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Agricultural Outlook Forum  
U.S. Department of Agriculture

Presented: February 23-24, 2012

## **Energy Independence Through Building Conservation & Energy Efficiency**

Michael Vogel

translating research

# Transformational Education

All 50 states  
District of Columbia  
U.S. territories

## Local Access

part of Land-grant University System

civic engagement

TRUSTED RESOURCE

Rural

URBAN

national network

FOOD SAFETY

water conservation

# COOPERATIVE EXTENSION

ONLINE

train the trainer

seminars

Leadership Development

agriculture

ranching

ENVIRONMENT

FORESTRY

ask-an-expert

ENERGY

HEALTHY PEOPLE

HORTICULTURE

learning tools

farming

nutrition

Disaster preparedness

4-H youth development

Small Business

webinars

FAMILY WELL-BEING

community economic vitality

# —COOPERATIVE— EXTENSION

## Part 3

### Energy Independence Through Building Conservation & Energy Efficiency

Michael Vogel

Montana State University Extension

Housing & Environmental Health Specialist



**Extension Mission:**  
Provide “core-4” life-long,  
issue-based  
education to all  
consumers.



# We all live and work in buildings that consume energy.



Ag Operations

Individuals  
& Families

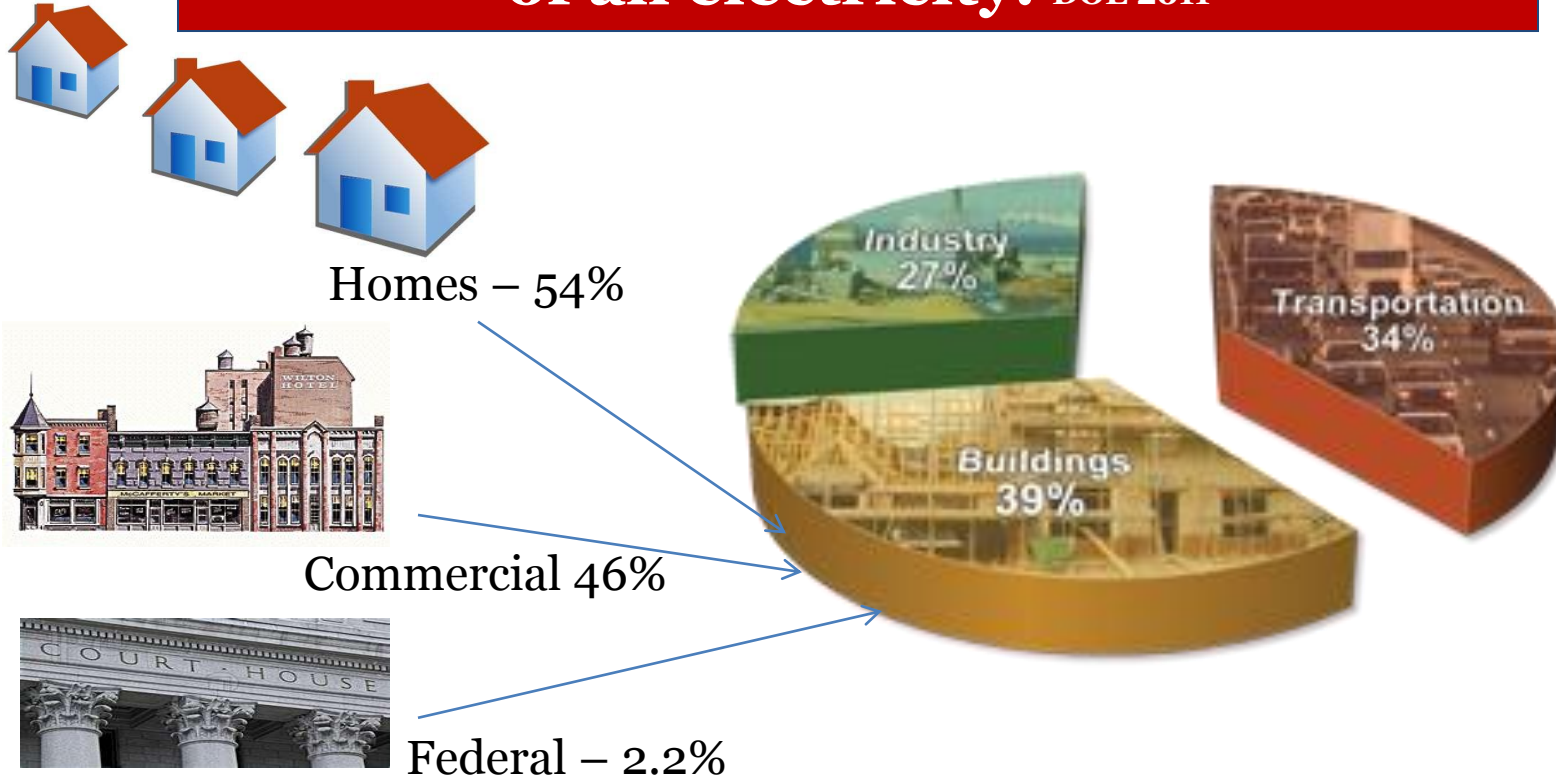
**Energy  
Consumption**

Main-Street  
Businesses

Local  
Government



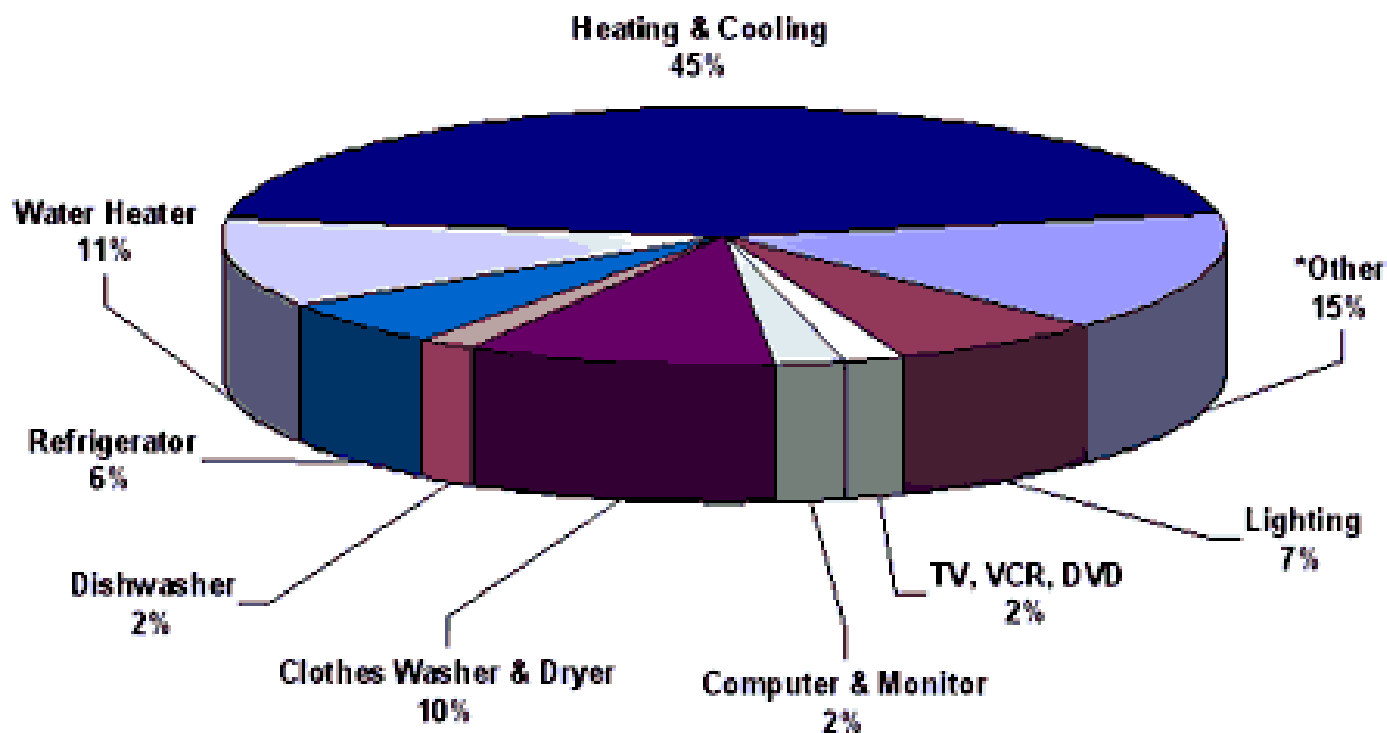
**In US, buildings use almost 40% of all energy consumed and two thirds of all electricity.** DOE 2011



