Refiend Extension Energy Summit

Proceedings from the National Extension Energy Summit

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Organized by:



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Extension





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Introduction

In 1862, President Abraham Lincoln signed into law the unprecedented Morrill Act, which created the public land-grant University system to provide access to knowledge and higher learning for all citizens of the United States. The subsequent development of the Cooperative Extension Service (Extension) in the Smith-Lever Act of 1914 reinforced the commitment to public education by establishing a partnership of localized outreach from the Land-Grant universities between federal, state, and county governments. Through Extension, faculty of the universities are available in almost every county in the United States. [...Cooperative Extension exists in every state and territory of the country and has a presence in almost every county.... Utilization of the Cooperative Extension Systems' network of educators at the land-grant universities and distributed throughout the local environment could be a primary element on strategy for engaging individuals, businesses, and communities in energy efficiency and conservation education] (Aplu Energy initiatives, 2011)

A primary role of the Land-Grant University system and Extension is to engage with citizens to resolve societal challenges through scientific research, education, problem solving and practical innovations. One such challenge is energy. In 2009, the Land-Grant Universities, organized under the Association of Public and Land-Grant Universities (APLU), established the Energy Initiative to optimize and advance the contributions of public research universities in addressing the nation's energy independence effort. APLU recognized Extension's role in this initiative, stating, "There is much more, however, that may be achieved as national priorities for energy goals are set, if CES [Cooperative Extension Service] is used to its full capacity." (APLU, 2011) The emphasis on energy-related work from both the Land-Grant institutions and Extension reinforces the original intent of the Morrill and Smith-Lever Acts and is important in emphasizing the continued relevance of the public universities to meeting societal needs.

Convening to Address Energy

As a critical step in addressing energy-related work, APLU hosted the 2012 Public and Land-Grant University Conference on Energy Challenges: The Next 50 Years at Ohio State University on April 29-May 1, 2012. The goal of the conference was to explore energy challenges and identify potential roles and actions necessary for public and Land-Grant universities to address the nation's energy needs. Participants, including more than 200 energy experts and leaders from the public and private sectors, engaged in discussions and presentations regarding the future of university work in energy. The conference resulted in an action-planning template that identified 10 ways in which higher education is "uniquely qualified to advance energy sustainability."

On April 29-May 1, 2013, Colorado State University hosted the first National Extension Energy Summit. This event focused on the work of Extension in addressing societal energy needs and utilized the action-planning template of APLU as a basis for the conference. In addition to reinforcing the work of APLU, the conference provided meaningful connectivity between Extension programs and helped to identify Extension-specific action strategies for the future.

Introduction to the National Extension Energy Summit

The National Extension Energy Summit was developed and co-led by Colorado State University Extension, Montana State University Extension, and University of Wyoming Extension. The event, held in Fort Collins, CO, included 68 individuals from 28 states. Using a mix of panel presentations, breakout sessions, and structured discussions, the event intended to address the following questions: What are the ultimate goals and strategies of various Extension energy programs? What energy programs have succeeded in various states and what has driven their success? How do Extension energy educators make the most of limited staff and financial resources? What are the greatest challenges and opportunities for Extension energy programs? The themes used in the conference were derived from the action items identified during the APLU conference on energy challenges. Those six themes included:

Develop Our Workforce

Develop curricula and continuing education strategies for 10-, 25- and 50-year workforce requirements, particularly in the fields of science and engineering, and partner with states to develop collaborative worker training programs with peer universities and technical and vocational schools.

Increase Society's Energy Literacy – General Consumer and Agriculture

Take the lead in providing public education to increase energy literacy through opportunities such as teacher training and Cooperative Extension. Universities are trusted as fair, impartial brokers of information and as such are valuable resources and clearinghouses of information for the public and policymakers. They can help inform and counter erroneous and negative information about energy development. Higher education studies should be widely circulated.

Embrace Regional Development

Be a leader in finding energy solutions that enhance regional economic development, take advantage of regional energy attributes, utilize local natural resources, embrace local cultural and legal realities, and align research and development strengths. Universities must also take advantage of their well-respected extension services.

Bring New Discoveries to the Market Sooner

Encourage entrepreneurial activities for commercialization of discoveries. The creation of campus business development teams that work with university laboratories in col-







laboration with private industry can speed the process to get new ideas into real-world technologies and commercialization.

Help Inform a National Energy Policy

Contribute to the development and implementation of a national energy policy by offering key inputs necessary to develop a simple, straightforward, overarching energy policy. Universities have the resources and wherewithal to investigate, contemplate, and help formulate a reasonable policy.

