Energy Efficiency Opportunities at USDA

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Abstract

The U.S. Department of Agriculture (USDA) is responsible for much more than simply agricultural regulation. In many ways, it would be more accurately reflected by a title like the "U.S. Department of Rural Communities." Energy efficiency is a component of many USDA assistance programs. Unfortunately, energy efficiency program managers without specific expertise in agriculture tend to overlook USDA as a potential source of funding and a valuable partner for outreach to rural communities across the country. Despite attempts by USDA to make information about its energy programs more readily accessible, it remains difficult to get a comprehensive overview of the energy efficiency programs that are available. This paper is intended to provide an overview of the various programs at USDA that address energy use in rural America. This paper will also examine changes to existing energy efficiency programs proposed in both the House and Senate versions of the Farm Bill. It will conclude by offering a set of recommendations to make energy efficiency resources at USDA more accessible.

Introduction

The U.S. Department of Agriculture has existed for over 150 years, since President Lincoln established the agency during the Civil War. Lincoln called it "The People's Department," which at the time, made sense—while Lincoln was in the White House, over three-quarters of all Americans lived in rural areas (Gibson 2012). Today, most Americans live in urban or suburban areas and have little day-to-day contact with agriculture, other than buying food at the grocery store that might have been grown thousands of miles away. Only about 20% of contemporary Americans live in rural areas, and about 1% live on farms (Gibson 2012). Agricultural policy is very frequently overlooked by members of the energy efficiency community, many of whom are based in urban areas.

USDA is responsible for much more than simply agricultural regulation. In many ways, it would be more accurately reflected by a title like the "U.S. Department of Rural Communities." There is a wide array of programs at USDA, from marketing and research to food safety, environmental protection, and nutrition services. Rural communities have historically faced many challenges that are unique compared to those in more densely-packed areas. USDA has positioned itself to be in charge of improving rural quality of life in light of these unique challenges. For example, electric utilities have much higher operating costs per customer in rural areas. There are fixed costs associated with maintaining each mile of transmission line, but in a city the utility might serve sixty per mile, while in a rural area the utility might only serve six. Before New Deal legislation in the 1930s, a large percentage of rural families did not have electricity at all because it was not profitable for utilities to run lines out to remote communities. Today, the Rural Electrification Service (RUS) at USDA helps ensure that all rural Americans have access to affordable power. Similarly, many rural businesses face challenges stemming from their location. Shipping costs can be higher when a store is far away from both distribution centers and other delivery points. Various forms of assistance are available from USDA for rural businesses, both to sustain non-farm jobs and to ensure that essential businesses, like grocery stores and pharmacies, are available.

Energy efficiency is a component of many USDA assistance programs. Unfortunately, energy efficiency program managers without specific expertise in agriculture tend to overlook USDA as a potential source of funding and a valuable partner for outreach to rural communities across the country. Despite attempts by USDA to make information about its energy programs more readily accessible, it remains difficult to get a comprehensive overview of the energy efficiency programs that are available.

This paper is intended to provide an overview of the various programs at USDA that address energy use in rural America. Over the long history of USDA, programs have been added and changed, and not always in the most comprehensive or organized fashion. Additionally, the Farm Bill is up for reauthorization in the fall of 2013, which could be an opportunity for USDA to make

changes to its energy efficiency programs.[1] This paper will examine changes to existing energy efficiency programs proposed in both the House and Senate versions of the Farm Bill. It will conclude by offering a set of recommendations to make energy efficiency resources at USDA more accessible.

WHAT IS RURAL?

Before we continue, we must consider what we mean by "rural." The word *rural*, originally derived from the Latin *ruralis* or "open land," evokes images of wide-open farm fields or remote woods and meadows. However, "rural" is actually a term with a wide variety of definitions, according to the U.S. government. Recently, an article in the *Washington Post* pointed out that there are over a dozen different definitions of "rural" being used by different departments or offices, 11 of which are used by USDA alone. A rural area could be any place with fewer than 50,000 residents, or 20,000, or 2,500. It could be any area with a population density below a certain threshold. It could even be an area simply judged to be "rural in character" (Fahrenthold 2013). For the purposes of this paper, we will use the broad-but-vague definition of "rural" to be "any place that is not a city or suburb," unless a more specific definition is needed.

