

OHIO STATE UNIVERSITY EXTENSION

Energize Ohio

Building Ohio's Energy Future



2014 Annual Report



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

energizeohio.osu.edu

Energy: A Critical Issue in Ohio

Total world energy use rose by 83% from 283 quadrillion British thermal units (Btu) to in 1980 to more than 507 Btu in 2010. Looking forward, the 2012 International Energy Outlook Report estimates additional growth in worldwide energy consumption to reach 630 quadrillion Btu in 2020 and to 820 quadrillion Btu in 2040. Much of the worldwide growth in energy consumption is occurring in developing countries, where countries with strong, established economies drive steady demand. Second only to China, the United States consumed 18% of the world energy total in 2011, and Ohio ranked as the sixth highest energy consuming state in the nation.

Energy development in Ohio is important for the future vitality of the state as it influences both economic growth and the general quality of life of Ohioans. In 2012 the average per capita energy expenditures in Ohio was \$4,265, representing roughly 12 percent of Ohioans per capita income. As a result, access to affordable energy directly influences our quality of life.

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Acknowledgments

A special thank you to the following Energize Ohio Team Members for their contributions to the development of this annual report.

Eric Romich, OSU Extension Field Specialist, Energy Development
Chris Penrose, OSU Extension Educator, ANR & Co-Leader Extension Shale Work Group
Mike Lloyd, OSU Extension Educator, CD & Co-Leader Extension Shale Work Group
Nancy Bowen, OSU Extension Field Specialist, Community Economics
Myra Moss, OSU Extension, CD
Bruce Clevenger, OSU Extension, ANR

“In September, the team was invited to Medina County, Ohio to provide a public on-farm solar program. The team was great to work with and was flexible about having the program in a barn. They brought out the solar display which I feel was a bonus for attendees who may be experiencing solar technology for the first time. I feel the results of this program were significant.”

— **Ashley Kulhanek, M.S.**
Extension Educator, Agriculture & Natural Resources



“OSU Extension is not only giving us guidance, but they’ve been in touch with other states that have already been through shale development, and they’re providing us with that experience and expertise. It’s been invaluable.”

**Norm Blanchard, Cambridge-Guernsey County
Community Improvement Corporation**

Signature Program Areas of Evaluation - Summary

1. Extent to which the program is implemented across the state (e.g., who, where, how, how many, how long, etc.)

In 2014, the Energize Ohio Team delivered a total of 62 programs reaching 1,903 participants. Additionally, since 2012 Energize Ohio programs have been delivered in 64 of Ohio's 88 counties, demonstrating statewide impact.

2. Extent to which the program achieves the anticipated short-term, mid-term, and/or long-term changes in knowledge, attitudes, skills, practices, or conditions

To evaluate short term impacts the Energize Ohio Signature Program includes three evaluation indicator questions on all program evaluations. A summary of the results found:

- 82 % of participants indicated the program provided valuable information that they would recommend to others?
- 84% indicated that as a result of this program, they know more about (renewable or shale) energy.
- 68% indicated they plan to use the materials and/or information from the program in making decisions related to (renewable or shale) energy on their home, farm, or business?

To track change in behavior, a followup with program participants also found 6 farmers who attended the farm energy program have since developed an on-farm solar system to offset a portion of the electric needs for their farms.

3. Extent to which the program elevates the public's knowledge of OSUE

In 2014, the OSU Extension Energize Ohio website received 40,000 page views from 16,464 visitors sessions. Google analytics defines a session as the period time a user is actively engaged with your website, all usage data (Screen Views, Events, E-commerce, etc.) is associated with a session. Analytic results indicate that visitors spent an average of 1 minute 23 seconds on the Energize Ohio website. Charts 6, 7, and 8 on page 25 provides additional details on website traffic.

4. Extent to which proposed program marketing, communication, implementation and evaluation methods and strategies are followed

Program evaluation and marketing templates have been used with most Energize Ohio programs. Evaluation results are collected and shared with the signature program team leaders.



Energize Ohio Signature Program Overview

Building Ohio's Energy Future

Energize Ohio is a multidisciplinary program that addresses a wide range of renewable and shale energy education needs including youth energy education, energy policy, farm energy education, homeowner energy education, and sustainable community planning. Energize Ohio curriculum consists of teaching outlines, worksheets, presentation materials, workshop materials, bulletins, fact sheets, marketing templates, and evaluation tools. Energize Ohio currently focuses on two core initiatives including shale energy and renewable energy education.

The Energize Ohio team holds 6 bimonthly meetings per year to discuss scheduled programs, progress on research projects, emerging energy trends, and funding opportunities. In addition, subcommittees focused on shale energy community planning, farm energy, and youth energy education meet more frequently, as needed to develop new program materials.

To date, the Energize Ohio Signature Program team has delivered 141 programs in 64 of Ohio's 88 counties, reaching 11,688 participants. The ultimate goal of Energize Ohio is to enhance community leaders' and local residents' knowledge of energy drivers and development in order to promote informed decision-making and best practices. Charts 1 and 2 illustrate the number of Energize Ohio programs and participants by year.



In 2014, the Energize Ohio Signature Program team members delivered 62 programs reaching more than 1,903 participants. Chart 1 illustrates the signature program participants itemized by year and program type. In addition to teaching energy programs, the signature program team was very active in the development of new energy related publications in 2014 including 4 fact sheets, 2 journal articles, and 1 technical bulletin.