Presentations during the event were structured under these themes and participants further utilized these topics during concluding action-planning discussions that are summarized further in these proceedings. See the Appendix for a list of presentations in the Summit agenda.

Setting the Stage

To frame the dialogue around energy within Extension, Beverly Samuel – National Program Area Leader for Family and Consumer Science in the United States Department of Agriculture National Institute for Food and Agriculture (USDA NIFA) and Bob Hawsey – Associate Director of the National Renewable Energy Laboratory provided keynote addresses. Ms. Samuel provided an overview of opportunities for Extension partnerships at the federal, state, and local levels and opened up a dialogue to advance collaboration between USDA and Extension on energy initiatives. Specifically, she discussed the potential of the State Energy Extension Partnership program between USDA and the U.S. Department of Energy to increase the role of Extension in furthering national energy goals. She discussed and inquired about ways USDA is supporting and can support clean and renewable energy in rural America. Ms. Samuel also highlighted the new Energy Literacy guide as a basis for energy education within Extension as it works with audiences "K through gray".

On Day Two, Mr. Hawsey described the technical innovations coming out of his laboratory that could impact our nation's energy productivity over the next twenty years. He laid out a vision for transforming today's energy system into a sustainable energy system and identified challenges to and key opportunities for that transformation. Mr. Hawsey described the state of various energy efficiency and renewable energy technologies and his laboratory's role in accelerating their commercialization.

Together with the case studies and discussions presented by Extension colleagues throughout the country, Summit participants received an overview of what is being done within Extension energy initiatives along with ideas for extending our impact through leveraging financial, human, and technical resources at the local, state, and federal levels.

Action Planning Sessions

To conclude the conference, action planning sessions were conducted to compare and contrast the actions identified by APLU with the work currently being conducted in Extension. These facilitated discussions around the six topics of the conference explored the existing state of Extension, examined possibilities for the future, and established recommended action strategies for furthering the work of Extension in energy. The following are summaries of those discussions:

Embrace Regional Development





The regional development discussion group identified several strengths of existing Extension programming. Many states have strong home energy efficiency programs. There are also examples of some states taking strong leadership roles on specific topics, such as Ohio State University's work in shale energy issues or University of Wisconsin's detailed bioenergy maps.

Challenges identified by the group included that while there appears to be good general energy education programming taking place in some states, it does not exist in others. As issues emerge, Extension can struggle to have access to research and non-biased information necessary to meet needs. Some examples included siting issues for wind, solar, and thermal utility-scale development and shale gas development. Extension's role in contentious development areas is to provide credible information and there is continued need for non-biased, research-based content that balances economic development and environmental concerns. While Extension is technically the outreach arm of the university, there are not always adequate ties between research and delivery.

The group further discussed that the county-based education model is a strength of Extension, enabling opportunities to reach people at a local level. For example, Extension can readily showcase technologies and provide information at county-level events, such as fairs. However, the county model is also a challenge when addressing energy. Often, energy issues are regional (both multi-county and multi-state) and require a broader perspective. There are great examples of Extension presence and knowledge being leveraged at a regional level, which should be explored in terms of what might be done to replicate those positive examples of Extension work.

Recommended Actions

The regional development group recommended that Extension should:

 Identify mechanisms for sharing techniques and programming efforts that are successful in each state. Create a web clearinghouse of "who is doing what". Explore options through eXtension with Communities of Practice (CoP), identify knowledge pools around particular subjects (wind, solar, etc.), and identify how the program or process or research can be replicated nationwide.

- Establish conflict resolution training and resources that can be used to address land-use and community issues, such as hydraulic fracking of shale resources or utility scale renewable energy development.
- In areas of shale energy development, resources for addressing community impacts (on a regional basis) are needed. Many of the issues that occur in these areas are not energy-development specific, but extend into other areas of the community (housing, health and human services, etc.) These community impacts need to be addressed. There is also a need for resources and education to help communities equip themselves for "what happens after the energy boom." Further expand upon the shale energy team approach used by Ohio (fact sheets, webinars, and building state and multi-state expertise). Explore opportunities for regional or multi-state approaches to provide a mix of energy solutions. Explore multi-state specialists and consider utilizing the Regional Rural Development Center model. As an example, the Center could develop a conflict resolution team to address utility scale development.
- · Identify means of connecting energy efficiency work and economic development. Build examples of these connections, as well as retention strategies for maintaining the connection and economic development impact over time.
- · Develop regional advisory (stakeholder) groups by states and regions.
- Enhance partnerships to expand funding opportunities. Emphasize the importance of the Department of Energy/USDA-NIFA funding of Extension partnerships with state energy offices. Explore options for connecting state USDA Rural Development directors with Extension.
- Seek opportunities to use an E3A approach to material development (develop materials and training resources that can then be customized for each state). Utilize webinars and resources to increase the expertise of Extension educators. Consider using the Cornell model of energy road shows to increase basic knowledge of energy within all Extension faculty and staff.
- Encourage universities to tie research agendas, research and development capabilities, and Extension to address societal needs. Use existing campus centers/institutions to focus on energy opportunities across states.

