiency Improvements.

Block V. E. Describe the projected financial performance of the proposed project. For Renewable Energy System projects, the information for this section may be contained in an Agency approve Renewable Energy Site Assessment. The description shall address total project costs and eligible project costs; energy replacement/savings; and revenues from energy sold to the grid and revenues from byproducts. Do not include any investment and other production incentives. Revenues to be considered shall accrue from the sale of energy, replacement (offset) or savings in energy costs, and sale of byproducts.

Block V. E. 1. Total Project Costs. The sum of all costs associated with a completed project known at time of application submittal. Total Project Cost shall include all costs directly related to the purchase, installation, and construction of the Renewable Energy System or Energy Efficiency Improvement project that are known and planned to be incurred for the project. Total project costs do not include construction or equipment costs that would be incurred regardless of the installation of the Renewable Energy System or Energy Efficiency Improvement project. For example, the foundation for a building where a Renewable Energy System is being installed, storage only grain bins connected to drying systems, and roofing of a building where solar panels are being attached.

Eligible Project Costs. The total project costs that are eligible to be paid or guaranteed with REAP funds.

Eligible Project Costs for grants are identified in 4280.114 (c) and described below, are **only those costs incurred after a Complete Application has been received by the Agency** and are directly related to and its use and purpose is limited to the Renewable Energy System or Energy Efficiency Improvement:

- (1) Purchase and installation of new or refurbished equipment.
- (2) Construction, retrofitting, replacement, and improvements.
- (3) Energy Efficiency Improvement(s) identified in the applicable Energy Assessment or Energy Audit.
- (4) Fees for construction permits and licenses.
- (5) Professional service fees for Qualified Consultants, contractors, installers, and other third-party services.
- (6) For an eligible Renewable Energy System in which a residence is closely associated with the Rural Small Business or agricultural operation the installation of a second meter to separate the residence from the portion of the project that benefits the Rural Small Business or agricultural operation, as applicable.

For guaranteed loans eligible project cost can also include:

- (1) Working capital.
- (2) Land, building, and equipment acquisition.
- (3) Routine lender fees.
- (4) Energy Assessments, Energy Audits, technical reports, business plans, and Feasibility Studies, except if any portion was financed by any other Federal or State grant or payment assistance.
- (5) Refinancing outstanding debt.

For a complete list of eligible costs and funding restrictions for guaranteed loans see RD Instruction 4280.129(e).

Block V. E. 2. a. Identify the amount of renewable energy to be generated through the deployment of the proposed system.

If applicable, identify the existing energy system and type(s) of fuel used, including historical annual energy consumption at the facility for energy replacement projects, based upon previous 12 months of energy consumption. Note only energy used by the eligible Rural Small Business or agricultural production facility should be included. Any historical residential usage must be deducted.

If applicable, calculate the percentage of energy being replaced by the proposed system. Percent energy replaced is calculated by dividing the annual amount of renewable energy to be generated by the historical annual energy usage of the business operation then multiplying by 100.

If the percentage exceeds 100 percent, there are special instructions for calculating the energy revenue for the proposed system in the Block V. E. 2. a. iii.

If the amount of energy exceeds 150 percent, the project will be treated as an energy generation project. Ensure like units (British Thermal Units (BTU), kilowatt hours (kWh), etc.) are used when making the calculation.

Please identify the units of measure for the energy that is being used: kWh or BTU. Information must be provided to allow the calculation of Simple Payback as defined below and in RD Instruction 4280.103.

Block V. E. 3. Enter the average energy retail price paid over the most recent 12 months in E. 3. a. Enter the rate the utility will be paying for energy produced from the Renewable Energy System in E. 3. b.

Block V. E. 4. Energy replacement projects (Renewable Energy System projects that will offset current energy usage of the Applicant), replacing less than or equal to 100 percent of the Applicant's current energy usage will use line E. 4. a. to determine value of energy, using the total amount of energy identified in E. 2.a. i.