**Buildings and construction of buildings generate almost 50% of the Greenhouse Gases in the US.** Edward Mazria



# Start at Home— 54% of Building Energy Consumption



# —COOPERATIVE— EXTENSION

**Cooperative Extension's Role in Reducing  
Building Energy Consumption & Climate Change**

# Research:

## Camelina Engineered Composite Pellet Fuels



### Impacts:

- Local Clean AG-Fuel Produced
- Local Jobs Created
- Schools and Municipal Buildings Heated
- Less Dependence on Fuel Oil

# Research



# Solar Performance Monitoring Initiative



## Impacts:

- Local Jobs Created
- Greater Knowledge and Confidence in Solar
- Less Dependence on CO Producing Fuels



# Creating Local, Regional and National Partnerships - States & Agencies Working Together -



## **Impacts:**

- Less Duplication of Efforts
- Extended Use of Funds
- Sharing of Resources and Information

# Offering Training, Certification & Education to Consumers



## Impacts:

- Trained Workforce – 1,000s/yr
- Local Jobs Created
- Buildings Audited & Verified as Energy Efficient and Healthy



# Exploring Energy Efficiency & Alternatives

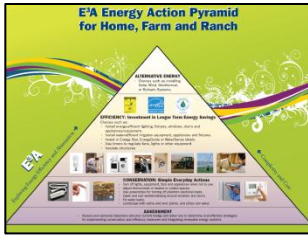


Contractor and Consumer Education Program

*Education & Decision-making Toolkit*

PRINCIPLES • TECHNOLOGY • APPLICATIONS

WWW.E3A4U.INFO



# E3A Toolkit Contents

- User Guide and Programming Materials
  - Map and General Energy Info.
  - Programming Resources
  - Online Resources (PPT, Links, etc.)
- Six Technology Folders
  - Micro-hydro
  - Small wind
  - Solar Electric (PV)
  - Solar Hot Water
  - Biodiesel
  - Anaerobic Digesters
- Two Energy Efficiency Folders
  - Home Energy
  - Farm Energy

Funded by:



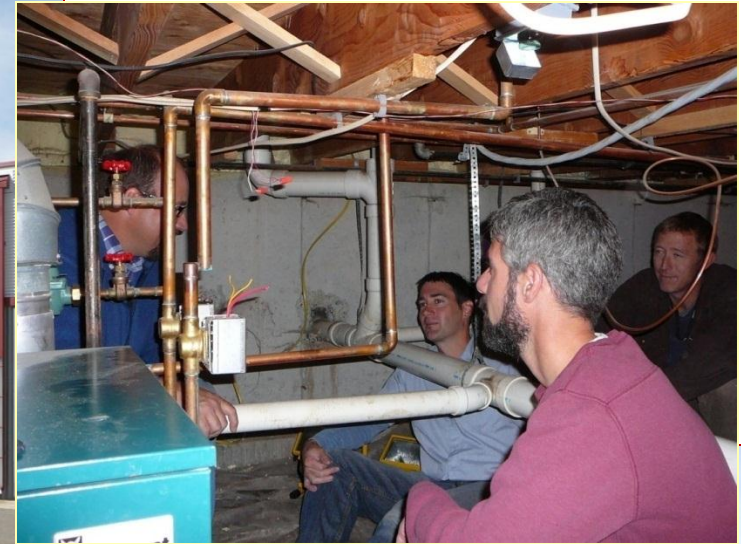
**Impact:**  
**Creating a  
Local Trained  
Workforce**



**On-Site Training — Alaska Natives. Navajo Nation. Pacific Islands.**

**Impact:**

# Creating a Rapid Response Trained Workforce



**On-Site/In-Home  
Mobile Training Center**

# Offering On-line Education & Training



## Impacts:

- Reaches 65,000 new users monthly
- Instant Training & Info Access
- Increased worker productivity
  - more time on the job
  - reinforcement of info
  - CEU credit





# HOME ENERGY

Best Practices

FAQs

Ask an Expert

Articles

Money-Saving Tips

Visit [www.eXtension.org](http://www.eXtension.org)  
Click Resource Area **Energy**  
Select **Home Energy**

Home Energy-Saving guidance  
from Land-Grant University  
Experts



# Home Profiles

Home Introduction

Search for homes

Submit a home profile

Contact us

[www.homesacrossamerica.org](http://www.homesacrossamerica.org)  
A Construction Technology Showcase



