### A NEW FRONTIER FOR RESNET:

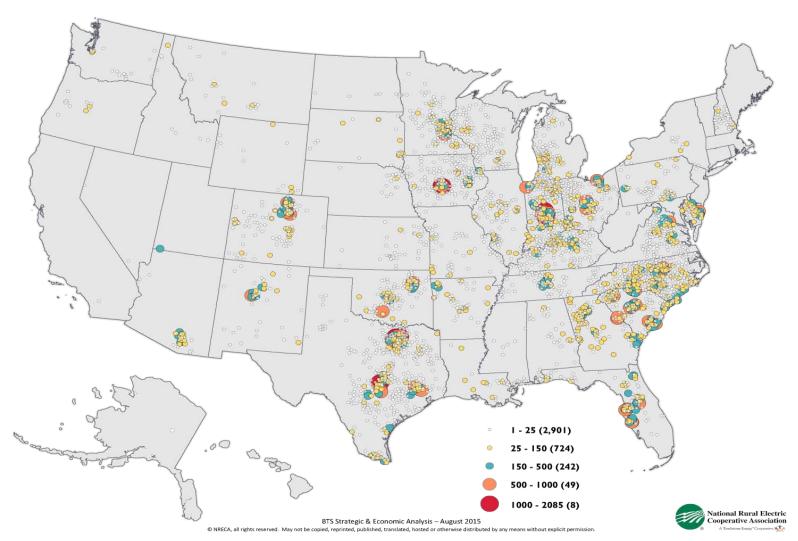
# EXPANDING RESNET'S SERVICES TO RURAL AMERICA