Chart 1: Energize Ohio Programs

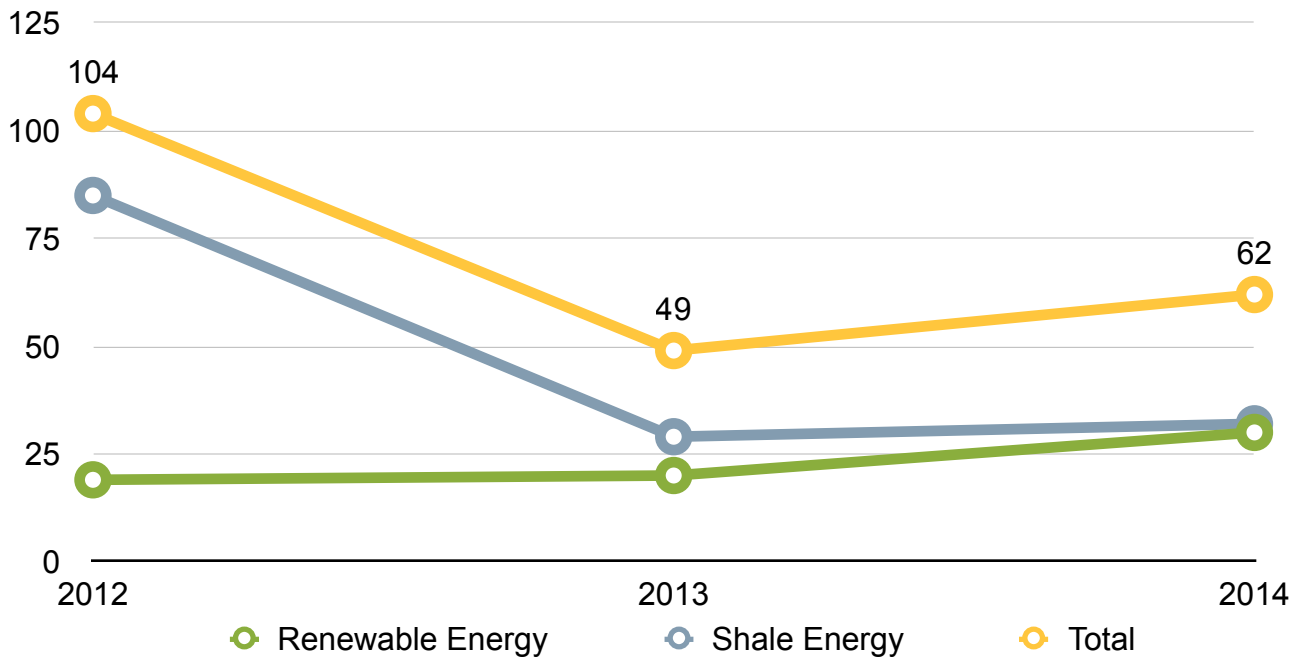


Chart 2: Energize Ohio Participants

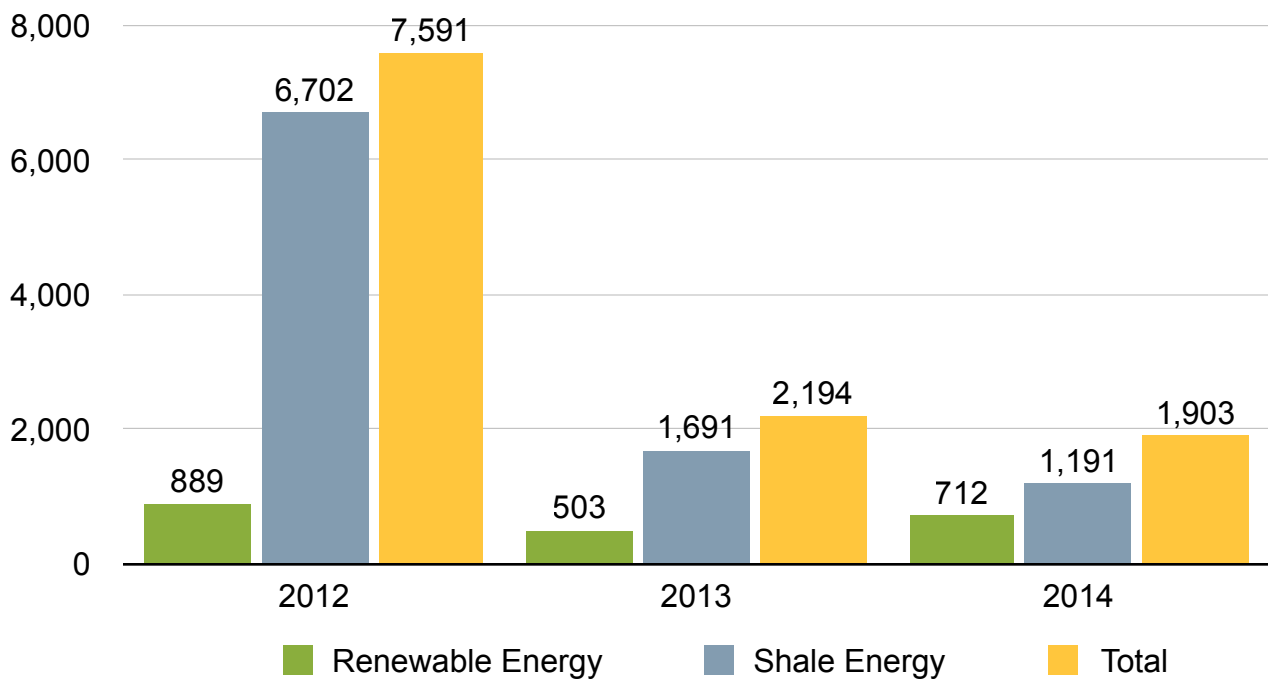
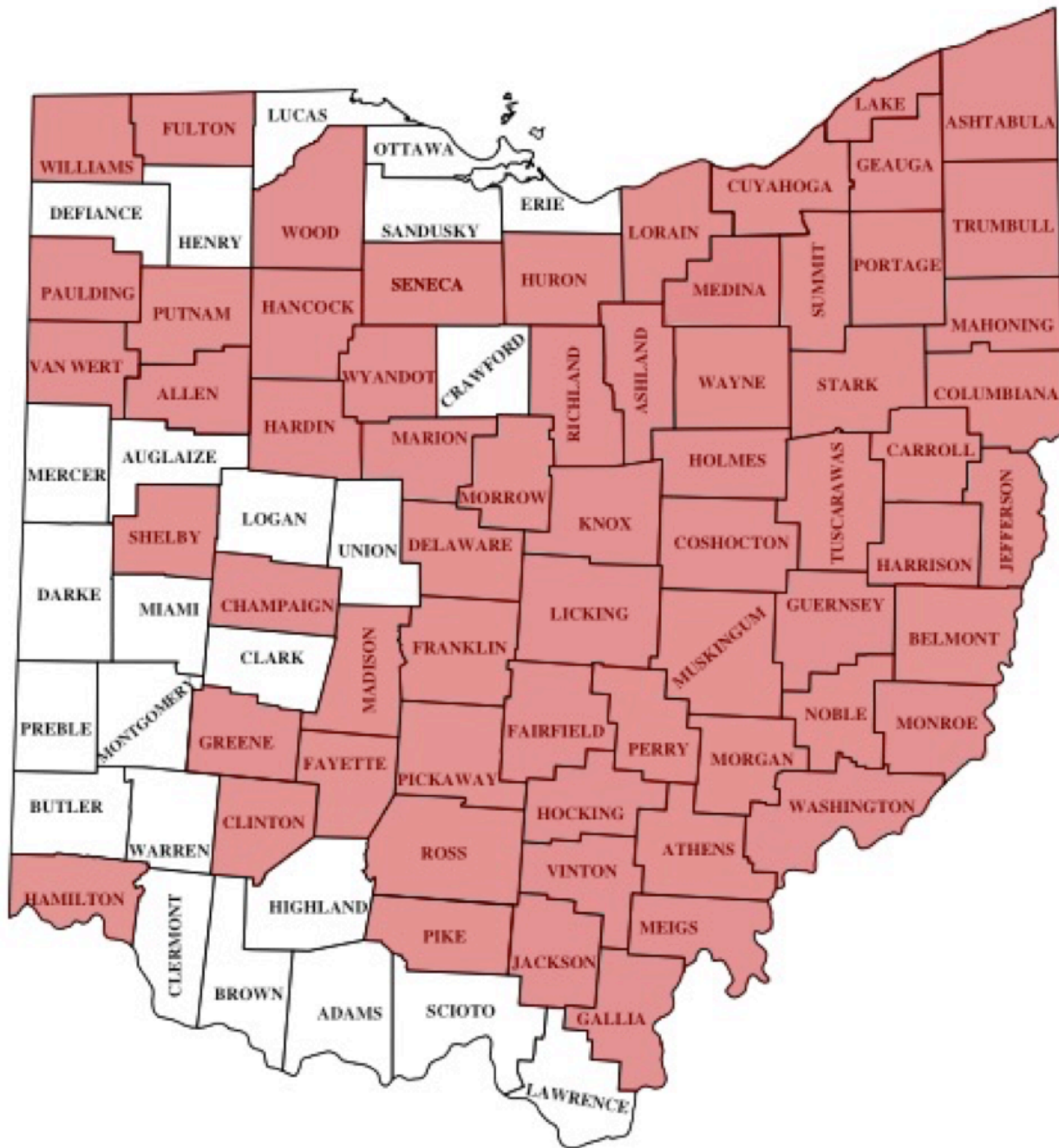


Image 1: Energize Ohio Programs Delivered By County (2012 - 2014)



Energize Ohio Program Indicator Evaluation



The Energize Ohio Signature Program is a diverse program that offers a variety of programs which addresses multiple aspects of both shale energy and renewable energy development. The diverse nature of the program makes it challenging to collect standardized program evaluation and impact data that can be aggregated over a given period of time.

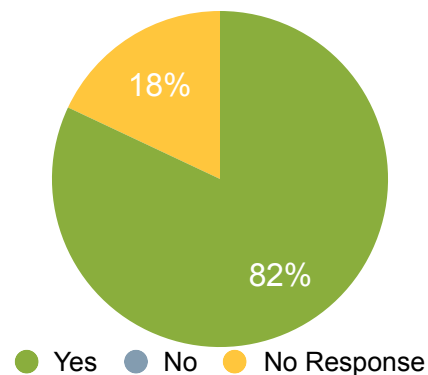
To address this challenge the Energize Ohio Team developed a program evaluation template designed to capture general short term impact results that apply to all energy programs. In addition, the evaluation templates provide the framework for additional program evaluation questions to be included that captures specific evaluation data related to a programs learning objectives (e.g., shale energy leasing, pipeline easements, on-farm renewable energy, community scale renewable energy development).

The three Energize Ohio Research In View (RIV) indicator questions included on all program evaluations include:

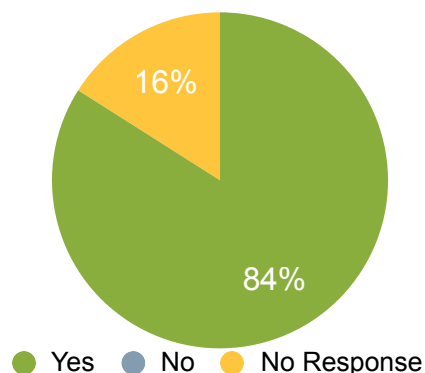
1. I feel this program provided valuable information that I would recommend to others?
2. As a result of this program, I know more about (renewable or shale) energy.
3. I plan to use the materials and/or information from this program in making decisions related to (renewable or shale) energy on my home, farm, or business?

Additional program evaluation results are listed later in this report under program features.