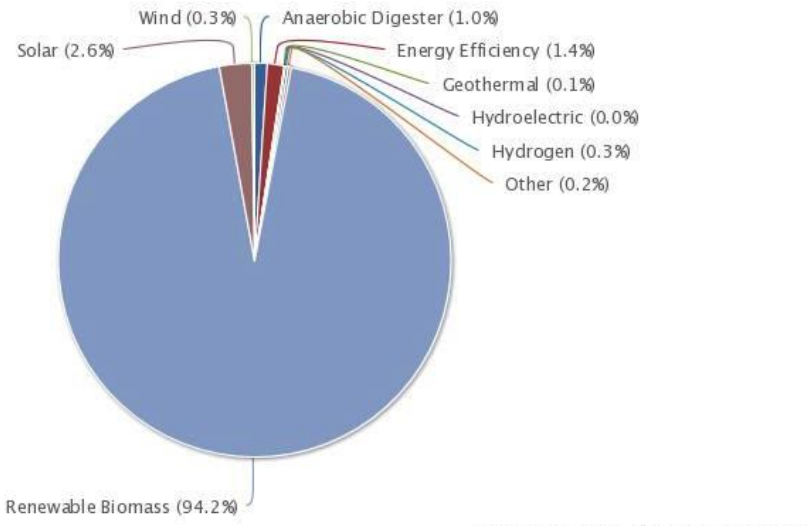
Energy at USDA

Energy is one of the many areas that affect farmers and rural communities. USDA gives a significant amount of attention to "alternative" or "renewable" energy sources, including biofuels, wind, and energy efficiency. However, energy efficiency is only a very small part of the energy work funded by USDA. The chart below shows USDA's funding for "renewable" energy programs administered by Rural Development.[2]

[1] As of the end of June 2013, separate versions of the Farm Bill have been passed by the Senate and rejected by the House. Since a revised House Farm Bill has not been made available yet, this report looks at the House Farm Bill that was rejected.

[2] The USDA Energy Investment Report database appears to have some missing or inaccurately categorized data. However, we feel that it provides a reasonable estimate for the magnitude of energy investments at USDA, so we use data from the database throughout this paper.

Figure 1. Investment by Energy Type, Limited to Year 2012

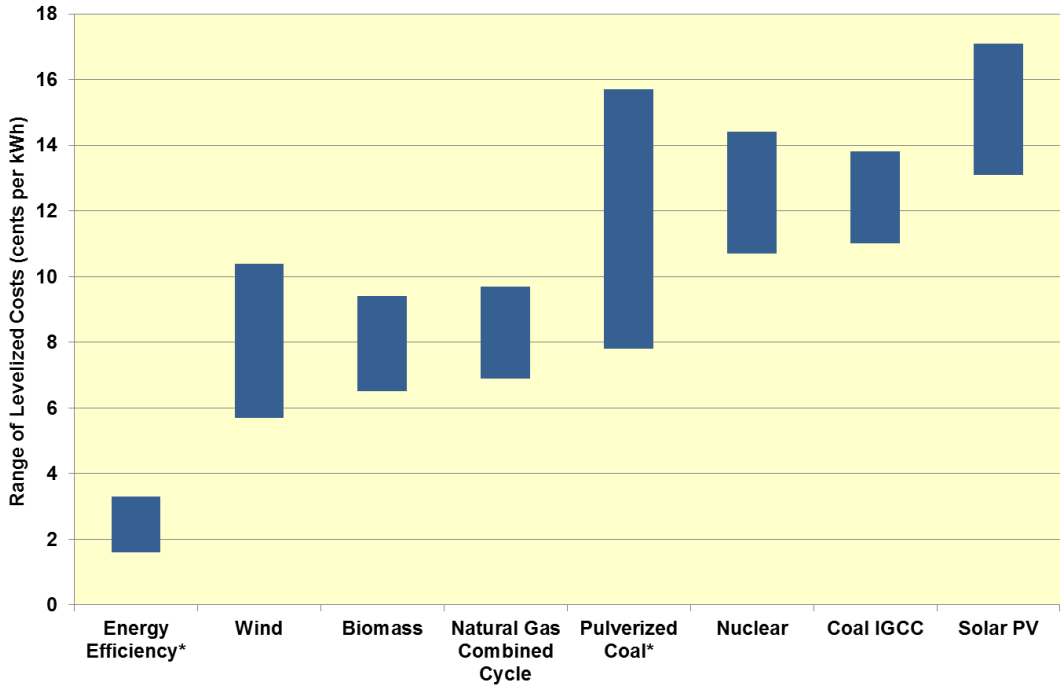


Source: USDA 2013b

The vast majority of alternative energy funds at USDA go to biofuels. This includes crop assistance for farmers who grow biofuel feedstock crops, research and development, and assistance for processing facilities. Programs include the Biomass Crop Assistance Program (BCAP), the Advanced Biofuel Producer Program, and others. (USDA 2013b. To some degree, the emphasis on biofuels makes sense. Biofuel crops are potentially very profitable for farmers, and raising farm income can lead to higher rural quality of life. In the long run, biofuels have the potential to become an important part of the energy mix in the United States as the economy transitions away from fossil fuels. However, without subsidies, biofuels currently are a long way from being a commercially viable substitute for conventional fuels on a large scale.