March 1, 2016

Roy Honican, Blue Grass Energy
Alan Shedd, Touchstone Energy Cooperatives

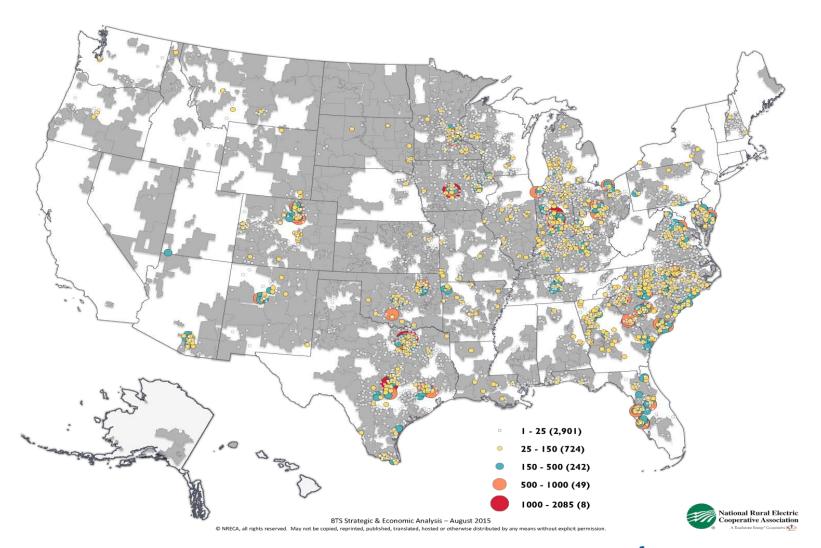


# HERS RATINGS 2013 & 2014





# HERS RATINGS & CO-OP LAND





## WHO WE ARE



Are located in 80% of the nations counties

Are the largest electric utility network in the nation

### WHO WE ARE





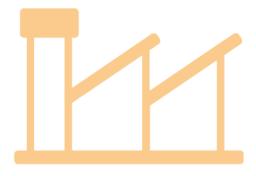




Have **32** million member-owners







Own **\$113** billion in generation, transmission and distribution assets



Distribute power over **2 million** miles of line



# COOPERATIVES AND ENERGY EFFICIENCY

Long history
It's what we do...
Challenges



# TOUCHSTONE ENERGY PROGRAMS

### Together We Save.com

- Home Tour
- Home Efficiency Analysis Tool
- Business Energy Advisor



# TogetherWeSave.com - HOME TOUR



### TOGETHERWESAVE \$51,007,637









Home Add Up Your Savings **Share Your Story** 

**Energy Saving Forum** 

Watch & Learn

**Energy Saving Applications** 

Links & Resources

Contact Us



■ What can you do?	
Seal the cracks	\$0
Adjust the blinds	\$0
Add insulation	\$0
Adjust your thermostat	\$0
Pull the plug	\$0
Adjust your water heater	\$0
Turn off the lights	\$0
Install CFLs	\$0
Upgrade your refrigerator	\$0
Upgrade your HVAC	\$0
Upgrade your dishwasher	\$0
Seal your air ducts	\$0
Upgrade washing machine	\$0
Change your air filter	\$0
TOTAL SAVED:	\$0
Calculation Assumptions	

## TogetherWeSave.com – HOME TOUR



### TOGETHERWESAVE \$51,007,637



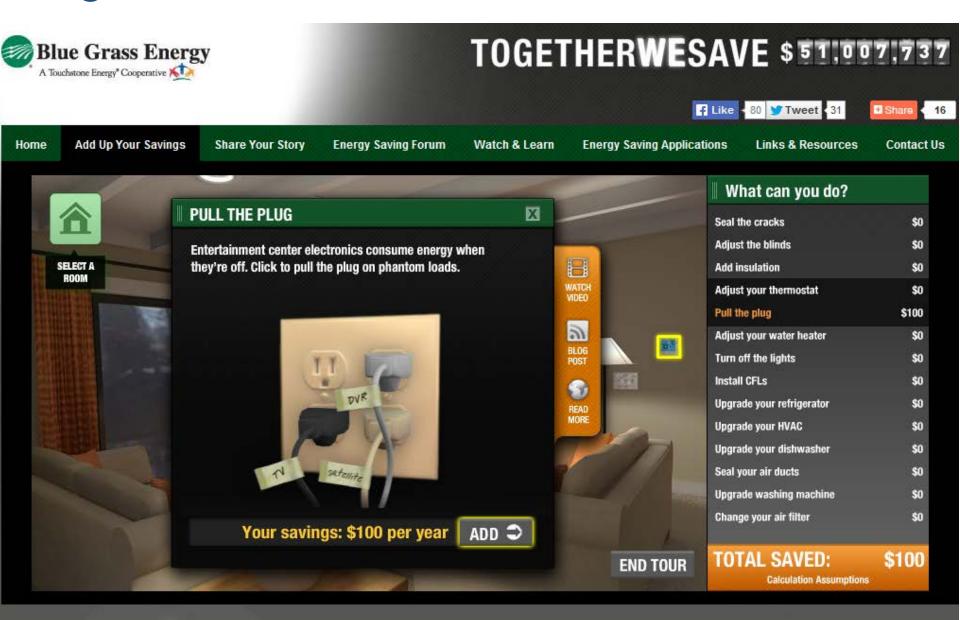
Home Add Up Your Savings Share Your Story Energy Saving Forum Watch & Learn Energy Saving Applications Links & Resources Contact Us