Energy replacement projects that replace over 100 percent but less than 150 percent will complete both lines E. 4. a., and E. 4. c. Line E. 4. a. will be the value of the amount of energy replaced or line E. 2. a. ii. multiplied by E. 3. a. For the energy that exceeds 100 percent of replacement energy or (E. 2. a. i. - E. 2. a. ii.), will be multiplied by E. 3. b., which is the energy rate received from the utility for the power being sold onto the grid.

For projects that are energy generation projects, including those energy replacement projects that replace over 150 percent, should complete line E. 4. c. Line E. 4. c. will be the amount of energy generated, which was identified in line E. 2. a. i., multiplied by the value in line E. 3. b.

Energy Efficiency Improvement project (energy saving project) should use the amount of energy identified in E. 2. b. multiplied by the retail cost of energy identified in E. 3. a.

E. 4. d. should total the value of all energy, including the value of the energy replaced and the value of the energy sold to the grid or the value of the energy saved.

- Block V. E. 5. For energy generation projects only, all energy-related revenue streams and all revenue from byproducts expected to be produced by the energy system for a typical year including the fair market value of byproducts produced by and used in the project or related enterprises should be listed here.
- Block V. E. 6. Self-Explanatory.
- Block V. E. 7. Self-Explanatory.
- Block V. E. 8. Self-Explanatory.
- Block V. E. 9. Self-Explanatory.
- Block V. E.8.-9. Definitions.

Simple Payback. The estimated Simple Payback of a project funded under this subpart is calculated using paragraph (1) or (2) as applicable:

- (1) **For projects that generate energy for use onsite**, Simple Payback is calculated as follows:
- (i) Simple Payback = (Eligible Project Costs) ÷ (typical years earnings before interest, taxes, depreciation, and amortization (EBITDA) for the project only).
 - (ii) EBITDA is based on:
 - (A) All energy-related revenue streams and all revenue from byproducts produced by the energy system for a typical year including the fair market value of byproducts produced by and used in the project or related enterprises.
 - (B) Income remaining after all project obligations are paid (operating and maintenance).
 - (C) The Agency's review and acceptance of the project's typical year income (which is after the project is operating and stabilized) projections at the time of application submittal.
 - (D) Does not include any tax credits, carbon credits, renewable energy credits, and one-time construction and investment-related benefits.
- (2) **For projects that reduce (save) or replace onsite energy use**, (e.g., Energy Efficiency Improvement projects that reduce and Renewable Energy System projects that replace onsite energy use), Simple Payback is calculated as follows:
- (i) Simple Payback = (Eligible Project Costs) ÷ (Dollar Value of Energy reduced or replaced):
 - (ii) Dollar Value of Energy reduced or replaced incorporates the following:
 - (A) Energy reduced or replaced will be calculated on the quantity of energy saved or replaced as determined by subtracting the result obtained under paragraph (A)(2) from the result obtained under paragraph (A)(1) of this definition, and converting to a monetary value using a constant value or price of energy (as determined under paragraph (A)(3) of this definition).
 - (1) Actual energy used in the original building and/or equipment, as applicable, prior to the Renewable Energy System or Energy Efficiency Improvement project, must be based on the actual average annual total energy used in BTU over the most recent 12, 24, 36, 48, or 60 consecutive months of operation.
 - (2) Projected energy use if the proposed Renewable Energy System or Energy Efficiency Improvement project had been in place for the original building and/or equipment, as applicable, for the same time period used to determine that actual energy use under paragraph (2)(ii)(A)(1) of this definition.
 - (3) Value or price of energy must be the actual average price paid over the same time period used to calculate the actual energy used under paragraph (2)(ii)(A)(1) of this definition. Renewable Energy System projects that will replace 100 percent of an Applicant's energy use will be required to use the actual average price paid for the energy replaced and the projected revenue received from energy sold in a typical year.
 - (B) Does not allow Energy Efficiency Improvements to monetize benefits other than the dollar amount of the energy savings the Agricultural Producer or Rural Small Business realizes as a result of the improvement.
 - (C) Does not include any tax credits, carbon credits, renewable energy credits, and one-time construction and investment-related benefits.