Rural communities stand to benefit significantly from energy efficiency, and the topic deserves more resources from USDA than it currently gets. Currently, energy efficiency is the most cost-effective of the "alternative" energy sources. As shown in Figure 1, each kilowatt-hour of electricity saved through energy efficiency only costs about 2-3 cents, as opposed to other fuels, which cost much more per kilowatt-hour. (For comparison, the average retail price of electricity across all sectors is just under 10 cents per kilowatt hour.)

Figure 2. Cost of Energy Efficiency per kWh Compared to Other Fuels



Source: Friedrich 2009, Lazard 2012.

A relatively small investment in energy efficiency can produce a significant "bang for the buck" in terms of reduced expenditures on electricity or fuel down the road. This investment will benefit cash-strapped farmers who generally operate on very tight profit margins and without large cash reserves, as well as rural businesses and homeowners who face the challenges associated with being located in low population density areas. Additionally, the current political climate is such that minimizing spending by Federal agencies is a priority, and existing resources are tight due to the Sequester. USDA resources would probably be more effectively spent if the proportion of funds dedicated to energy efficiency were to increase and the proportion of funds dedicated to biofuels were to decrease.

Farmers in particular stand to benefit significantly from energy efficiency. Many farmers have a precarious financial situation. The average American farmer is 57 and has a take-home income of about $29,000 annually. On-farm energy expenses average about $11,000 annually, or 7% of total expenses. Farming is a risky business and to a certain degree, farmers are at the whim of nature. Various USDA subsidies and crop insurance programs are designed to lessen the impact of a bad year, but not all farmers can access the same coverage. Furthermore, not all of these programs cannot fully compensate farmers for 100% of lost profits, and the ones that do require farmers to pay higher premiums out-of-pocket (Shields 2010). Farmers have many expenses, including chemicals like fertilizers and pesticides, farm labor, and seed, as well as energy expenses like lighting and diesel fuel for farm equipment. If farm expenditures can be lowered through energy efficiency, then the chances of a farm being profitable increase.

Leadership from USDA (as well as other trusted information sources such as the Farm Bureau[3]) is essential for getting farmers to adopt energy efficiency measures. As a group, farmers tend to be very risk-averse. Face-to-face interactions are particularly important because while about 2/3 of American farms have Internet access, only about a third use computers for farm-related business (USDA 2011b). But even if a new technology or technique looks good on paper, many farmers are reluctant to make changes without assurances of success without assurances of success from some kind of trusted source, be it a county extension agent, USDA Rural Development representative, Farm Bureau employee, or even a fellow farmer. For the farmer, this risk-aversion is entirely rational. If they have a system that they know works, they may be reluctant to take a risk on something that has a *chance* of being better, because if it fails, they could lose their livelihood. These various "trusted partners" have the ability to rapidly speed the diffusion of new, energy-saving techniques. However, energy efficiency is not always a priority for these trusted partners (Mazur-Stommen, Vigen and Farley 2013). There will always be early adopters who get excited about new technology for its own sake, but in general the diffusion of new technology among farmers remains slow.

But clearly farmers could benefit a great deal from on-farm energy efficiency improvements, so it is appropriate for USDA to support these investments. Many of the USDA energy efficiency programs provide financial support in the form of grants or loans for energy-efficient farm equipment. Such assistance enables farmers that simply do not have the means to make such a large investment access to energy efficient technologies.

Additionally, USDA energy efficiency programs can help with feasibility studies, energy audits, and environmental assessments. Such programs can help farmers obtain a comprehensive idea of their energy use and determine the most effective upgrades. Additionally, many financial assistance programs require such assessments as part of the application process. Programs that provide these services for farmers remove a barrier to applying for grants or loans for efficiency upgrades.

The Farm Bill

The Farm Bill is a single comprehensive piece of legislation that governs nearly all USDA activity—from food stamps to foreign food aid to trade with other countries to food safety. The first piece of legislation that is generally recognized as a Farm Bill was the *Food and Agriculture Act of 1965* (Womach 2005), though the foundations of large portions of current agricultural policy relating to crop subsidies and insurance can be found in the various New Deal agricultural laws passed in the 1930s. The Farm Bill currently in place is the *Food, Conservation and Energy Act of 2008*, often simply called the "2008 Farm Bill."

The Farm Bill must be renewed by Congress every five years. The 2008 Farm Bill was due to expire in late 2012, but most provisions were extended until September 2013 as part of the

[3] The American Farm Bureau Federation (AFBF) is a membership-based, non-governmental, non-profit organization. All 50 states have their own farm bureau, which uses member dues to provide information and resources to local farmers and ranchers. For more information, visit http://www.fb.org.