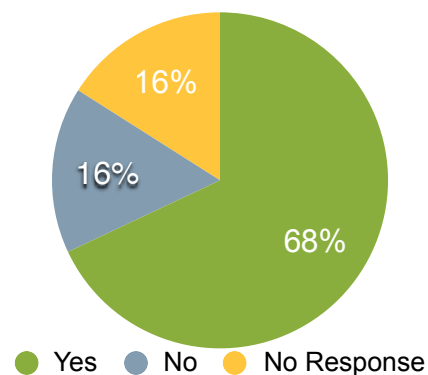
Question 1



Question 2



Question 3



Energy Related Publications

Educational tools and publications have been instrumental in supporting Extension outreach and education efforts as well as providing a strong OSU Extension presence for those searching the Internet for non-biased factual based shale energy resources. To support landowner and community education on renewable and shale energy, Energize Ohio team members continue to contribute to the development of fact sheets, journal articles, technical bulletins, and white papers to support energy programs. More specifically, since 2012 there have been 23 fact sheets, 4 journal articles, 2 technical bulletins, and 6 white papers developed to support energy education. A detailed list of publications is described in Table 1.

Table 1: Energy Publications since 2012

Title	Type	Author(s)
An Introduction to On-Farm Solar Electric Systems	Fact Sheet	Romich, E.
Estimating the Size of Your Solar Electric System	Fact Sheet	Clevenger, B. and Romich, E.
On-Farm Solar Site Assessment	Fact Sheet	Romich, E. and Clevenger, B.
Financial Considerations of On-Farm Renewable Energy	Fact Sheet	Bruynis, C. and Gearhardt, L.
Producing Your Own Electricity in Ohio	Fact Sheet	Romich, E.
Distributed Energy Generation: A Business Retention & Expansion Strategy	Fact Sheet	Bowen, N.
A Business Guide for Investing in On-Site Energy Generation	Fact Sheet	Bowen, N. and Romich, E.
Seeding Recommendations Following Pipeline Construction	Fact Sheet	Zoller, C and Landerfeld, M.
Summary of Hydraulic Fracturing in Ohio	Fact Sheet	Romich, E., and Schumacher, S.
Renewable Energy Policy Series: Rules for Siting a Utility Scale Wind Farm in Ohio	Fact Sheet	Romich, E.
Renewable Energy Policy Series: The Effect of Renewable Energy Projects on Current Agricultural Use Value	Fact Sheet	Romich, E., and Bruynis, C.
Seismic Testing and Oil & Gas Production	Fact Sheet	Landerfeld, M. and Hogan, C.
Leasing Farmland for Oil and Gas Production	Fact Sheet	Little, C.
Facing the Possibility of Leasing for Shale Gas Development on Your Land	Fact Sheet	Hall, P
Income Tax Management of Oil and Gas Lease Payments	Fact Sheet	Zoller, C., Hall, P., and Marrison, D.
Shale Oil and Gas Payments Are Subject to Ohio Commercial Activity Tax	Fact Sheet	Marrison, D.

Table 1: Energy Publications since 2012 (Continued)

Title	Type	Author(s)
Using the Depletion Deduction to Minimize Oil and Gas Tax Liability	Fact Sheet	Zoller, C. and Marrison, D.
Testing Private Water Sources and Resolving Contamination Issues near Shale Oil and Gas Development	Fact Sheet	Hall, P., Mancl, K., and Hogan, C.
Natural Gas Drilling: Questions Residents and Local Leaders Should Be Asking	Fact Sheet	Lloyd, M.
Adapting to Shale-Based Development Through a Countywide Approach: Lessons Learned from Jefferson County, Ohio	Fact Sheet	Campbell, J. and Hogan, C.
Understanding and Negotiating Pipeline Easements	Fact Sheet	Hall, P., Hogan, C., and Wills, L.
A Landowner's Guide to Understanding Recommended Pipeline Standards and Construction Specifications	Fact Sheet	Zoller, C.
Oil and Gas Pipeline Easement Checklist	Fact Sheet	Landefeld, M. and Hall, P.
Partnering with Private Industry - Ground Rules for Working Together	Journal Article	Romich, E., and Campbell, J.
Building Sustainability in Gas and Oil Producing Communities	Journal Article	Romich, E., Bowen, N., Moss, M., Bond, C., and Civittolo, D.
The Role of Extension in Energy Education	Journal Article	Romich, E.
Growing Community Capacity in Energy Development through Extension Education	Journal Article	Romich, E., and Bowen-Ellzey, N.
Ohio Energy Sources, Demands, and Cost	Technical Report	Romich, E.
Perspectives On Energy Development In The Wyandot County, OH Area	Technical Report	Campbell, J., McClendon, M., Romich, E., Bean, M., & Sharp, J.
SERC Note #1: Ohio State Extension's Shale Energy Development Education and Outreach	White Paper	Martin, K.
SERC Note #2: Ohio Shale Development: Responding to Landowner's Issues and Needs	White Paper	Penrose, C.
SERC Note #3: Ohio Shale Development: The Community Impact	White Paper	Lloyd, M.
SERC Note #4: Shale Development, Ohio Agriculture and Natural Gas Utilization	White Paper	Southgate, D.
SERC Note #5: Natural Gas Prices Return Slowly to Normal After the Winter of 2014	White Paper	Roberts, M.
SERC Note #6: Pastures and Pipelines	White Paper	Little, R.



Shale Energy Development

Program Overview

Oil and gas development continued in Ohio in 2014 with the focus remaining on a fairly narrow strip extending from Carroll County to Noble County. Total horizontal wells drilled in the Utica/Point Pleasant shale increased from around 200 in January 2012 to over 1,300 in early 2015. As wells were being drilled, the region was also seeing a rapid development of midstream fractionation/ cryogenic plants

designed to remove the “wet” components from the rich gas found in the region. As these plants come on line, it is likely that more wells will be drilled and a web of pipelines will continue to be installed and upgraded in the region and across the state to move the product from the wellhead, to the midstream processors and finally to crackers and end use consumers.

To support Shale Energy Outreach and Education, the team developed a number of shale energy fact sheets and 11 Extension workshops that were captured electronically and converted into multimedia programs.

pipelines, wealth management, and long term community development. In 2014, OSU Extension educators and specialists conducted 32 programs that reached 1,191 people on shale gas-related topics such as legal and financial aspects of leases, water, pipeline and environmental issues. To support landowner education on shale energy, the shale energy team has

developed a number of tools to support educational efforts including shale energy fact sheets and 11 Extension workshops that were captured electronically and converted into multimedia programs. Educational tools and publications have been instrumental in supporting Extension outreach and education efforts as well as providing a strong OSU Extension presence for those searching the Internet for non-biased factual based shale energy resources.

In the fourth quarter of 2014, the state reported oil production of 3.56 MMBO and natural gas production of 164.82 Bcf. That represents a 147% increase from its fourth quarter 2013 oil production of 1.44 MMBO, and a 282% increase in natural gas production of 43.12 Bcf from fourth quarter 2013 production.

As the development matures, the response from OSU Extension does likewise. Educational efforts started with leasing issues but has now grown to include

To promote the signature program, build capacity, and identify ongoing collaboration opportunities, the OSU Extension Shale Energy Work Group continues to provide monthly meetings that cover topics including environmental issues, production updates, wealth management and philanthropy, pipeline development, and community issues. These webinars are available to be viewed on the serc.osu.edu/extension website.

Program Feature

Shale Energy Community Planning EDA Grant

This Economic Development Administration (EDA) grant funded program, addresses the need to be strategic about the current oil and gas boom in Ohio. An OSU Extension planning team is conducting research, developing a curriculum, and collaborating with stakeholders to develop an implementation plan to support long-term economic viability and community sustainability.

To achieve these goals, the project team is focusing on the following objectives: 1) developing a collaborative multi-disciplinary team of researchers and community stakeholders, 2) conducting research based on private and public data sources to measure change, 3) developing a replicable sustainable strategic shale energy planning process, and 4) establishing implementation strategies.

The primary objective of this research project is to promote long-term community sustainability and economic diversity. This can be accomplished by countering the permanent reduction of non-renewable natural resource (extraction) by proactively developing a sustainable plan to increase human, environmental, and built capital.

Evaluation Focus

The evaluation focus is to measure economic, social and environmental changes that have occurred as a result of shale development in a 25-county Ohio. Stakeholders in the region are working closely with the research team and evaluators to measure and understand the degree to which changes have affected their communities and what opportunities are emerging as a result of shale development. The primary objective is the sustainability of the shale development affected region of Ohio.

Multi-disciplinary research teams have been established to identify and track change indicators for each of the following project elements in addition to providing leadership on planning process outreach and delivery. Each of the three-member teams have been meeting in small groups to develop and track specific change indicators. Indicators are being and measured and reported annually. Progress reports have been shared with the regional partners in face-to-face meetings to inform change results and, with input from regional leadership, determine the reasons for these changes. Some of the key economic, social and environmental indicators identified by the teams are listed in the box on the right.