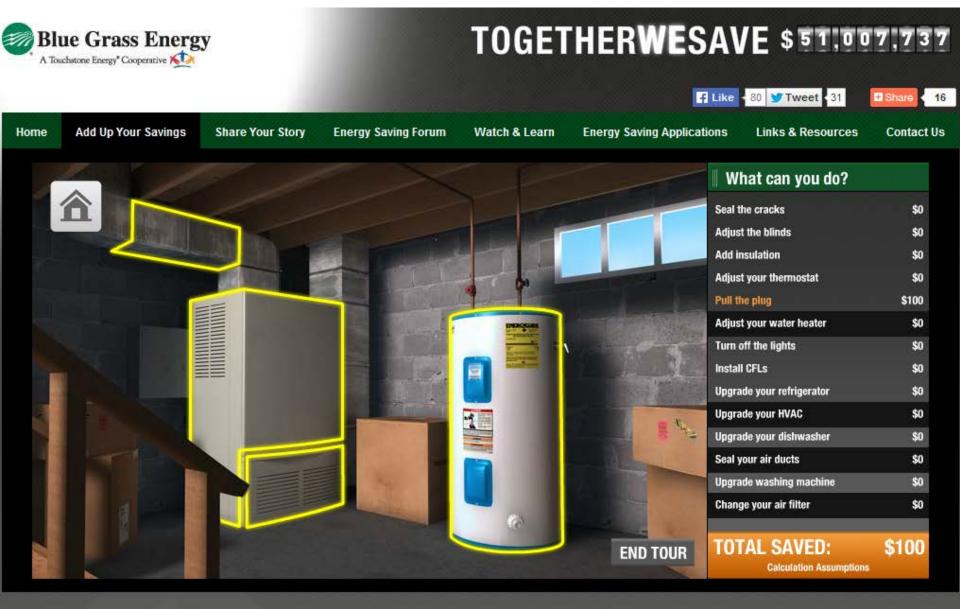
What can you do?	
Seal the cracks	\$0
Adjust the blinds	\$0
Add insulation	\$0
Adjust your thermostat	\$0
Pull the plug	\$0
Adjust your water heater	\$0
Turn off the lights	\$0
Install CFLs	\$0
Upgrade your refrigerator	\$0
Upgrade your HVAC	\$0
Upgrade your dishwasher	\$0
Seal your air ducts	\$0
Upgrade washing machine	\$0
Change your air filter	\$0
TOTAL SAVED:	\$0