American Taxpayer Relief Act of 2012 (i.e., the "fiscal cliff" agreement). The House and Senate agriculture committees each passed a version of a 2012 Farm Bill, but were never debated on the floor. Now, in 2013, the Farm Bill is once again up for renewal. Both the House and Senate are considering bills that look largely like the failed 2012 version. However, there are still some significant discrepancies between the two versions. Any differences that apply to energy policy will be discussed below.

The Farm Bill is divided into 15 titles, each of which is concerned with a different area of agricultural policy. A list of all the titles is below:

I. **Commodity programs** (including most of the programs commonly called "crop subsidies")
II. **Conservation**
III. **Trade**
IV. **Nutrition** (including SNAP and WIC, the "food stamp" programs)
V. **Credit**
VI. **Rural Development**
VII. **Research and Related Matters** (providing funding for Land Grant universities, among other things)
VIII. **Forestry**
IX. **Energy**
X. **Horticulture and Organic Agriculture**
XI. **Livestock**
XII. **Crop Insurance and Disaster Assistance Programs**
XIII. **Commodity Futures**
XIV. **Miscellaneous**
XV. **Trade and Tax Provisions**

Programs that focus on energy efficiency are mainly found in Title IX, the Energy Title. However, other important energy efficiency-related programs can also be found in Title II: Conservation and Title VI: Rural Development.

In 2008, the Congressional Budget Office estimated that spending on Farm Bill programs over the 2008-2012 period would total about $307 billion (CBO 2008). About 80% of Farm Bill spending is mandatory and 20% is discretionary, though most individual programs are authorized for discretionary spending (Monke, Megan and Aussenberg 2013).

Programs that Can Benefit Energy Efficiency

USDA has several programs that make funds available for energy efficiency projects. The most well-known of these programs is the *Rural Energy for America Program*, or REAP, which is authorized under the Energy Title (Title IX) of the 2008 Farm Bill. Other programs authorized under the Conservation Title or Rural Development title are less well-known but still important. The following sections will provide an overview of all of these programs in their current form from the 2008 Farm Bill, as well as any changes proposed for the 2013 Farm Bill. For each program, the overview will be followed by a brief analysis of the significance of any proposed changes, as well as some recommendations for additional changes to consider.

RURAL ENERGY FOR AMERICA PROGRAM (REAP)

The *Rural Energy for America Program*, or REAP, is a program that provides financial assistance to promote energy efficiency and renewable energy development in rural areas. This program was originally established in the 2002 Farm Bill as the "Section 9006" Program, and was subsequently renamed the Rural Energy for America program in the 2008 Farm Bill. REAP funding is available in several areas:

- Energy audits
- Feasibility studies for other REAP-eligible projects
- Energy efficiency improvements to farm equipment
- Renewable energy projects

Funding is available as either a grant or a loan guarantee. In general, more funding is available for loan guarantees than for grants.

In the 2008 Farm Bill, a total of $255 million in mandatory funding is authorized, to be spent between fiscal years 2009-2013. The Farm Bill also authorizes an additional $25 million annually for 2009-2012. Actual spending on energy efficiency projects in this time period was about $94 million.

REAP is a powerful support for rural energy efficiency, but faces certain problems. Policymakers have attempted to solve several of these, with varying degrees of success.

The application process for REAP has proven cumbersome, requiring large amounts of paperwork and documentation. Many farmers are already faced with mountains of paperwork from their day-to-day operations (such as fulfilling reporting requirements for pesticide and fertilizer applications). Farm advocates from several parts of the country have told us that farmers are unlikely to apply for REAP unless someone is available to help guide them through the process. Consequently, there is an irregular regional distribution of REAP funds. Certain clusters in certain regions might get a significant amount of funding—chicken growers in Mississippi, corn farmers in Iowa—simply because the local county extension or Rural Development office happened to have an employee that was knowledgeable about REAP and found it important to encourage farmers to apply. Rulemaking by USDA has evened out the geographical distribution of funds somewhat, but the outreach issue remains.

The second main problem with REAP is free ridership. Technology for certain types of farm equipment has come a long way in recent years—so much so that all new equipment currently on the market meets REAP's standard for energy efficiency upgrades. Farmers are able to apply for REAP funding to assist with upgrades they would have made anyway, and because all available equipment is more energy-efficient, REAP cannot influence farmers' choice. In this situation, REAP becomes simply a subsidy for farm upgrades rather than a method of influencing energy efficiency investment. The free rider problem is particularly prominent in the corn industry, with grain dryers. Over the 2009-2012 period, 25% of REAP grants were used for grain dryers (USDA 2012 a-c).