Resource Efficient  
**HOMES ACROSS AMERICA**

comfort • health • performance • durability



POLLUTION PREVENTION  
INFORMATION CENTER





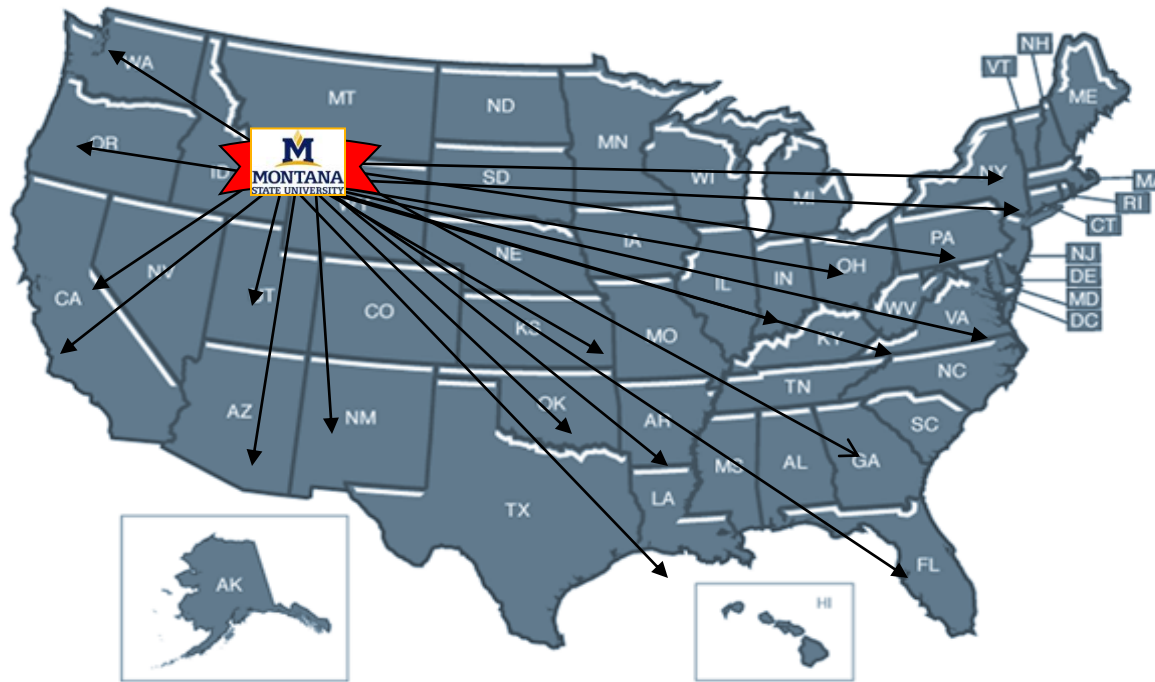
## *Certificate of Applied Science in Residential Building Performance*

- Professional Career Pathway
- Converts Existing Training to Degree
- Builds on Certificates and Certifications

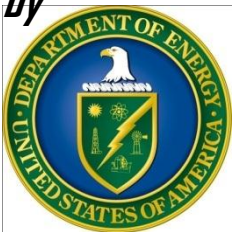
*Certificate of Applied Science in Residential Building Performance*

# One Year Degree Program with Nationwide Access

**IREC Accredited Training Centers may offer the Degree**



*Funded by*



\*Interstate Renewable Energy Council.



# Business and Agricultural Recognition



Partnership  
Recognition from  
5 Governors  
since 1995

## **Impacts:**

- Community Leadership
- Motivating Adoption
- Showcasing Success
- Influencing Funding



# —COOPERATIVE— EXTENSION

## Outcomes:

- National Workforce Expanded and Trained – thousands per year
- Homes and Buildings Retrofitted
  - 35-65 % energy savings
  - \$235.00-\$640.00 household saving/year
- \$1.00 invested in energy retrofit returns \$4.35 in community benefits – materials purchased, manufactured goods, lodging, etc.
- Consumers educated & adopting energy saving practices
  - Increased spending
  - Increased comfort
  - Increased health and safety
- Carbon dioxide & other air pollutants reduced

# Contact Information

## **To find Cooperative Extension:**

In your community: [www.nifa.usda.gov/extension](http://www.nifa.usda.gov/extension)

Online: [www.extension.org](http://www.extension.org)

[www.facebook.com/cooperativeextension](http://www.facebook.com/cooperativeextension)

[www.twitter.com/cesvalue](http://www.twitter.com/cesvalue)

## **For questions about potential partnerships:**

Jane Schuchardt, Executive Director

[jane.schuchardt@extension.org](mailto:jane.schuchardt@extension.org), 202-478-6029