Help Inform a National Energy Policy

Throughout the conference, discussions and presentations emphasized the importance of Extension work in energy outreach and education. Extension was cited as especially relevant in energy in that a) Extension has a presence in nearly every county in the United States, and therefore, not only understands energy issues from the grassroots perspective, but also is well placed to provide energy-related education; and b) much (especially commercial-scale) energy development takes place in rural areas given the available land resources. Extension's ability to serve the role of intermediary between research, development, and education is critical as energy developments occur.

Specifically, the group recommended the following actions for advancing Extension's role in informing a national energy policy:

Recommended Actions

• Strengthen the link between the Association of Public Land-Grant Universities (APLU) and Extension. Specifically, work with APLU on its legislative energy policy to support funding for energy education and outreach through Extension.

- Continue the National Extension Energy Summit venue. Consider (perhaps on alternate years) hosting the event in Washington DC or outlying area with access to the DC metro area. On the DC-venue years:
 - a. Include updates from national partners (USDA-NIFA, U.S. Department of Energy, etc.).
 - b. Include opportunities for visits to Capitol Hill to educate members of Congress about the Extension energy programs in our states.
 - c. Encourage collaboration both within Extension and with national partners to get "one vision" for energy education and outreach.
 - d. Work toward a national curriculum on energy efficiency
 - i. Share educational tools that are transferable such as the E3A (Exploring Energy Efficiency and Alternates) Curriculum or the CSU Energy Master Volunteer Program.
- Garner funding for state specialists in energy efficiency and renewable energy, such that each state has at least one full time equivalent. The group suggested that this funding support should be provided nationally by U.S. Department of Agriculture and U.S. Department of Energy.
- Foster partnerships between National Energy Laboratories and Extension to provide technology transfer and demonstration sites to enable consumers to learn about new innovations and best practices.

Bring New Discoveries to Market Sooner







This topic explored how a greater connection between research - both on campuses and in research laboratories - and Extension could help to accomplish the objective of bringing new discoveries to market sooner. Extension's role in technology transfer is often more related to demonstration and implementation of new discoveries, rather than in the development of those discoveries. Some considerations with regard to Extension's role and function in this process include:

- Extension could work to document existing efforts in research and technology development. An example might be developing case studies to highlight work in timber to biofuels efforts.
- In a time of information abundance, Extension must balance providing the most up-to-date information on research and discoveries with ensuring the information is well vetted and maintains the integrity and credibility of Extension.
- Extension can translate primary research data for other stakeholders and disseminate the findings. This role serves to reinforce the role of Extension in the land-grant system and leverages the localized nature of field faculty in Extension to make research real in communities across the United States.
- Extension can help to encourage technology adoption at the farm-level through demonstrations and variety trials. Some examples of this type of work might include:
 - » Providing field days on biofuels crops/demonstration plots

- » Facilitating partnerships between researchers and end-users (tech transfer)
- » Identify conversion partners: if we want to move faster, we have to collaborate with entities that also move fast.
- Extension can also play an important role in invalidating technologies that are not viable. This can be done through research-based education and demonstration projects.
- There is an important role in creating decision tools. One example might be business management assistance (especially agricultural business management) that helps to support technology adopters with changes to their business. Another example might be tools that assist landowners in assessing agreements with companies related to new projects and products (bio-energy contracting, commercial or solar wind development leasing, etc.).
- There is a need for professional development of crop consultants and Extension personnel with regard to research efforts especially as research approaches implementation.
- Extension can facilitate education on new discoveries through public web seminars. This work can service clients in multiple states.

Increase Society's Energy Literacy — Agriculture



Extension can play a significant role in expanding society's energy literacy in agricultural sectors. Extension's roots in encouraging adoption of ideas and technology in agriculture can be leveraged to expand the knowledge of energy and adoption of best practices at the farm level. The following recommendations were offered with regard to Extension's work in this area:

Extension should encourage collaborations of professionals within each state, across regions, and nationally. It is also important to encourage partnerships with other government agencies, NGOs, and other relevant entities.