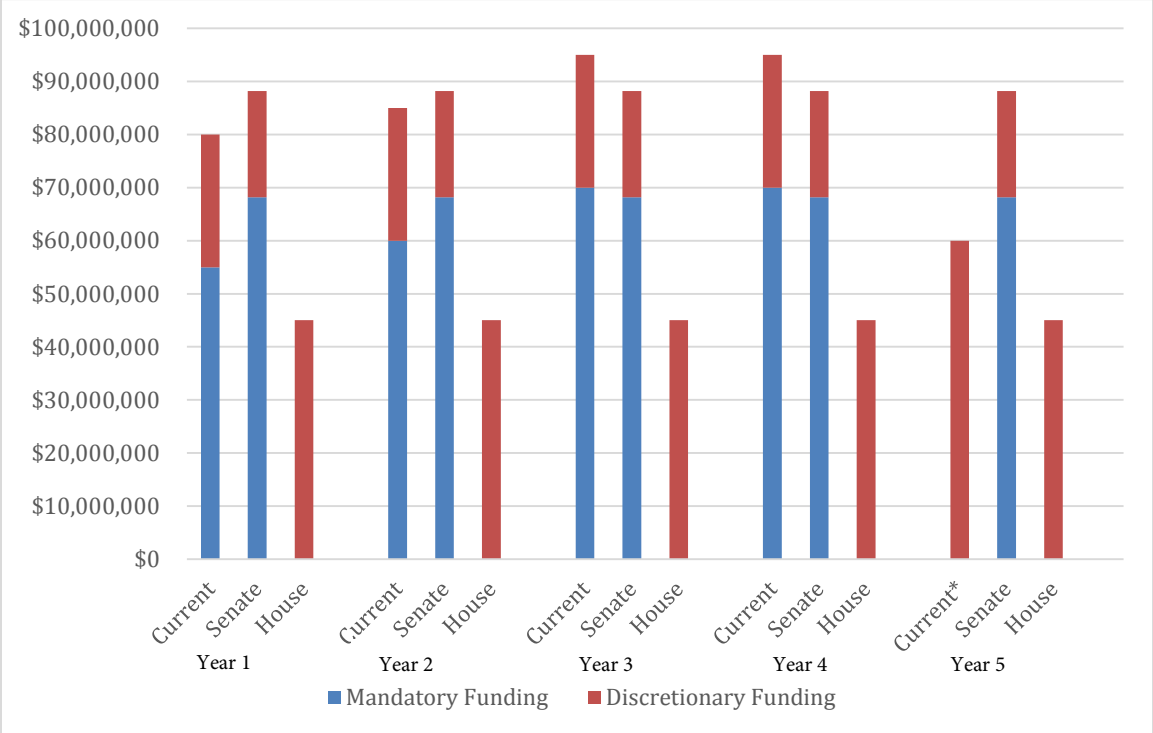
Changes to REAP in the 2013 Farm Bill

Both the House and Senate versions of the Farm Bill call for a tiered application process. There are three tiers—projects under $80,000, between $80,000 and $200,000, or over $200,000. USDA is directed to develop an appropriately simplified application process for the lower tiers. This is a definite step in the right direction for making REAP more broadly accessible. Assuming this language makes it into the final version of the bill, USDA should make sure that the lowest tier is easy to understand and accompany it with appropriate outreach.

The House version of the Farm Bill repeals funding for feasibility studies. Though only a small portion of funds are currently authorized to fund feasibility studies, they are a way of removing a barrier to energy efficiency investment, particularly for farmers without the means to conduct such studies without assistance.

Funding reductions in both the House and Senate versions of the bill are disappointing, but not surprising given current budget concerns.

Figure 3. 2008 Farm Bill Funding Compared to Proposed 2013 Farm Bill Funding



*Current funding reflects the extension of authorization for discretionary Farm Bill funding in the *American Taxpayer Relief Act of 2012* and subsequent appropriations.

These two versions of the bill still have a long way to go before a new Farm Bill makes its way to President Obama's desk. The House version of the bill is concerning because it completely eliminates mandatory funds in favor of a relatively modest authorization for discretionary funding, which is not guaranteed to make it through the appropriations process. Hopefully, the

final bill ends up resembling the current Senate version more than the current House version. Otherwise, Congress would be sacrificing cost-effective investment in efficiency with long-term benefits for short-term budget concerns.

OTHER RURAL DEVELOPMENT PROGRAMS

USDA Rural Development offers a variety of loans, loan guarantees, and grants to rural businesses. These programs are designed to offer assistance to rural businesses and remove some of the barriers to financing or capital that can often be faced by rural businesses. Energy savings are generally not an explicit goal of these programs. However, energy efficiency upgrades are eligible projects, and these programs have been used to fund energy efficiency projects in the past. Some of these programs are part of Rural Development's Rural Economic Development Energy Efficiency (REDEE) effort, which is intended to create jobs in energy efficiency.