**Calculation Assumptions** 

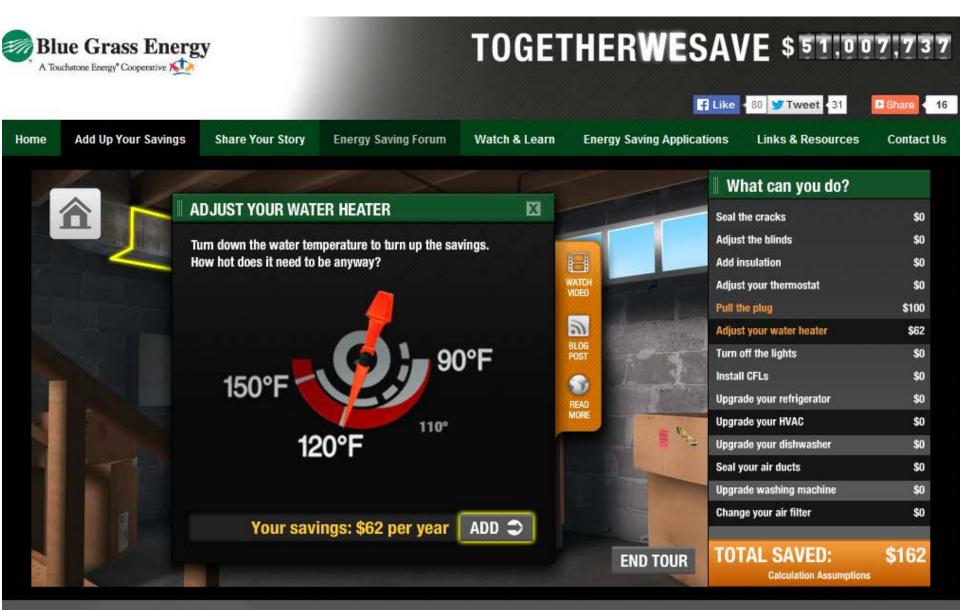
# TogetherWeSave.com – HOME TOUR



# TogetherWeSave.com – HOME TOUR



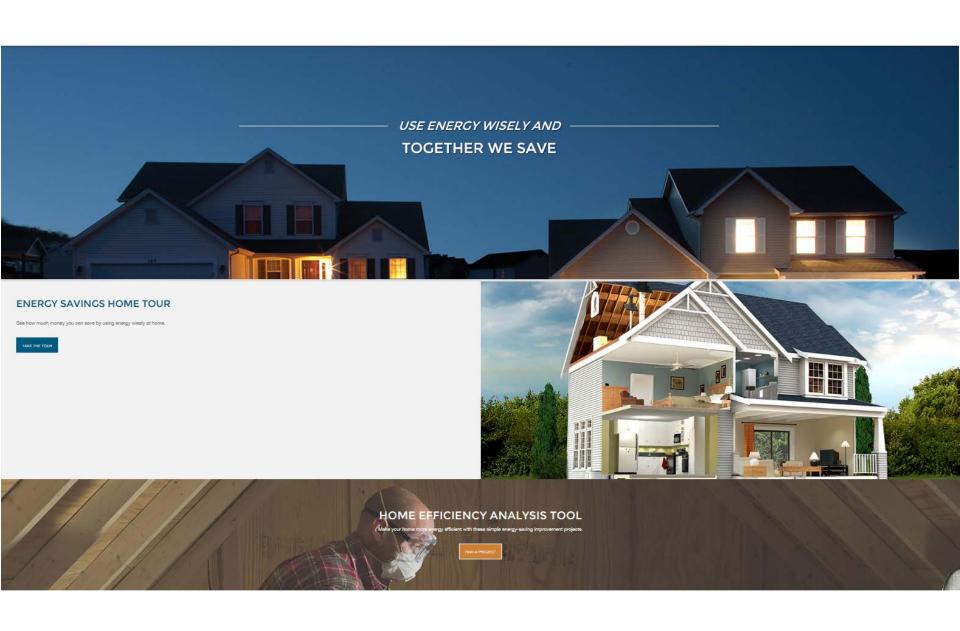
# TogetherWeSave.com - HOME TOUR



### **Online Tool**

- Picks up where Home Tour leaves off
- Asks simple questions about your home
- Provides prioritized list of projects
- Focuses on 4 areas of home
- Provides PDF "Recipe Cards"
- Project Tracker makes it easy to return and update progress







Welcome, Guest LOG IN | CREATE ACCOUNT

## Welcome to the HOME EFFICIENCY ANALYSIS TOOL

INTRO

MY HOME SETUP

MY PROJECTS

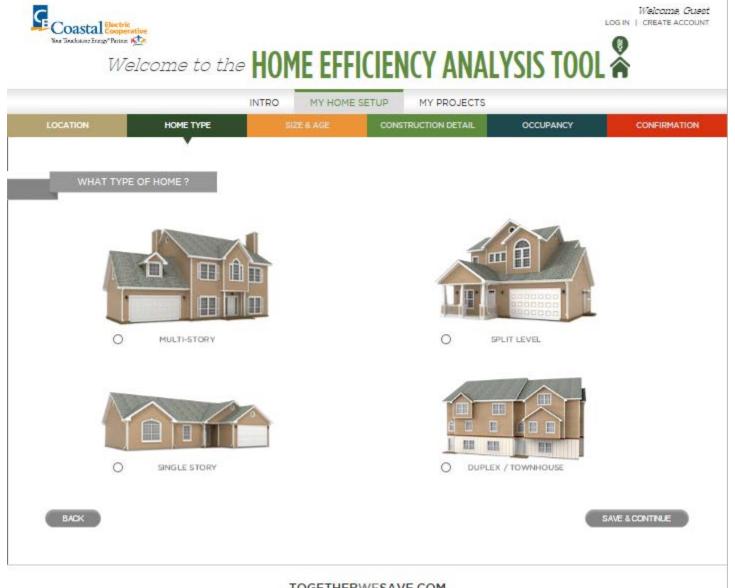
### How energy-efficient is your home?



We know saving energy often means saving money, but did you know that having an energyefficient home can help out even more?

Making energy efficiency improvements is pretty easy, too! Tell us a bit about your home and we'll give you quick tips and fixes, designed around your space, to help you cut down on your energy and costs.