Multi-Disciplinary Research Teams

Economic (data analysis)

Eric Romich
David Civittolo
Nancy Bowen

Social

James Bates
Polly Loy
Cindy Bond

Environmental

Joe Bonnell
Mike Lloyd
Myra Moss

Key Change Indicators

Economic Population Employment

Median household income
Cluster concentrations
Top sectors by employment
Sales tax collections

Social

Charitable giving
School enrollment
% Children receiving free/
reduced lunches
Crime
Subsidized housing availability

Environmental

Injection wells
Water quality and quantity
Air quality
Traffic counts
Camper sites
Noise

Researching the Economy

Much of the research focuses on the economy and is a quantitative longitudinal study to track income and employment levels over time, measuring changes in the economy using employer enterprise data that is accessed through the CHRR's Workforce Data Quality Initiative (WDQI) database and public data sets including the census and IMPLAN. The WDQI data being accessed is at the aggregate, employer enterprise level. The data sets accessed through the CHRR via restricted access include employment data, enterprise data and total payroll.

Researchers will also compare employment data for the 25 counties in the shale impacted region of the Ohio with counties in non-shale impacted areas to measure the incremental difference that can be accounted for by shale development.

Unemployment data percentages have also been collected prior to the beginning of the shale gas initiative in 2005 and biannually since that time. Specifically, researchers want to evaluate whether the shale gas initiative has decreased the unemployment percent in the defined shale gas region and, if the data indicates that employment has increased, the researchers want to identify the specific occupations that were most impacted by the shale gas Industry.

Researchers also want to focus on total payroll of the population over a similar timeframe and geography. That is, the researchers want to focus on industries that are identified in the North American Industry Classification System (NAICS), to determine if income levels in the shale region have increased, decreased or stayed relatively the same compared to aggregated wage data in the other regions in Ohio. Other demographic, social and environmental data sets will be accessed through the census and other publicly available data sources, some of which have not yet been identified.



Stakeholder Meetings

Two formal face-to-face regional meetings have taken place with each of the four Economic Development District partner regions. About 70 participants from the four regions attended the meetings. An evaluation of the program participants resulted in positive findings, including almost 100% indicating they have a better understanding of the plan of work, the impact of shale development and the role they will play in the planning process. Evaluations that were completed for the launch meetings helped the team determine whether learning and partnership objectives are being accomplished. One participant commented, "This was a great meeting to get started in the planning of this grant project. The group and the topic have a lot momentum right now and the results will be very beneficial to the entire region." Other evaluation results and comments from individual participants from all four regions are listed below.

2014 Regional Meetings

<u>Date</u>	<u>Location</u>	<u>EDD Region</u>
2/27/2014	Caldwell	OMEGA
2/27/2014	Caldwell	Buckeye Hills
3/4/2014	Akron	NEFCO
3/4/2014	Youngstown	Eastgate
9/25/2014	New Philadelphia	OMEGA
9/25/2014	New Philadelphia	Buckeye Hills
10/7/2014	Akron	NEOFCO
10/7/2014	Youngstown	Eastgate

- 100 % indicated they have a better understanding of the impact of shale development.
- 83% indicated they have a better understanding of the role they will play in the planning process.
- 100% indicated they have a better understanding of the plan of work for this project.
- 100% indicated they have a better understanding of some of the economic trends.

Comments (from all four regions):

- "I learned so much. I look forward to the next meeting".
- "Great first meeting! Great Enthusiasm! Looking forward to working with everyone!"
- "This was good, I'm looking forward to seeing the rest of the data in the analysis."
- "This was a great meeting to get started in the planning of this grant project. The group and the topic have a lot momentum right now and the results will be very beneficial to the entire region."
- "Very interesting and helpful, and looking forward to our partnership."



Program Feature

Preparing Communities for Shale Development through Sustainable Planning

In March of 2014, a \$20,000 grant was received from the North Central Regional Center for Regional Development to develop and test strategies to prepare rural communities for the economic, social and environmental impacts of shale development. In partnership with the Guernsey County Regional Planning Commission and Community Improvement Corporation, Extension's Energy and Sustainability Team facilitated a year-long comprehensive planning initiative to help county leaders understand and address shale development related issues. The planning process was based on principles of sustainability and included the following activities:

- A) Creation of a Steering Committee comprised of elected and community leaders to manage the planning process,
- B) Creation of topical Workgroups led by community leaders with participation by a broad range of residents and experts. Over 110 local volunteers contributed to the development of 12 separate workgroup plans, ranging from Economic Development and Workforce Development to Agriculture and Open Spaces.
- C) Conducting of five workshops organized around sustainability and shale themes including:
 - 1) **Overview of Sustainable Planning and introduction to Shale Development**
32 community leaders and elected officials attended the project launch session. Extension explained sustainable planning concepts, provided an overview of shale development, outlined the planning process, and facilitated the identification of existing county assets and potential issues related to shale development.
 - 2) **Social Issues and Shale Development**
24 Workgroup chairs and members attended the social issue workshop. The agenda included a panel discussion by shale industry representatives, landowners and OSU experts, followed by an opportunity for questions and discussion afterwards.



3) Environmental Issues and Shale Development

Attended by 28 Workgroup and Regional Planning members, a panel discussion followed by questions and discussion provided the format for this meeting. Panelists included OSU faculty with expertise in environmental issues relating to shale, industry engineers with responsibility for operations and sustainability, state regulatory agency staff (ODNR) and staff from an industry trade organization.

4) Economic Issues and Shale Development

31 Workgroup chairs and members and Planning Commission representatives attended this session on economic issues. Because it was the final educational session of the workshop series, Tom Murphy, Co-Director of Penn State's Marcellus Center of outreach and Research, was invited to provide a "capstone" presentation on Shale Energy Development – Emerging Trends, New Technology, Community Planning and Successful Regulations, with discussion afterwards. This was followed by the OSU Extension's Energy and Sustainability Team presentation of an overview of economic impacts of shale in Guernsey County, highlighting their cluster industry research findings and implications and presenting a case study of how results have been used in other communities.

5) Creating Sustainable Goals to Address Shale Development

Workgroup chairs and co-chairs were the focus of this session, the purpose of which was to 1) Share each Workgroup's section of the comprehensive plan with the other workgroups, and 2) Find similar initiatives among all of the Workgroups that could be formulated into overarching, sustainable goals. This was the final stage in the planning process.

Status of Guernsey County Comprehensive Plan for Shale Development:
The Guernsey Regional Planning Commission is finalizing the plan and anticipates that it will be presented for adoption within the next few months.



Renewable Energy Development

Program Overview

According to the U.S. Department of Energy, Energy Information Administration (EIA) *2015 Short-Term Energy Outlook Report* renewable energy accounted for 6.2% of U.S. electricity generation in 2013. Since 2000, total renewable energy consumption in the U.S. increased by 58% from 507 trillion British Thermal Units (BTU) in 2000 to 805 Trillion BTU in 2014. Looking forward, the EIA expects continued growth in both utility-scale wind and solar power generation. Between 2014 and 2016, utility-scale solar capacity is projected to increase by more than 60% or 6 gigawatts, while utility scale wind is forecast to increase by 16% representing 15 gigawatts of new capacity. Following the passage of Ohio's Alternative Energy Portfolio Standards in 2008, Ohio has experienced significant growth in renewable energy generation with more than 6,917 certified renewable energy facilities in Ohio accounting for 1,011 megawatts of electric generating capacity. Renewable energy development presents new social, economic, and environmental opportunities and challenges to landowners, farms, businesses, and impacted communities.

Energize Ohio renewable energy curriculum is designed to enhance community leaders' and local residents' knowledge of energy drivers and development in order to promote best practices and informed decision-making on the implementation of sustainable energy strategies in Ohio's communities, businesses, and farms. Renewable energy topics currently addressed include large-scale renewable energy development, youth renewable energy education, on-farm renewable energy, and distributed renewable energy development. In 2014, OSU

Extension educators and specialists conducted 30 programs that reached more than to 712 people on renewable energy-related topics.

To support landowner and community education on renewable energy, the team has developed a number of new tools in 2014 including 4 new fact sheets, 3 short videos, a technical report, and a journal article. Educational tools and publications have been instrumental in supporting Extension outreach and education efforts as well as providing a strong OSU Extension presence for those searching the Internet for non-biased factual based shale energy resources.