Aside from REAP, there are four Rural Development business programs that have historically spent funds on energy efficiency: the Business and Industry (B&I) Guaranteed Loan Program, the Rural Business Enterprise Grant Program (RBEG), the Rural Economic Development Loan and Grant Program (REDLG), and the Value-Added Producer Grant (VPAG).

For the purpose of these programs, "rural" is usually defined as any place that is *not* a city or town of more than 50,000 people, or an urbanized area adjacent to such a city or town.

Multi-Family Housing Energy Efficiency Initiative

The Multi-Family Housing Energy Efficiency Initiative is a relatively new program at USDA. It is not specifically mentioned in the Farm Bill, but rather impacts the application process for several of USDA's multi-family housing programs. The Multi-Family Housing Initiative includes section 515 Rural Rental Housing Program for New Construction, Section 514 Farm Labor Housing Loans and Section 516 Farm Labor Housing Grants for Off-Farm Housing, Section 522 Housing Preservation Grants, and Sections 514, 515 and 516 Multi-Family Housing Revitalization Demonstration Program.

Under this Initiative, applicants to any of the programs included can receive points for a variety of energy-related practices that improve eligibility for funding. Points can be awarded for LEED, Energy Star, or other "green" certification, on-site power generation, or credentials for green property management (USDA 2012d).

Business and Industry (B&I) Guaranteed Loan Program

According to the USDA, the purpose of the B&I program is to "to improve, develop, or finance business, industry, and employment and improve the economic and environmental climate in rural communities." B&I loans can be combined with REAP loans, up to $10 million, though exceptions can be granted. Eligible lenders do not receive the loan directly from USDA, but rather from one of several USDA-approved lenders.

USDA explicitly mentions that borrowers that intend to use funds for projects that "reduce reliance on nonrenewable energy sources" are eligible for B&I loans (2013d). There is an

emphasis on bio-based or bio-energy projects. However, a relatively small portion of available funds have been used for energy efficiency projects. USDA spent $665,484 on energy efficiency programs through the B&I program between 2009 and 2012 (USDA 2013b), which would support approximately $13 million in loans. This is out of a total of $182 million in total budget authority between FY 2009 and FY 2012, which supported about $3.6 billion in loans (USDA 2010a, 2011b, 2012e, 2013c). In FY2009, an additional $1.7 billion in loans was available through the American Recovery and Reinvestment Act of 2009 (ARRA). However, the ARRA funds expired at the end of 2010 (USDA 2010b).

No major changes to the B&I program are proposed in either the House or Senate version of the Farm Bill. Any major changes to funding levels will occur as a result of the Federal budgeting and appropriations process.

Rural Business Enterprise Grant Program (RBEG)

The Rural Business Enterprise Grants (RBEG) Program is designed to help small, rural businesses. According to USDA, "small and emerging private businesses" have 50 or fewer employees and less than $1 million in projected gross revenues. Grants range from around $10,000 up to $500,000 (USDA 2013b). Grants for energy efficiency projects between 2009 and 2011 range from $20,000 to $99,999.

Like the B&I loan program, only a small portion of RBEG funds have been used for energy efficiency programs. RBEG's budget for 2009-2011 was $39 million annually, and decreased to $24 million in 2012, for a total of $141 million (USDA 2010a, 2011b, 2012e, 2013c), with an additional $19.4 billion from ARRA.

RBEG is also funded through the annual appropriations process rather than directly in the Farm Bill. No major changes to the B&I program are proposed in either the House or Senate version of the Farm Bill. Any major changes to funding levels will occur as a result of the federal budgeting and appropriations process.

Rural Economic Development Loan and Grant Program (REDLG)

The Rural Economic Development Loan and Grant Program (REDLG) does not provide loans or grants to individuals, but rather to non-profit utilities like Rural Electric Cooperatives. The utilities then pass the loans through to local businesses, who repay the utility directly. Grants are provided to utilities to establish revolving loan funds. The ultimate goal of REDLG is to create and support jobs in rural areas.

According to the USDA Energy Investment Report, only two energy efficiency projects have been funded by REDLG between 2009 and 2012, for a total of $1,740,000 in funds (USDA 2013b). In comparison, the budget for the entire REDLG program over the same time period was $40 million in loans and $139 in loans (USDA 2010a, 2011b, 2012e, 2013c).