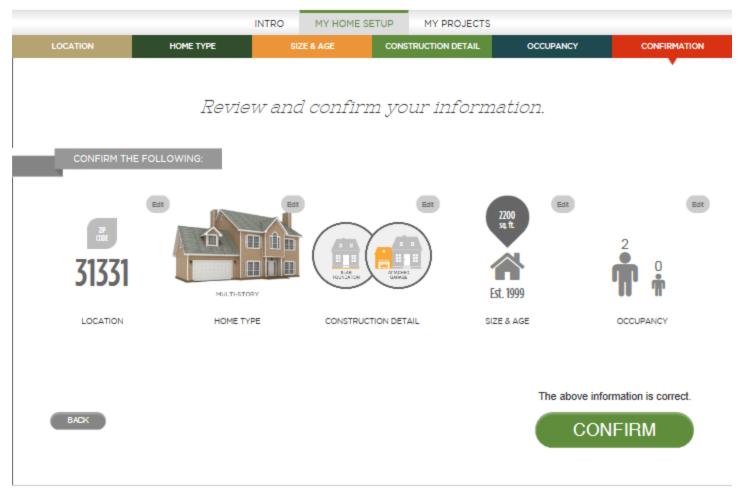
CONTINUE TO YOUR PROFILE





Welcome, Guest LOG IN | CREATE ACCOUNT

# Welcome to the HOME EFFICIENCY ANALYSIS TOOL





Welcome, Guest LOG IN | CREATE ACCOUNT

# Welcome to the HOME EFFICIENCY ANALYSIS TOOL

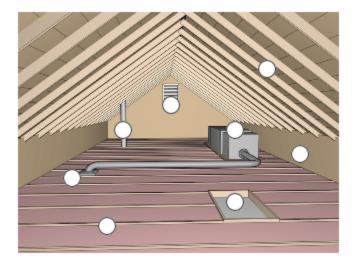
INTRO MY HOME SETUP MY PROJECTS

ATTIC LIVING SPACE BASEMENT SYSTEMS

#### Attic Projects



Click the areas of interest on the illustration on the right to download you project PDF files.



PROJECT TRACKER

## HOME EFFICIENCY ANALYSIS TOOL "RECIPE CARDS"

ATTICS

**ENERGY SAVING RECIPE** 

TOGETHERWESAVE.COM

#### Insulate Kneewalls

Create comfort in bonus and attic rooms while saving ene



Do it yourself or hire a pro. Two people make the task easier. Familiarity with small hand tools is essential; power tools are ontional but speed the task of cutting and fitting blocking

SAFETY

This job requires working in unconditioned affic spaces tight clearances and under task lighting. Use a dust mask/ respirator, gloves, safety glasses and kneepads, Hazards should be mitigated before proceeding and include knob and tube wiring, exposed electrical junctions, asbestos and lead-based paint.



Utility knife, table or circular saw, caulk gun, measuring tape. lights, straight edge, markers

MATERIALS

Expanding spray foam / caulk / construction adhesive Cavity Insulation -fiberolass

batts Blocking material - rigid foam

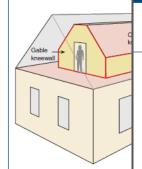
Sheathing - OSB/blywood code-approved foam board.

bubble-wrap radiant barrier Easteners - screws with

washers or button-capped nalls

COST BENEFIT With proper attention to detail

air sealing and insulating an attic kneewall is a very cost effective DIY project due to low material costs and great Increases in energy efficiency and comfort



#### Attic Kneewalls

An attic kneewall is any vertical wall that separates conditioned space from an unconditioned attic. Attic kneewalls experience extreme temperature differences across them in the summer and are often not built to provide a comfortable living environment, Improving an attic kneewall by improving the insulation and air barrier is crucial to maintaining a comfortable and energy efficient home all year round. Extra insulation on the kneewall reduces heat gain or loss across this wall, while airsealing both improves insulation performance and keeps indoor and outdoor air where it belongs. Poor attic kneewall details

are especially common culprits in

comfort problems in houses with

bonus rooms.