In response to a growing number of Ohio farmers considering on-farm photovoltaic solar systems to generate their own electricity, a team of OSU Extension Educators developed a new curriculum titled On-Farm Solar Energy Development. The purpose of this program is to provide farmers additional information regarding on-farm PV solar development to assist them in the decision making process. The curriculum package includes a teaching outline, presentation materials, narrated presentation slides, a fact sheet series, short videos, marketing templates, and evaluation tools. The curriculum was peer reviewed in 2014 and additional information is available at comdev.osu.edu/programs/economic-development/energy.



Program Feature

Small Farm College at Wilmington On-Farm Solar Energy Workshop

On March 8, 2014 the Small Farm College at Wilmington offered the On-Farm Solar Energy program as a breakout session to participants. In total, there were 24 participants in the hour long session. Program evaluations were distributed and completed by 15 of the 24 participants. The following charts summarize the program evaluation results. For additional information regarding On-Farm Solar Energy Development please visit <http://energizeohio.osu.edu/farm-renewable-energy-development>



● Yes ● No

100%

Question 1: Do you feel today's program provided valuable information that you would recommend to others?

100%

Question 2: As a result of this program, I know more about renewable energy.

100%

Question 3: Will you use the materials and information from this program in making decisions related to renewable energy on your home, farm, or business?

Chart 3: Small Farm College On-Farm Solar Energy Workshop - Program Evaluation

Overall Response Average (scale of 1-6)

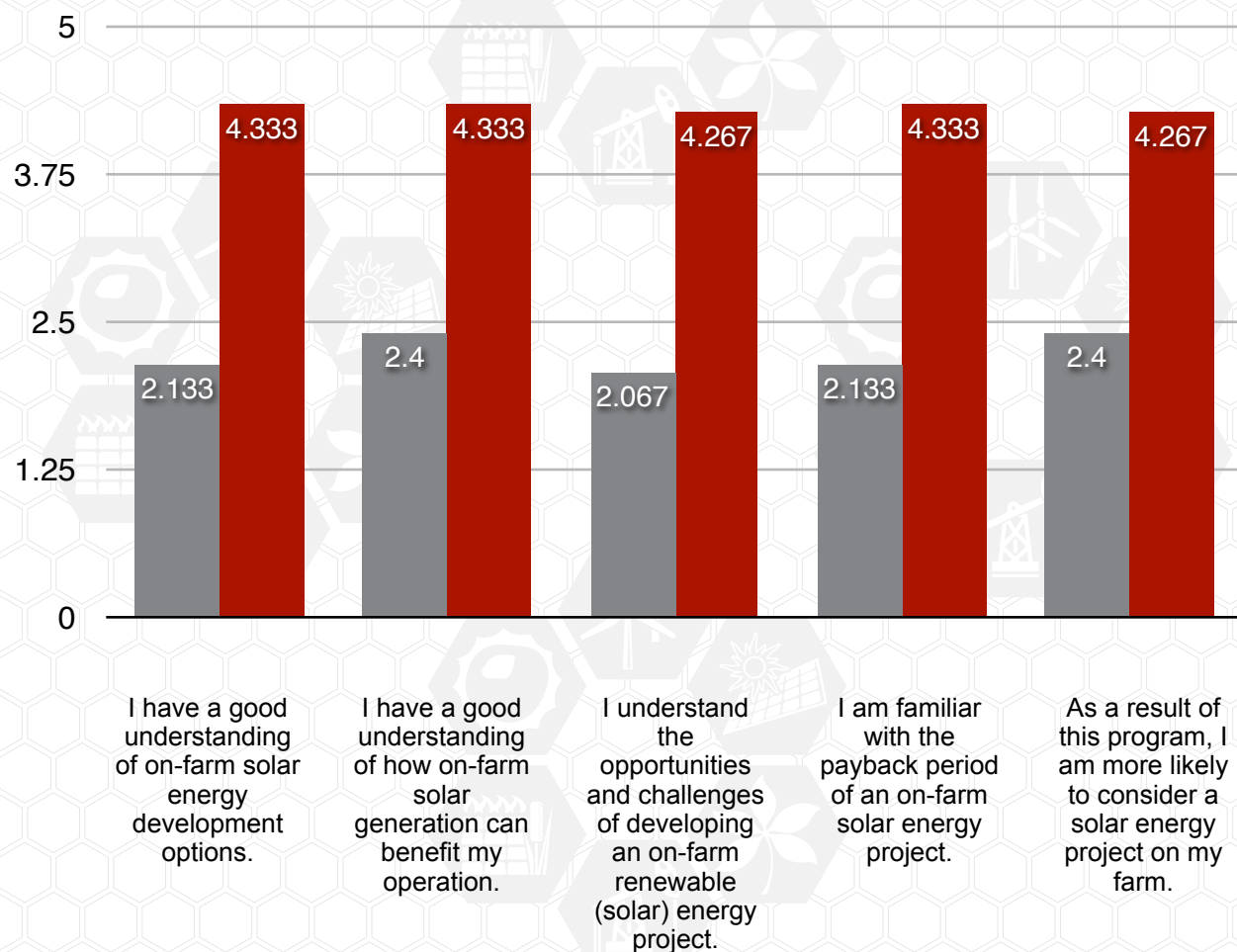
Strongly Disagree

Strongly Agree

1 2 3 4 5 6

■ Pre test

■ Post test



Program Feature

Huron County On-Farm Solar Energy Workshop

On April 21, 2014 the Huron County Extension Office offered the On-Farm Solar Energy program to local farmers and residents. In total, there were 23 participants in attendance for the 1 ½ hour program. Program evaluations were distributed and completed by 11 of the 23 participants. The following charts summarize the program evaluation results.

Program Speakers

Mike Gastier, OSU Extension – Introduction

Eric Romich, OSU Extension – Net Metering, Photovoltaic Technology, & Site Assessment

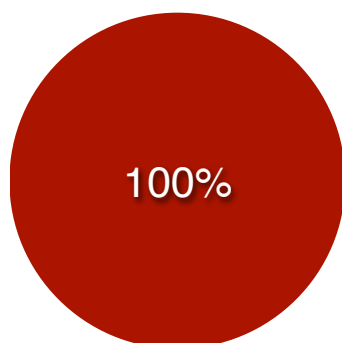
Jess Ennis, ecojiva Solar – Does Solar Fit Your Farm?

Enterprise Hill Farms - Case Study Example

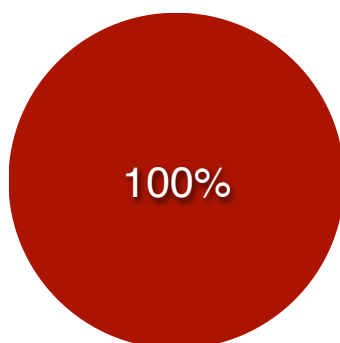
Ruggles Farms – Case Study Example

Randy Monhemius, USDA – REAP Funding Program

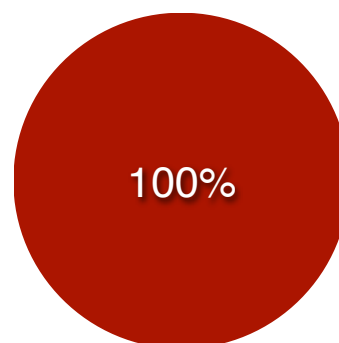
● Yes ● No



Question 1: Do you feel today's program provided valuable information that you would recommend to others?



Question 2: As a result of this program, I know more about renewable energy.



Question 3: Will you use the materials and information from this program in making decisions related to renewable energy on your home, farm, or business?