Value-Added Producer Grant

The primary goal of the program is to assist agricultural producers develop their businesses so that they are able to sell value-added products. There are a variety of criteria that make an agricultural product have added value, from physically changing the product (using milk to make cheese), to using particular farming methods that increase the value of the product (like using organic growing methods), to marketing products locally. Additionally, VPAG considers a product that is a source of renewable energy, like ethanol for E-85 fuel, to be a value-added product. The VPAG cannot be used to purchase equipment or construct facilities. However, VPAG funds can be used to develop business plans and feasibility studies, or for processing, marketing, or some salary expenses. An agricultural producer that uses highly energy-efficient processes could claim that he or she is therefore selling a premium product, and can use VPAG funds for marketing to highlight this fact.

Only one Value-Added Producer Grant in the 2009-2012 period was used for energy efficiency. That grant was in 2012, for $298,500.00 (USDA 2013b). Energy efficiency is not explicitly mentioned in the current legislation that authorizes the program, though it does refer to "renewable energy."[4]

RURAL UTILITY SERVICE

The Rural Utility Service (RUS) was originally created as the Rural Electrification Administration during the Great Depression. In the 1930s, many rural regions lacked basic utilities that we take for granted today, like electricity, telephone access, and indoor plumbing. One of the goals of the New Deal was to bring these services to rural areas. Today, RUS works to improve rural access to electricity, water and waste services, and telecommunications, including high-speed Internet access.

In addition to the programs mentioned below, as of this writing a new program is going through the USDA rulemaking process to implement the Energy Efficiency and Conservation Loan Program.

Generally, RUS funding is made available through rural electric service providers (such as Rural Electric Cooperatives) rather than directly to individual farmers or business owners.

Electric Program

The Rural Utility Service Electric Program makes loans to support retail electric service in rural areas or the power supply needs of distribution borrowers. Eligible projects include demand side management, energy conservation, and renewable energy systems, all of which could apply to energy efficiency projects.[5] However, this program does not seem to be frequently used for energy efficiency projects. According to USDA's Energy Investment Report (USDA 2013b), the RUS Rural Electric Program funded a loan guarantee for an energy efficiency project in Bismarck, North Dakota for about $50 million in 2003, but no energy efficiency programs since. More

[4] See 7 CFR 4284; http://www.law.cornell.edu/cfr/text/7/4284.

[5] See 7 CFR 1710; http://www.law.cornell.edu/cfr/text/7/1710.

recently this program has funded direct loans and loan guarantees for solar, wind, renewable biomass, and anaerobic digester projects. This suggests that this program is an underutilized resource for energy efficiency.

High Energy Cost Grant

High energy cost grants are designed to help rural communities that face unusually high electricity costs—over 275% of the national average. The current average electricity price is just under 10 cents per kilowatt hour, so electricity costs would need to be above about 27.5 per kilowatt hour in a community eligible for High Energy Cost Grants. A very small number of communities have average retail rates high enough to qualify—most of them are in Alaska or Hawaii, or are otherwise isolated, such as Matinicus, which is a tiny island about 20 miles off the coast of Maine (EIA 2013). Unlike other RUS loan programs, individuals or businesses are eligible for loans, as well as state and local governments, Native American tribes, or utilities. Energy efficiency projects are specifically mentioned as eligible.

Between 2009 and 2011, a total of $34,107,869 was spent on this program. About 76% of the total funds went to energy efficiency projects (USDA 2013b).

ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP)

The Environmental Quality Incentives Program (EQIP) is an important program that is sometimes overlooked as a source of energy efficiency funding. EQIP is authorized in the Conservation Title of the Farm Bill (Title II) and is a part of the Natural Resources Conservation Service. Energy efficiency is only one of the program's goals; current law directs EQIP to assist farmers in addressing soil, air, and water quality, preserving wildlife habitat, and conserving surface and ground water, as well as conserving energy. EQIP has several initiatives addressing various environmental concerns. Energy conservation projects occur as part of the On-Farm Energy Initiative.

EQIP assists farmers with conducting energy audits and developing conservation plans, often working through locally-based technical service providers such as EnSave, based in Vermont.[6] These energy audits are known as Agricultural Energy Management Plans, or AgEMPs. There are two kinds of AgEMPs. Headquarters AgEMPs address some of the more traditional, concrete farm energy concerns, such as lighting efficiency and fuel use. Landscape AgEMPs are newer, available for the first time since 2009. They take a more holistic view of on-farm energy use, addressing issues like water use and erosion. Once the initial energy audit is complete, EQIP helps farmers develop a plan for implementing conservation practices. Funding is available to assist farmers with implementation. Unlike some other USDA energy programs, EQIP funding is available on a first-come, first served basis rather than based on a competitive application process.