Pa ou parum et re diatect outie exce atem qui scia turecus sint en ipsum natecepe d qui doluptatie dol uptature ple createm abo. Nemoluptatur a corum que l'ipsu in corbus. Di omnoluptae de eum litius recupta simpar estrum e

#### Four ty

SDac such or bo ■ A cha

such

up ir

creat

is co

a gai

that:

stair

heigh

are s

the c

■ A per

■ A po

Utility knife, table or circular saw, caulk gun or expanding foam oun, measuring tape. lights, straight edge, markers equipment as needed

Insulation - batts or loose fill Sheathing to create blocking -OSB/blywood, foam board

Fasteners - screws or nalls

#### COST BENEFIT

Labor is the bin cost here although simple insulation Jobs can be completed as a weekend project. Materials are inexpensive ranging from \$0.50 to \$2.50 per square foot of installed area depending on the insulation method and

#### ATTICS

**ENERGY SAVING RECIPE** 

TOGETHERWESAVE.COM 

ATTICS

👩 SKILL SET

Do it yourself or hire a pro

Two people make the task

easier. Familiarity with small

tools are ontional but speed

This job requires working in

unconditioned affic spaces

fight clearances and under

task lighting. Use a dust

mask/respirator, gloves,

safety misses and kneeneds

Hazards should be mittgated

before proceeding and include

knob and tube wiring, exposed

electrical junctions, asbestos

and lead naint

the task of Irlimming out

blocking materials.

SAFETY

hand fools is essential nower

Attic Air Sealing

#### Attic Insulation

Reduce heating and cooling bills and increase comfort

#### SKILL SET

Do it yourself or hire a pro (for foam insulation a pro is regulred). Two people make the task easier. Familiarity with small hand and nower tools is essential. It may be necessary to rent insulation equipment for certain applications.

#### C SAFETY

This job requires working in unconditioned attic spaces. tight clearances and under task lighting. Wear a long sleeve shirt and long pants. Use a dust mask/respirator. gloves, safety glasses and kneepads. \*

staple gun, specialty insulation

#### MATERIALS

Foam / caulk / construction adhesive

materials selected.

#### For Position 0 nI v Conceptual image environment, depic of working in this specific areas to be Safety consideratio considerations (eg.

#### Attic insulation

Insulating ceilings is one of the most cost-effective energy efficiency measures. In addition to reducing heat loss in the winter and heat gains in the summer, ceiling insulation improves comfort by bringing ceiling temperatures closer to room temperatures and providing an even temperature distribution throughout the house. Attics over flat ceilings are usually the easiest part of a home's exterior envelope to insulate. They are accessible and have ample room for insulation. Attic ceilings typically represent the largest heating and cooling losses in a home, so installing new insulation or improving insulation already in place should be one of the first steps in improving the energy efficiency of your home Many homes use cathedral ceilings or have attic knee walls that require a different approach. For knee walls please see the corresponding recipe card. Insulating cathedral ceilings will likely require a professional.

#### Assessing exis

Before moving for it is important to d any existing insula fiberglass, rock wo R-value of existing Existing batt insula the paper backing Types of insulation Insulation Type

#### oose fill Cellulose

**Fiberglass** Mineral Wool Fiberglass batts

Once you've deter in your attic, you c like to add. At a m prescribed levels f

\* Evaluate hazards and repair existing maintenance issues before proceeding in exposed electrical junctions, vermiculite insulation containing asbestos, past int unsure of the safety of working with existing insulation, have it professionally e

TOOLS 💮 Hammer, Screw-gun, Utility knife, table or circular saw, caulk our, measuring tage lights, straight edge, markers

#### MATERIALS

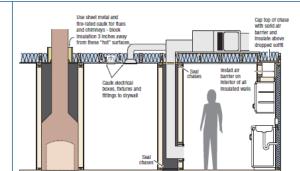
Foam / caulk / construction adhesive

Cavity Insulation - batts Rigid foam – blocking material Sheathing - drywall, OSB/ plywood, code-approved foam

board, bubble-wrap radiant Fasteners - screws with washers or buffon-canned

#### COST BENEFIT

Materials are inexpensive. labor is the big cost. An effective installation ensures