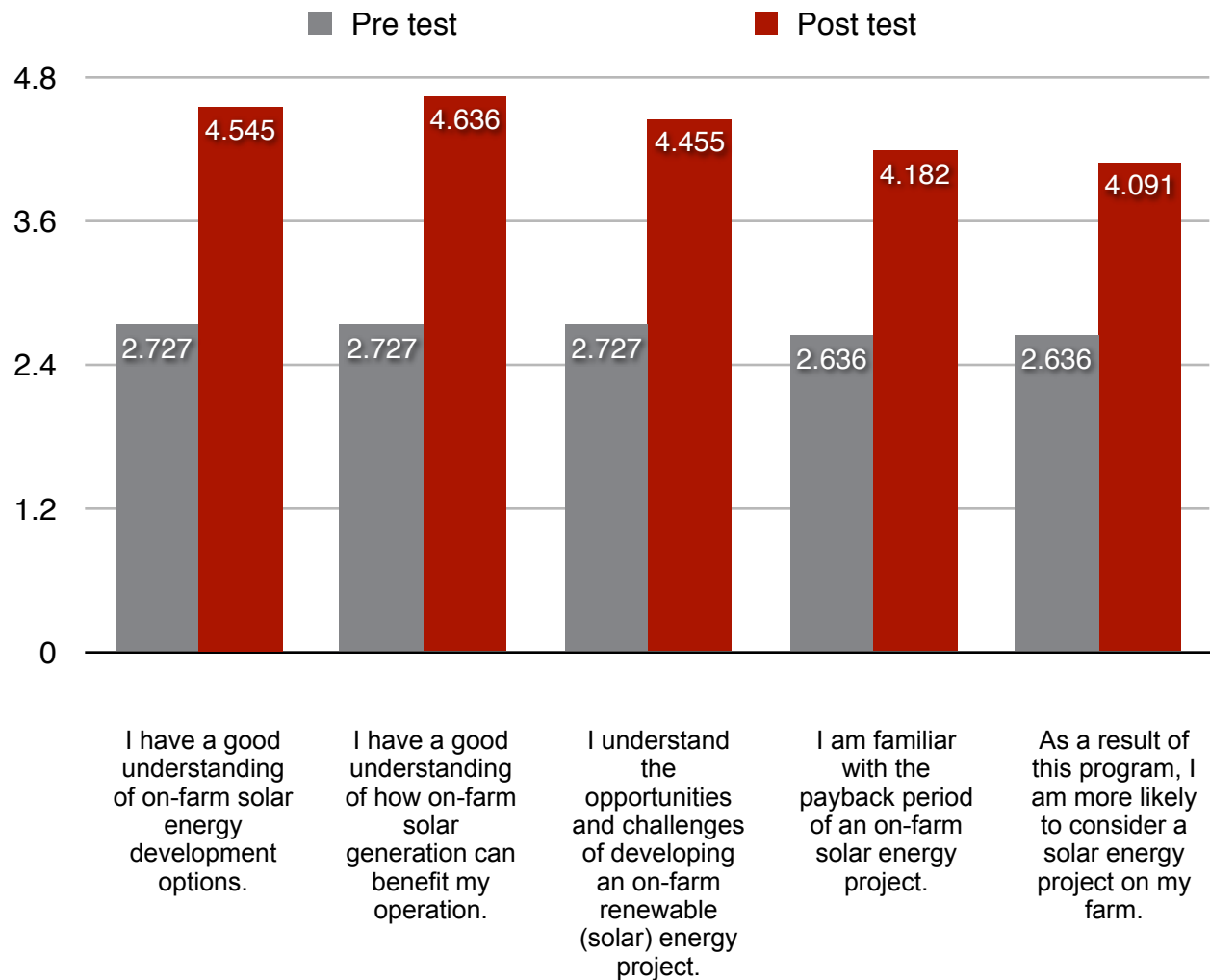
Chart 4: Huron County On-Farm Solar Energy Workshop - Program Evaluation

Overall Response Average (scale of 1-6)

Strongly Disagree

Strongly Agree

1 2 3 4 5 6



Program Feature

Medina County On-Farm Solar Energy Workshop

In September, 2014 the Energize Ohio Team collaborated with the Medina County Extension office to deliver an on-farm solar energy program. The impetus behind the program was actually a local Medina farmer who had seen the program in a nearby county and decided to install solar panels on his own operation. Because of the program's impact on his decision to install solar, he felt other businesses in the area would benefit from the program and offered to host the event at his farm. To demonstrate photovoltaic solar for attendees who may be experiencing technology for the first time, the mobile solar unit was displayed and staffed for questions

during the workshop. The program was marketed regionally and had more than 100 people in attendance including farm owners, businesses, homeowners, and local officials. According to Ashley Kulhanek, Medina County ANR Educator, "the program was a true collaboration between community development and agriculture & natural resource program areas by not only being relevant to the target farm-audience, but also being informative to any business or homeowner that is interested in solar energy. I feel the results of this program were significant."



“Since the program was conducted in September 2014, two of our county's greenhouse growers, who were in attendance, have investigated solar energy development for their own operations, and one of which has already begun installing solar panels just 4 months later. The team has done an excellent job providing follow-up support, developing factsheets and fielding calls and questions about solar development.”

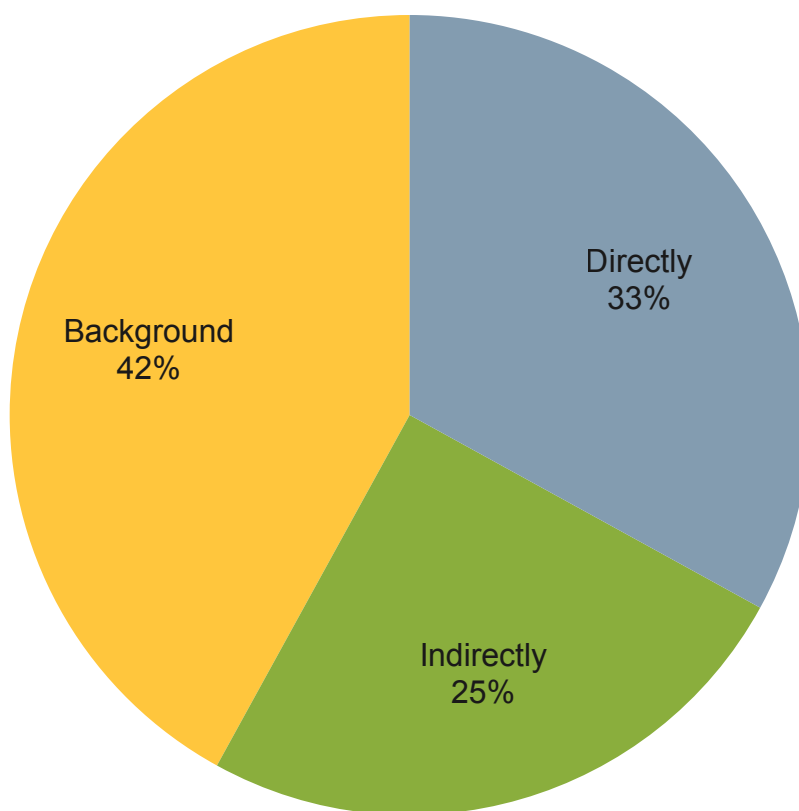
*Ashley Kulhanek, M.S.
Extension Educator, Agriculture & Natural
Resources*

Program Feature

Ag Lenders Series - On Farm Solar Energy

In October, 2014 the On-Farm Solar Energy program was offered as a 60 minute session at the OSU Extension Ag Lender's Seminars. The session was offered at three regional workshops that reached 142 lenders (48 - Wooster, 69 - Ottawa, and 25 - Urbana). Lenders report having 19,862 farm/rural customers that are served with knowledge gained from OSU Extension. In total, 72% of 2014 participants were repeat participants to OSU Extension Ag Lenders Seminars, while 28% were first timers, 49% had attended 2-9 times in the past, and 23% had attended 10 or more times in the past. Combined the reported loan portfolio of Ag Lenders participants in 2014 was 3.71 Billion (Urbana: \$643 Million, Wooster: \$841 Million, and Ottawa: \$2.23 Billion). Chart 5 below summarizes the program evaluation which ask participants how they plan to use the knowledge gained from the on-farm solar energy program in their job.

Chart 5: Lenders report using the knowledge gained Directly, Indirectly, or as Professional Development in their job.



	Directly = speak with customers as it relates to bank/lending and their farming operation.
	Indirectly = use information when reviewing portfolios/applications of customers.
	Background = professional development and industry awareness in their jobs.

Signature Program Marketing

Energize Ohio Website

The Energize Ohio Signature Program website (energizeohio.osu.edu) is a collaborative effort between the Office of Energy, Ohio Development Services Agency and OSU Extension. Since 2012, the Energize Ohio Team has updated critical information in the energy efficiency and renewable energy incentives calculator, developed an interactive flowchart to promote OSU Extension curriculum materials, and built an energy library to share Extension publications, fact sheets, and videos. Current and relevant information was disseminated through 25 energy blogs submitted by 9 different educators. In addition, a strategic and intentional effort was made to create and integrate standardized energy marketing banners into the website pages and materials to support the OSU Extension and Signature Program brand.