Block V.F. Describe the key service providers for the project, including the number of similar systems installed and/or manufactured, professional credentials, licenses, and relevant experience. When specific numbers are not available for similar systems, estimations will be acceptable. Attach additional pages if required.

Block VI. Complete this Block for Renewable Energy System projects only. Energy Efficiency Improvement projects should complete Block VII. Hybrid projects are a combination of two or more Renewable Energy System technologies that

are incorporated into a unified system to support a single project. *Projects which propose two or more different Renewable Energy System technologies at two or more locations (a different technology at each site) are not eligible.*

Block VI. A. 1. Self-Explanatory.

Block VI. A. 2. An application for installation of a Renewable Energy System to serve a residence only is not eligible. For an installation of Renewable Energy System that is closely associated with and shares an energy metering device with the Rural Small Business or agricultural operation, the application is eligible if one of the following options is met.

- (1) Demonstration that 51 percent or greater of the energy to be generated will benefit the Rural Small Business or agricultural operation; (In this scenario the eligible project cost will be determined based on the actual percentage of energy determined to benefit the Rural Small Business or agricultural operation.) (Ex. If 56 percent of the energy from the project is going to benefit the business operation 56 percent of the total project cost will be considered eligible for REAP assistance);
- (2) The Applicant certifies in the application that any excess power generated by the Renewable Energy System will be sold to the grid and will not be used by the Applicant for residential purposes; or
- (3) If the project cannot meet either of the above criteria, installation of a second meter (or similar device) that results in all of the energy generated being used for non-residential energy usage will be required.

Block VI. B. Provide information which allows the Agency to determine that an adequate renewable energy resource is available at the project site. Cite the source used in making the determination that an adequate resource exists.

Examples of online estimating tools may include, but are not limited to: PVWatts, National Renewable Energy Laboratory (NREL) solar and wind maps, etc.

Examples of site specific monitoring devices may include, but are not limited to: Solar pathfinder or anemometer (wind) installations, etc.

Other tools may include, but are not limited to: GeoExcel or similar design software used in geothermal analysis, airport wind roses, Geographic Information Systems (GIS), energy calculators (EIA.gov), United States Geological Survey maps and images, Global Positioning System (GPS) receivers, etc.

An Agency approved Site Assessment may be used to provide information on Project Description, Resource Assessment, and Project Economic Assessment. In such instances, the technical report would consist of Section D and the Renewable Energy Site Assessment. If a site assessment was completed for the project that does not provide Project Description, Resource Assessment, and Project Economic Assessment, the site assessment can still be used, but the information missing will need to be provided to the Agency in this form.

Block VII. This Block is for Energy Efficiency Improvement projects only. Renewable Energy Systems can go to Block VIII to continue with the application process.

Provide the information relating to the Energy Efficiency Improvement as documented in an Energy Assessment or Energy Audit. Convert energy to BTU by use of the noted conversion factors. ATTACH THE ENERGY ASSESSMENT OR ENERGY AUDIT TO THIS FORM.

Definitions

Energy Assessment. Defined in RD Instruction 4280.103, an Agency-approved report assessing energy use, cost, and efficiency by analyzing the energy bills and surveying the target building and/or equipment sufficiently to provide an Agency-approved assessment.

The assessment may be conducted by an Energy Auditor or an Energy Assessor or an individual supervised by either an Energy Assessor or Energy Auditor. The final Energy Assessment must be validated and signed by the author. OR

For projects with Total Project Cost is \$80,000 or less, the Energy Assessment may be completed by an individual or entity that has at least 3 years of experience and completed at least five energy assessments or energy audits on similar type projects.

Energy Assessor. A Qualified Consultant who has at least 3 years of experience and completed at least five energy assessments or energy audits on similar type projects and who adheres to generally recognized engineering principles and practices.

Qualified Consultant. An independent third-party individual or entity possessing the knowledge, expertise, and experience to perform the specific task required.

Energy Audit. As further defined in RD Instruction 4280.103 a comprehensive report meeting Agency approval approved by an Energy Auditor an individual supervised by an Energy auditor that documents current energy usage; recommended potential improvements and their costs; energy savings from the improvements; dollars saved per year; and Simple Payback. The methodology of the Energy Audit must meet professional and industry standards. The final Energy Audit must be validated and signed by the author.