- For energy work to be incorporated into multiple levels of Extension agricultural work, Extension directors must provide support and incentive for professionals to learn and provide effective energy programming.
- Recognize that statewide energy coordinators play a key role both in training Extension educators and conducting direct-to-constituent outreach efforts. These positions are critical to ensuring Extension remains focused on energy work and that Extension capacities are continually enhanced.
- In regard to programming:
 - » Extension must think proactively about upcoming issues and topics to prepare for future needs
 - » Producers need focused programming on specific energy topics that will save them time and money
 - » Ensure that Extension provides varied programming methods (webinars, fact sheets, curriculum, multi-media, field days, etc.).

- With regard to collaborations:
 - » Extension should use information clearinghouses for sharing resources and programming content. eXtension and other such sites already exist, but are used inconsistently across different areas of Extension.
 - » Work to share training resources for example, when developing materials consider making the material available so that it can be adapted to other states or regions.

Increase Society's Energy Literacy – General Consumer

There is much work already being done by Extension to increase energy literacy for consumers. Some examples of this work were highlighted in the group discussion.

The group also discussed whether Extension is meeting the energy literacy need in society. The consensus was that, despite a significant amount of work, only the surface of the need has been scratched. It was further discussed that a lot of "reinventing the wheel" has been done because resources are not extensively shared and there is limited awareness across state lines as to what is being done and what has already been created. As a strategy for addressing these issues, a central database or information clearinghouse was suggested. This resource should be an Extension-only space where curriculum, presentations, and other materials can be self-uploaded. Listserves and social networking groups might also help to facilitate resource sharing.

Some suggestions for furthering Extension's work in energy literacy include:

- · Create fun tools, such as an energy literacy quiz, that can be shared and modified.
- Establish a national energy efficiency branding campaign (such as Buckle Up) that can be modified and allows for logos to be added.
- Develop teams to address the universal challenge of behavior change following energy efficiency education. For example, there is a need to figure out how to reach the "late adopters". Is there a means of harnessing peer pressure to encourage behavior change? Could Extension partner with researchers in social sciences and marketing to better structure education that results in behavior change?
- Extension should re-frame "energy literacy". The wording is problematic in that consumers do not want to be considered "illiterate".
- Extension can develop tracking sheets to obtain more information from consumers on why they are interested in energy and where they are currently getting energy information. Focus groups and other needs assessment findings can be shared to better understand how to accomplish national energy literacy.
- Extension can take better advantage of social media.

Recommended Actions

- Approach USDA-NIFA to create a clearinghouse/information exchange. eXtension, DropBox or Google Drive might also be considered.
- Encourage more people join the eXtension Home Energy CoP.
- · Share press releases for newspapers and social networking releases on energy literacy.

- Explore an Extension partnership with U.S. Department of Energy to create more energy literacy curricula.
- Work collaboratively to establish an energy literacy action plan for different audiences
 - » Saving money/saving environment
 - » Renters/homeowners
 - » Low income/higher income
 - » Computer users/non-computer users.
- · Help bring energy into all areas of Extension make all Extension educators energy literate.
- Identify the more important topics to narrow our educational focus. Work to reduce the amount of "tips" offered and to focus on key behavior changes.
- Develop a nationally branded "if everybody did it..." energy efficiency campaign.
- Continue sharing information between states. Find means of sustaining additional Extension Energy Summits with more working sessions.

Develop Our Workforce

Extension could contribute to workforce development through connections with diverse groups of clients; Extension work spans the spectrum of ages – from youth development to work with the elderly. Extension also connects research and public sector entities, private sector businesses, and consumers. Therefore, we are well positioned to assist in connecting needs identified by industry with the training and workforce development sectors. We can further help to position the workforce to take advantage of energy-related positions. Some considerations in this regard include:

- In some states, Extension has experience connecting training to professional behavior in horticulture where Master Gardner training is tied to landscaping jobs.
- A challenge that Extension will have to address in order to excel in this area is increasing professional development and/ or hiring technical depth such that the workforce energy-related needs are well understood and addressed.
- Extension can play a role in helping people to understand the workforce opportunities throughout the vertically integrated value chain, showing ties to energy. For example, in looking at harvesting switchgrass, Extension might help people to understand workforce or entrepreneurial opportunities from sourcing, to planting, to harvest, and then to creation of bio-energy products.
- There are opportunities to use resources, develop curricula in areas where Extension excels, and apply that information in other subject matter areas and other states.