Chart 6: Energize Ohio Website Visits (2012 - 2014)

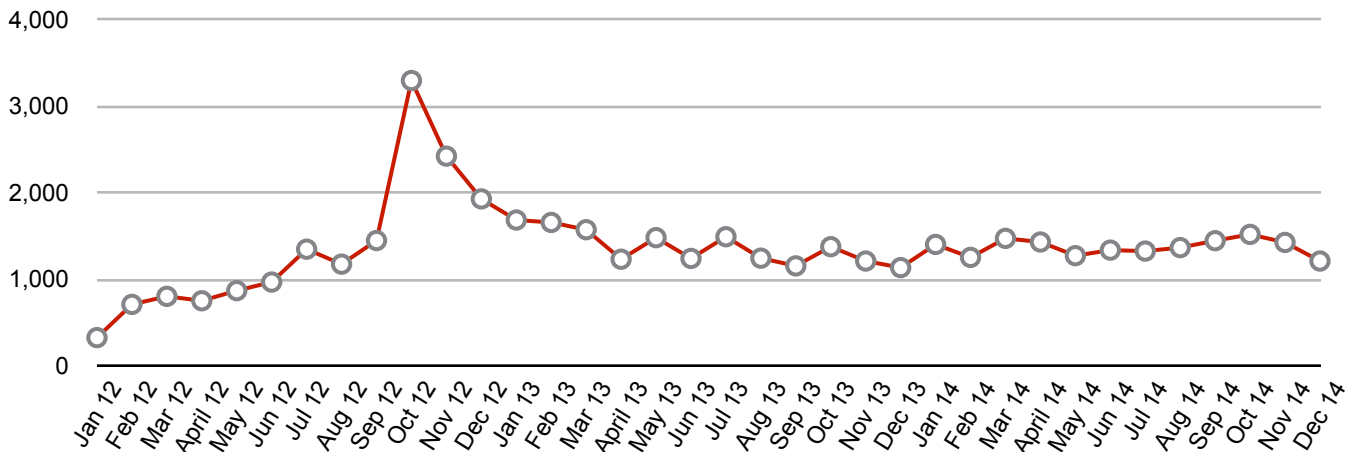
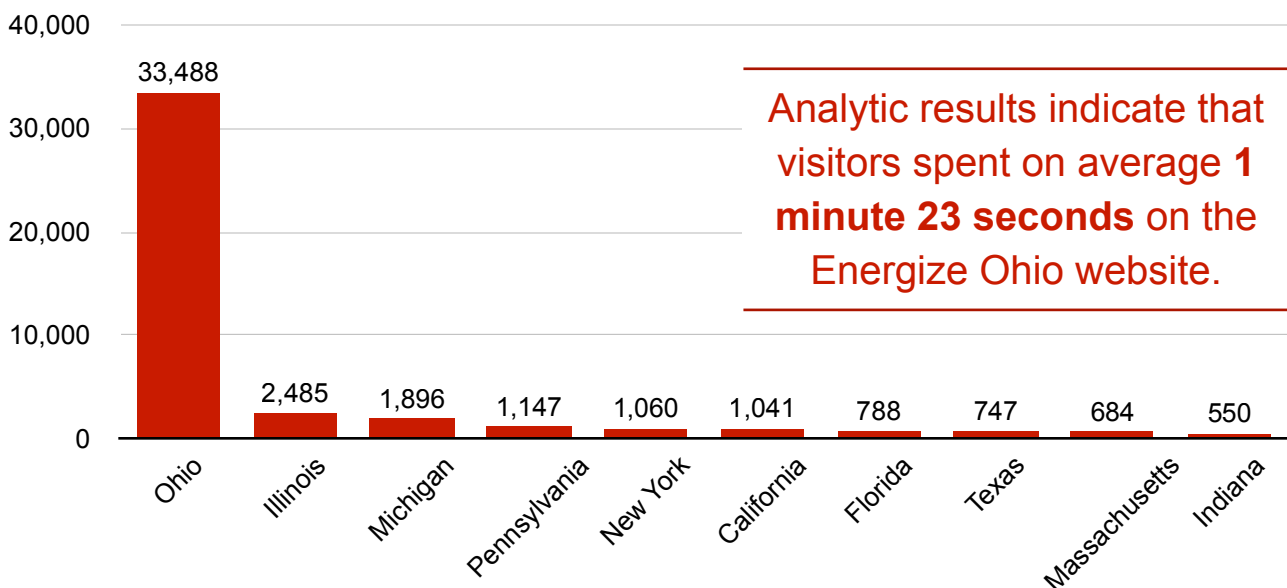


Chart 7: Energize Ohio Website Visits (2012-2014) Top 10 States





Since 2012, the Energize Ohio website received 113,542 page views from 52,057 visitors sessions. Google analytics defines a session as the period time a user is actively engaged with your website, all usage data (Screen Views, Events, E-commerce, etc.) is associated with a session. As illustrated in Charts 6, 7, and 8, the website continues to reach a new audience as 84% of the website traffic is from new visitors. The website received visitors sessions from all 50 U.S. States, the District of Columbia, and international visits from 120 different countries (Image 2). Analytic results indicate that visitors spent on average 1 minute 23 seconds on the Energize Ohio website.

The Energize Ohio website fills a critical need by providing easily accessible unbiased research based information on energy topics to Educators and Ohio residents. In addition, the Shale Energy Website was developed to organize shale programs and teaching tools by topic. Energize Ohio and Shale Work Group team members collaborate closely with the management of both websites to effectively organize materials without duplicating materials, and seamlessly linking the two websites.

Chart 8: Website Traffic

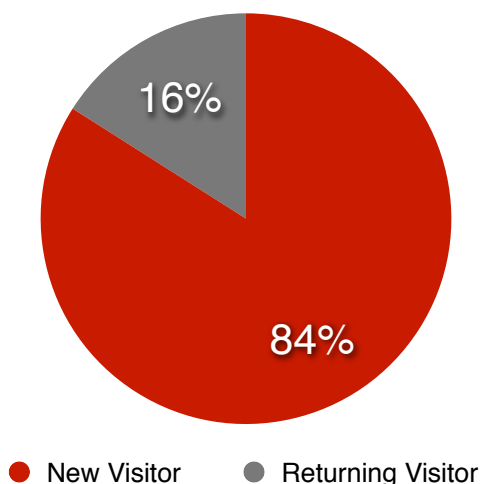
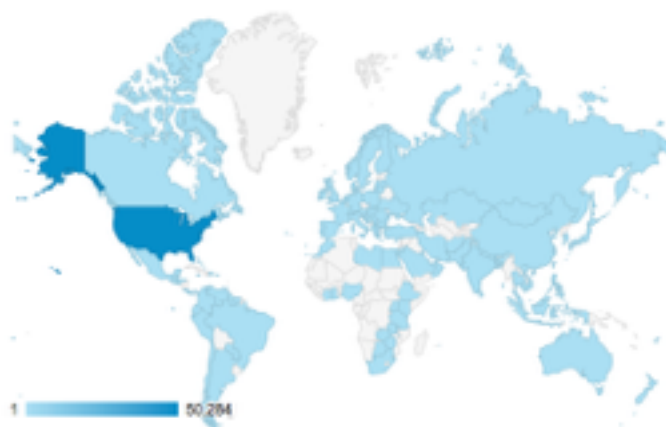


Image 2: Energize Ohio Website Session by Country





CFAES Branding

Recognizing a strong brand is critical to our One University, One College approach, the Energize Ohio team has quickly embraced the new branding standards and guidelines. In 2013 - 2014 Communications and Technology developed new Energize Ohio marketing materials including an electronic report template, a new energy wallpaper, powerpoint template, tri-fold brochure, program folder, and a banner display to promote program materials at workshops and conferences. The new promotion and marketing print materials and electronic templates are available upon request to anyone hosting an Energize Ohio program.

Outreach & Engagement

The Energize Ohio team participates in a number of outreach and engagement activities to promote the Energize Ohio program, build partnerships, and identify new opportunities for collaboration. For the third consecutive year, Energize Ohio presented a poster at the Ohio State University Outreach and Engagement Forum at the Ohio Union. In June, 2014, a poster describing an overview of the Energize Ohio Signature Program was displayed at the National Association of Community Development Extension Professionals annual conference in Grand Rapids, Michigan and the OSU Extension Annual Conference. These efforts have fostered many discussions on energy education and collaboration opportunities among Extension colleagues, and faculty from OSU and beyond.



Energize Ohio Cost Recovery

Grant Overview

In 2014, Energize Ohio team members remained active in submitting renewable and shale energy funding proposals to conduct research, outreach, and education. Since 2012, a total of 7 proposals have been funded committing roughly \$779,511 to support Extension activities. A significant portion of the funding acquired in 2014 was to support the shale energy research, outreach and education. Additionally, two funding proposals were submitted in 2015 to (1) develop a high quality, locally relevant solar energy curriculum to be used by formal and informal educators and (2) develop and offer green home technology demonstration workshops and industry expo for homeowners, builders, and building professionals. Table 2 summarizes the funding proposals, investigators, status, and timelines.