Energy Auditor. A Qualified Consultant that meets one of the following criteria:

- (1) A Certified Energy Auditor certified by the Association of Energy Engineers;
- (2) A Certified Energy Manager certified by the Association of Energy Engineers;
- (3) A Licensed Professional Engineer in the state in which the audit is conducted with at least 1 year experience and who has completed at least two similar type energy audits; or
- (4) An individual with a 4-year engineering or architectural degree with at least 3 years of experience and who has completed at least five similar type energy audits.

Block VIII. An application will be scored on environmental benefits and will receive a maximum of 5 points if the Applicant has documented in the application that the proposed project will have a positive effect on any of the three impact areas: resource conservation (e.g., water, soil, forest), public health (e.g., potable water, air quality), and the environment (e.g., compliance with EPA(s) RFS(s), greenhouse gases, emissions, particulate matter). Points will be awarded as follows:

- (1) If the proposed project has a positive impact on any one of the three impact areas, 1 point will be awarded.
- (2) If the proposed project has a positive impact on any two of the three impact areas, 3 points will be awarded.
- (3) If the proposed project has a positive impact on all three impact areas, 5 points will be awarded.

Block IX. Describe sources and amount of all funds that will be used to complete the project. In order to receive points under the readiness scoring criteria written commitments must be attached. Attach written commitments (e.g. Letter of Commitment, bank statement) from each source that is providing funds. Third party commitment letters must be signed by the authorized party, be specific to the project and identify the dollar amount and any applicable rates and terms. Letter of intent, pre-qualification, subject to bank approval, or other underwriting requirements are NOT acceptable. Conditionalizing on receipt of REAP funds or appraisal is acceptable.

Block X. Self Explanatory.

Block XI. Self Explanatory.

Block XII. Self Explanatory.

Block XIII A. Applicant eligibility requirements as defined in RD Instruction 4280.112 include:

The Applicant must be an agricultural producer or rural small business, as defined in RD Instruction 4280.103.

The Applicant must (1) own or be the prospective owner of the project; and (2) own or control the site for the project described in the application at the time of application and, if an award is made, for the useful life of the project as described in the grant agreement.

The Applicant must have available at the time of application satisfactory sources of revenue in an amount sufficient to provide for the operation, management, maintenance, and any debt service of the project for the useful life of the project. In addition, the Applicant must control the revenues and expenses of the project, including its operation and maintenance, for which the assistance is sought. Notwithstanding the provisions of this paragraph, the Applicant may employ a qualified consultant under contract to the owner to manage revenues and expenses of the project and its operation and/or maintenance.

Block XIII. B. Project eligibility requirements as defined in RD Instruction 4280.113 include:

- (1) Be for the purchase of a new or refurbished Renewable Energy System, the retrofitting of an existing Renewable Energy System, or making Energy Efficiency Improvements that will use less energy on an annual basis than the original building and/or equipment that it will improve or replace as per an energy assessment or energy audit. Types of improvements include, but are not limited to:
 - (i) Efficiency improvements to existing Renewable Energy Systems.
 - (ii) Construction of a new energy efficiency building only when the building is used for the same purpose as the existing building, and, based on an energy assessment or energy audit, as applicable, it will be more cost effective to construct a new building and will use less energy on an annual basis than improving the existing building.
 - (iii) Subsequent improvements such as those that replace or duplicate improvements previously funded under this subpart may or may not be eligible for funding:
 - (A) If the replacement is prior to the end of the existing funded equipment's useful life, then the proposed improvement even if more energy efficient is ineligible.
 - (B) If the replacement is at or after the end of the existing funded equipment's useful life, then it is eligible for funding provided it is more energy efficient than the previously funded improvement.
- (2) Be for a commercially available and replicable technology;
- (3) Have technical merit as defined in RD Instruction 4280.116;
- (4) Be located in a rural area in a State if the type of Applicant is a rural small business, or in a rural or non-rural area in a State if the type of Applicant is an agricultural producer. If the agricultural producer's facility is in a

non-rural area, then the application can only be for Renewable Energy Systems or Energy Efficiency Improvements on integral components of or that are directly related to the facility, such as vertically integrated operations, and other value added components of the agricultural production operation, and are part of and co-located with the agriculture production operation.