- For Extension to excel in workforce areas, there is a need for professional training in entrepreneur development. Consumers will need training on how to think about business opportunities related to energy and Extension professionals will need to be equipped to guide that exploration process.
- Even though grant opportunities are starting to emerge that would help Extension to focus on workforce development, it is somewhat hard to assess what future opportunities will exist and the extent to which those opportunities will require specific skill sets. There is also a need for a spectrum of worker-types, from lower-skilled positions to highly technical jobs. Extension will need strong connections to industry to appropriately understand the workforce needs.
- Extension workforce development approaches will need to vary by defined age characteristics. The education and training needs shift based on the timeline a person may have prior to entering the workforce.

Recommended Actions

- Create energy fellowship programs or mentorship opportunities. Extension can help people to develop skills and find work through job-shadow type connections.
- Extension should investigate alliances with industry (both local and regional) to ensure energy workforce needs are identified proactively and to forge funding partners with industry to support Extension.
- With regard to Extension professional development, there are needs to:
 - » Increase the competence of educators. In order for educators to effectively engage in workforce development discussions, they must be well versed and confident in the subject matter (energy) topic.
 - » Identify "who" in Extension should be tasked with workforce development.
 - » Increase the overall energy literacy of educators. Further, Extension needs to ensure that there is an appropriate balance between the enthusiasm for and knowledge of a topic so that the credibility of Extension is not compromised.
 - » Train faculty in business planning and training for entrepreneurs. Consider mimicking the FFA entrepreneur business planning program.
 - » Provide training and support to assist faculty in working effectively with local school systems, economic and workforce development agencies, etc.
 - » Tie energy across subject matter areas. For example, ensure that Extension professionals in youth development, agriculture, community development, etc. have equal expectations and training in energy engagement.
- Extension (at the director level) must provide a long-term commitment to energy for faculty to be effective in workforce development. Incremental "dips" in public interest and emphasis in energy cannot derail the overall commitment of Extension to energy or long-term workforce develop will not be effective.
- Extension field professionals and NIFA should maintain two-way communication to ensure that Extension is incentivized to follow trends and adapt to energy workforce needs.

Common Themes from Action Planning Sessions

The following are some common themes that emerged both in the Action Planning Sessions and in discussions throughout the conference:

- 1. There is a need for formalized sharing of energy resources between state Extension energy personnel. An online clearinghouse or database would be of interest.
- 2. In conjunction with federal partners such as USDA and U.S. DOE, look for opportunities to identify a national unifying vision for Extension energy education.
- 3. From that, the creation of broad yet customizable energy curricula should be encouraged, developed, and shared effectively.
- 4. Mechanisms such as Extension can be utilized more often for resource sharing.
- 5. New curricula and programming should include a deeper use of proven behavior change strategies to increase our impact on target audiences.
- 6. Funding should be sought to support at least one full-time Extension energy specialist in every state.
- 7. At the same time, energy work should be integrated into the various existing disciplines within Extension (i.e. agriculture, youth development, family and consumer science) with the support of Extension directors.
- 8. There is a need to identify or perhaps even create appropriate professional development opportunities for Extension energy personnel.
- 9. Enhance partnerships at the federal, state, and local level to expand funding opportunities and leverage resources.
- 10. Encourage University research to be purposefully connected to meeting identified needs for unbiased energy information identified by Extension.

While no formal structure for coordinating these efforts currently exists within Extension, participants did agree that there is value in at least holding future national conferences as described below.

Future National Extension Energy Summits

Participants were asked to provide feedback on whether future National Extension Energy Summits should occur. In addition to strong verbal support, participants rated the event at 1.2 on a 5-point Likert scale (where 1 was "Excellent" and 5 was "Poor") on the conference evaluation. Participants were also asked to discuss what future events might entail and how often they should be held. Many participants indicated an annual event would be beneficial and appreciated, however, also identified that recent budget reductions will likely limit travel and make an every-other-year venue more viable. There was verbal support for an alternating schedule, where the event might rotate between a Land Grant campus (rotating throughout the United States) and a Washington DC venue on alternating years.



Participants suggested that the format be altered in future years to include greater in-depth discussion on certain topics. In addition, participants requested more time be dedicated to open discussions. It was also suggested that future activities focus on traditional Extension focus areas, such as youth, community and economic development, agriculture and natural resources, and family and consumer sciences.

Further comments and information were gathered in the event evaluation. This information will be made available to those planning future events.