Table 2: Energize Ohio Funding

Project Title	Funding Agency	Amount	Investigators	Status	Timeline
Wyandot County Survey of Renewable Energy and Environmental Issues	EDF Renewables, Wyandot County Commissioners, Wyandot County Regional Planning Commission, OSU Extension CD, and OSU Environment & Natural Resource	\$7,500	Romich, E., Campbell, J., Moon, G., and Sharp, J.	Funded	2013
Distributed Energy Generation as a BR&E Strategy	JobsOhio	\$2,500	Bowen, N. and Romich, E.	Funded	2013
Preparing Communities for Shale Development through Sustainable Planning	North Central Regional Center for Rural Development	\$20,000	Moss, M., Bond, C., Romich, E., and Bowen, N.	Funded	2013 to 2014
Utility Scale Renewable Energy Development - Project Siting & Conflict Resolution	North Central Regional Center for Rural Development	\$19,968	Romich, E., Hall, P., and Beyea, W.	Funded	2013
Preparing Communities for Shale Development through Sustainable Planning	U.S. Department of Commerce, Economic Development Administration	\$199,766	Bowen, N., Bond, C., Moss, M., and Romich, E.	Funded	2014 to 2016
Maximizing the Gains of Old and New Energy Development for America's Rural Communities	USDA, Agriculture and Food Research Initiative	\$499,777	Partridge, M., Civattolo, D., Faggian, A., Lobao, L., and Romich, E.	Funded	2014 to 2017
Training Professionals on Sustainable Advanced Energy Feedstock Production for Enhanced Ecosystems Services from the Ground Up	Northeast SunGrant Initiative	\$30,000	Islam, R., Cornish, K., Reeder, R., Sundermeier, A., Romich, E., Pennington, D., and Momen, B.	Funded	2014 to 2015
Establishing a Green Home Technology Center: An OSU and Community Partnership for Research, Education, and Demonstration of Green Building Technologies to Support Healthy, Energy Efficient, and Sustainable Housing in Ohio	OSU Engagement Impact Grant	\$59,936	Zhao, L., Romich, E., Chen, Q., Walter, M., and Cruse, A.	Submitted	
Making the Future Bright: The Solar Energy Curriculum Consortium	OSU Cares Grant	\$24,819	Fussell, K., Romich, E., Dial, A., Stanford, K., Manzo, L., and Greene, A.	Submitted	
Biofuels: Driving Agricultural Entrepreneurship and Innovation	USDA, Agriculture and Food Research Initiative	\$544,003	Hall, D., Bowen, N., Marrison, D., and Romich, E.	Not Funded	

Collaboration

Building Partnerships and Networks

The Energize Ohio Signature Program team seeks internal and external collaboration opportunities to elevate and expand the program. Collaboration opportunities have been leveraged with a number of organizations including, but not limited to:

Government & Industry Partnerships

1. Ohio Utility Providers
2. Public Utility Commission of Ohio
3. Ohio Treasures Office
4. JobsOhio
5. Ohio Energy Office
6. Ohio Department of Natural Resources
7. U.S. Department of Agriculture
8. U.S. Department of Commerce Economic Development Administration
9. Ohio Farm Bureau
10. Ohio Bio-Products Innovation Center
11. Ohio Sustainable Agriculture Research and Education Team
12. Efficiency Smart
13. Ecojiva Solar
14. EDF Renewable Energy
15. FirstEnergy
16. Iberdrola Energy
17. One Energy
18. Paradise Energy Solutions
19. Spectra Energy
20. Vaughn Industries
21. Wagner Pork LLC
22. Walter Hogs LLC

University Partnerships

1. Michigan State University Extension
2. Purdue University Extension
3. Penn State University Extension
4. West Virginia University
5. Colorado State University Extension
6. University of Wyoming Extension
7. South Dakota State University
8. North Dakota State University
9. University of Illinois Extension
10. Washington State University Extension
11. University of Alaska Extension
12. Arizona Cooperative Extension
13. University of Tennessee Extension
14. University of Vermont Extension
15. Cornell Cooperative Extension

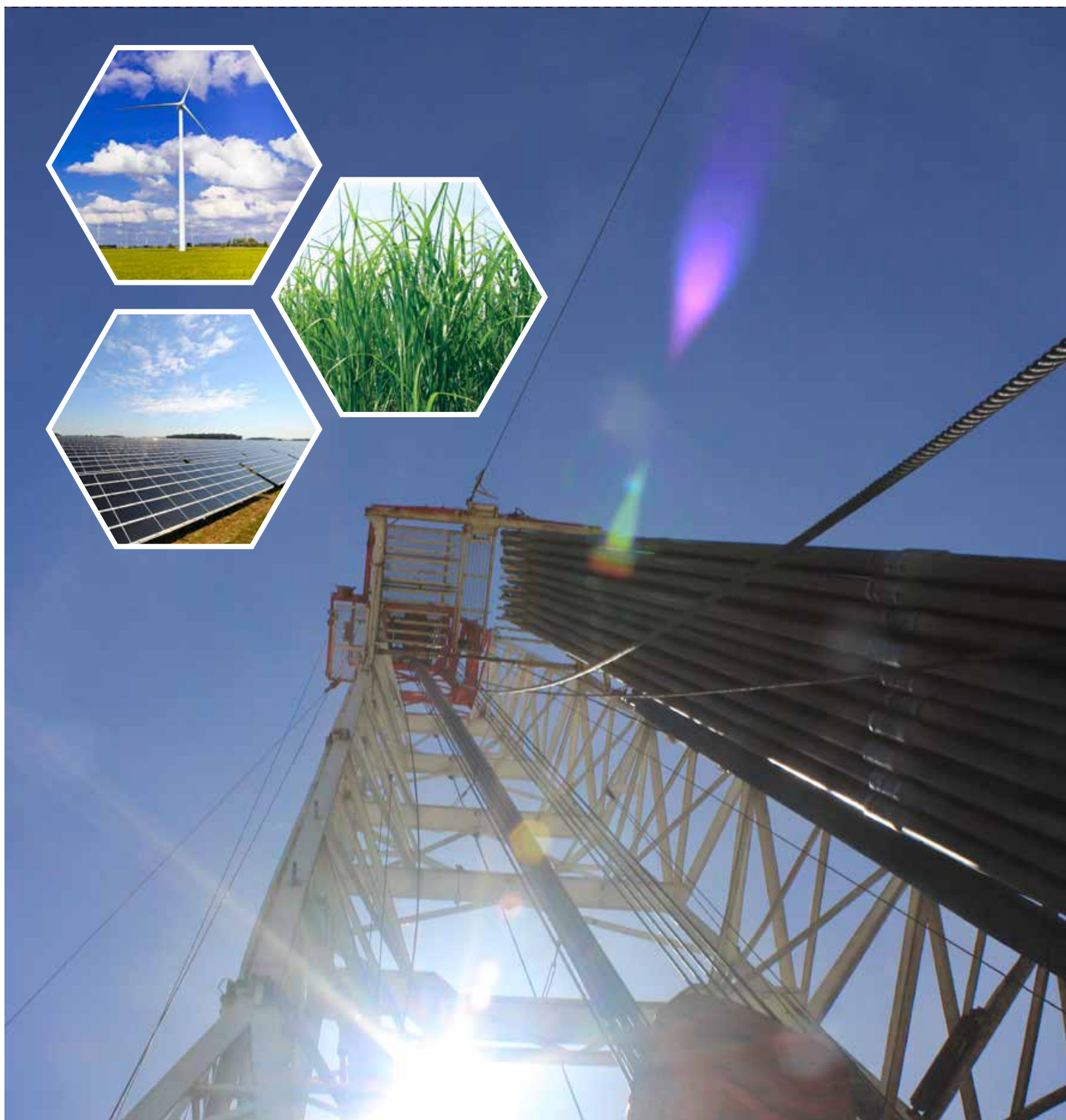
OSU Partnerships

1. OSU Extension - Community Development
2. OSU Extension - Agriculture and Natural Resources
3. OSU Extension - Family & Consumer Sciences
4. OSU Extension - 4-H Youth Development
5. OSU CFAES - School of Environment and Natural Resources
6. OSU CFAES - Department of Food, Agricultural and Biological Engineering
7. OSU CFAES - Department of Agricultural, Environmental, and Development Economics
8. William Swank Program in Rural- Urban Policy
9. OSU Subsurface Energy Resource Center
10. OSU Center of Automotive Research
11. Ohio Sea Grant
12. OSU Climate Change Outreach Team

Community Partnerships

1. Appalachian Partnership for Economic Growth
2. Buckeye Hills-Hocking Hills
3. Cambridge Chamber of Commerce
4. Guernsey County Community Improvement Corporation
5. Guernsey County Planning Commission
6. Northeast Ohio Four County Regional Planning and Development Organization
7. Ohio Mid-Eastern Governments Association
8. Regional Growth Partnership
9. Van Wert Chamber of Commerce
10. Wyandot County Commissioners





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