In 2012, EQIP received about $30 million in applications for AgEMPs, $1 million of which was for energy audits and the rest of which was for implementation. However, there is some concern that AgEMPs are not widely publicized and that the program is not operating to its full potential,

[6] See http://www.ensave.org.

particularly for landscape AgEMPs because it is a newer program that does not yet have a substantial record of positive results. In 2012, EQIP spent nearly $1.4 billion on technical assistance and financial assistance for implementing conservation practices across all its initiatives (USDA 2013b). Spending on energy-specific projects was comparatively a drop in the bucket.

The House and Senate versions of the 2013 Farm Bill include very similar changes. The most notable change is that it moves the Wildlife Habitat Incentives Program from being its own separate program to being a practice under EQIP. Changes in funding for EQIP are relatively minor, but both versions of the 2013 Farm Bill now direct EQIP to spend at least 5% of total funds on wildlife habitat projects. However, since AgEMPs represent such a tiny portion of EQIP's total funding, it is unclear how much of an impact this will have.

The FY 2012 Agriculture Appropriations Act (P.L. 112-55) extended the expiration date for several conservation programs, including EQIP, to September 2014. Even if no new Farm Bill is passed, this program will continue under existing funding authority until September 2014 (Monke et al. 2013).

Discussion

Energy efficiency programs can leverage many of the USDA programs discussed above. It is important to remember that many of them apply to *all* rural businesses, not just farms. As much as 20% of the US population is considered to live in a rural area and is therefore eligible for USDA assistance. Perhaps more importantly, the majority of US manufacturing takes place in census-designated rural areas. A plant could use a REAP grant or obtain a B&I loan to finance a CHP system or install a more efficient HVAC system. A couple of rural manufacturing businesses have already begun to take advantage of this. For example, in 2012, the Alaska Brewing Company obtained a REAP grant for a highly-efficient boiler unit that uses spent grain (a byproduct of the brewing process) as fuel. This system saves energy both through an efficient process and by avoiding the need to ship waste off-site (Yerich 2013).

Awareness of USDA energy efficiency programs is also important for individuals. Farmers, small business owners, and homeowners in rural areas need to be aware of the existence of the various energy efficiency assistance programs, as well as be able to obtain help with the application process when necessary. Some organizations, such as EnSave,[7] have taken on this task in certain areas. An energy efficiency outreach strategy on a large scale should leverage existing networks of "trusted partners" as avenues for conveying information to rural individuals.

One important option for conveying information to rural Americans is the Cooperative Extension system. The Extension system was founded at the beginning of the 20th century to connect ordinary farmers with the latest agricultural information being produced by the Land Grant Universities. Each state has at least one central Extension office affiliated with a university, and an array of smaller offices at the county or regional level. Extension agents are part of the

[7] EnSave is a Vermont-based company that assists farmers with energy efficiency upgrades through energy audits and consultation services. For more information, see http://www.ensave.com.

community and often develop personal relationships with local farmers, and are often perceived as a trusted resource or partner. (Mazur-Stommen, Vigen and Farley 2013). Essentially, extension agents act as a reference for anything from pesticide regulations, to insect identification, to home gardening. Extension agents are in many ways an ideal group to work with for outreach on energy issues. USDA has begun to make use of Extension as a network for conveying information on energy issues. In early 2012, USDA announced a partnership with DOE to create the State Energy Extension Partnership (DOE 2013). The goal of the program is to incorporate information on energy topics into existing educational programs, like 4-H, and to provide specific assistance on applying for loans, grants, and tax breaks. This program looks promising, but it still in its early stages, and it is unclear how effective the execution is yet.

The above discussion can be summarized in the form of a few key recommendations. Since the Farm Bill will have to go through several more rounds of modifications before it makes its way to President Obama's desk, there will be an opportunity for additional changes. The recommendations are as follows:

1. Increased funding overall for energy efficiency investments
2. Leverage Extension as an avenue for providing information about energy efficiency by providing additional training and resources to community-based agents
3. Maintain complete, accurate, and publicly-available records of recipients of energy efficiency funding
4. Increase outreach to non-farm rural businesses, like manufacturers

Conclusion

USDA is doing some important work in promoting energy efficiency among farmers. Unfortunately, USDA must operate in an environment that calls for decreases in all spending, making expanding any programs difficult. Ideally, energy efficiency program offerings would all be expanded and funded more generously, in combination with robust outreach efforts such as a reinvigoration of the Cooperative Extension program. In the current environment, all Farm Bill programs are to some degree in competition for funds. Fortunately, energy programs tend to enjoy bipartisan support and are generally not subject to the kinds of contentious debates faced by programs like crop insurance and supplemental nutrition. Since funds are so tight, it is important to fund cost-effective programs with broad impact, such as energy efficiency.

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