- Block XIII. C. Self Explanatory.
- Block XIII. D. Self Explanatory.
- Block XIII. E. Self Explanatory.
- Block XIII. F. As defined in RD Instruction 4280.119(c), the Applicant is solely responsible for the execution of all contracts and Agency review and approval are not required.
- Upon completion of the project, if awarded, the grantee must submit to the Agency a copy of the contractor's certification of final completion for the project and a statement that the grantee accepts the work completed. At its discretion, the Agency may require the Applicant to have an Inspector certify that the project is constructed and installed correctly.
- The Renewable Energy System or Energy Efficiency Improvement must be constructed, installed, and operating as described in the technical report prior to disbursement of funds. Renewable Energy Systems must be operating at the noted steady state operating level for a period of not less than 30 days prior to disbursement of funds.
- Executed contracting forms as outlined by the Agency in the Letter of Conditions will be required by all persons who furnished materials and labor in connection with the contract.
- Block XIII. G. Projects as proposed, must be completed in their entirety prior to requesting reimbursement of funds.
- Block XIII. H. Required insurance identified in RD Instruction 4280.122(b) is:
- Agency approved insurance coverage must be maintained for 3 years after the Agency has approved the final performance report unless this requirement is waived or modified by the Agency in writing. Insurance coverage shall include, but is not limited to:
- (1) Property insurance, such as fire and extended coverage, will normally be maintained on all structures and equipment.
 - (2) Liability.
 - (3) National flood insurance is required in accordance with 7 CFR part 1806, subpart B, of this title, if applicable.
- Block XIII. I. The Agency is not getting detail information on system design and how the different components will work together to provide the desired outcome. Therefore the applicant must certify that the design, engineering, testing, and monitoring will be sufficient to demonstrate that the proposed project will meet its intended purpose.
- Block XIII. J. Self Explanatory.
- Block XIII. K. Self Explanatory.
- Block XIII. L. Open and free competition requirements require applicants to solicit prices from multiple sources before deciding on one vendor.
- All procurement transactions, regardless of procurement method and dollar value, must be conducted in a manner that provides maximum open and free competition. Procurement procedures must not restrict or eliminate competition. Competitive restriction examples include, but are not limited to, the following: placing unreasonable requirements on firms in order for them to qualify to do business; noncompetitive practices between firms; organizational conflicts of interest; and unnecessary experience or excessive bonding requirements. In specifying material(s), the grantee and its consultant will consider all materials normally suitable for the project commensurate with sound engineering practices and project requirements. The Agency will consider any recommendation made by the grantee's consultant concerning the technical design and choice of materials to be used for such a project. If the Agency determines that a design or material, other than those that were recommended, should be considered by including them in the procurement process as an acceptable design or material in the project, the Agency will provide such Applicant or grantee with a comprehensive justification for such a determination. The justification will be documented in writing.
- Block XIII. M. This certification is required for bioenergy projects that proposed to use woody biomass from a National Forest System or public lands, as a feedstock. The applicant must certify that any and all woody biomass that comes from a National Forest System land or public lands cannot be used as a higher value wood-based product. For bioenergy projects that use woody biomass from private land, this certification is not required.
- Block XIII. N. Self Explanatory.
- Block XIII. O. For a project that involves an installation of Renewable Energy System that is closely associated with and shares an energy metering device with the Rural Small Business or agricultural operation, the applicant must either:
- (1) demonstrate that 51 percent or more of the energy will benefit the Rural Small Business or agricultural operation,

- (2) install a second meter (or similar device) that results in all of the energy generated being used for non-residential energy usage or sold to the grid, or
- (3) provide the certification identified.

Block XIV. Self Explanatory

Block XV. Original signature in blue ink required. Agency reserves the right to ask for additional information to verify certifications made or to determine project and Applicant eligibility.