Some chases extend from attic to basement or grawlspace - block and seal both ends

**ENERGY SAVING RECIPE** 

#### Attic air sealing

Attic air sealing is a critical step in upgrading an existing home's energy performance and should always be performed before adding additional attic insulation. Blocking and sealing chases and penetrations in a ceiling is one of the most cost effective means of improving the comfort of a home as well as reducing energy consumption and pollutant pathways.

Create comfort, save energy and improve indoor air quality in the home

Typical gaps, seams and other penetrations in a ceiling plane are fairly small in their dimension but significant in number to the point where they add up to considerable equivalent sized holes. Imagine having 25 to 30 guarter sized (~1" diameter) holes that represent electrical wire penetrations drilled through top plates - collectively

#### Why is it important?

While not the only places where leakage can occur in homes, leaks between the house and the attic are especially troublesome during the winter when warm air inside the home naturally tends to rise up and flow out through these leaks into the attic. This could lead to drafts (as colder outside air must be pulled in to offset the amount that flows up and out), condensation on the roof decking in the attic, and high energy bills to heat all the unconditioned air that leaks back in.

TOGETHERWESAVE.COM

Touchstone Energy

Cooperatives

In the summer, poor comfort and indoor air quality can result as leaks from an attic can allow hot, humid, and dusty attic air to enter a home when exhaust appliances such as kitchen or bathroom fans and clothes dryers operate. And, in some homes, those powerful but never-a-good-idea fans. Powered Attic Ventilators (PAV's), actually waste considerable energy in the summer because they unintentionally pull conditioned air out from the house and up to "cool" the attic

#### Work big-to-small

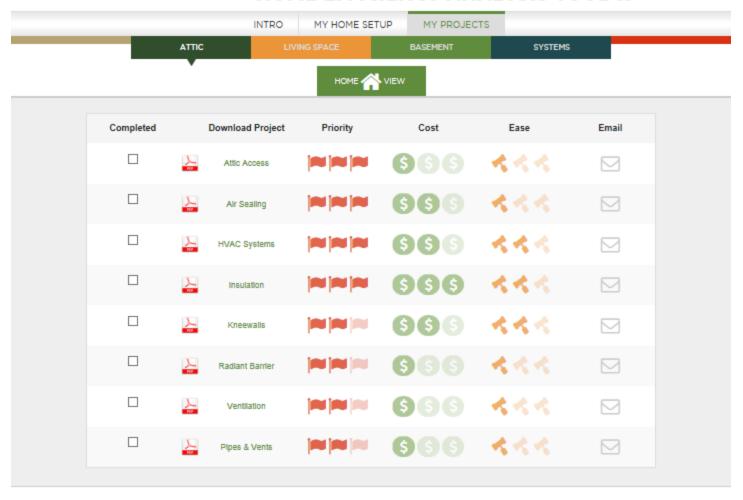
As a general rule, you should measure and cut a piece of any sheet material to cover/block large openings, mechanically fasten the material in place with screws or nails, and seal the edges of the sheet good with caulk or canned spray foam. Sometimes this will necessitate the need for additional framing or ladgers to support and factor the cheet good to I star incl

Pacubanum et er distect ontin exceuem aussis turecus sist en insum natecered auf debutatifs delluctature dis consedit debute sollorum sit, oue m



Welcome, Guest LOG IN | CREATE ACCOUNT

### Welcome to the HOME EFFICIENCY ANALYSIS TOOL

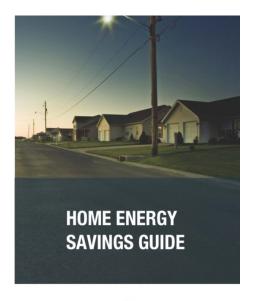






### **Awareness**

- Brochures
- Community programs















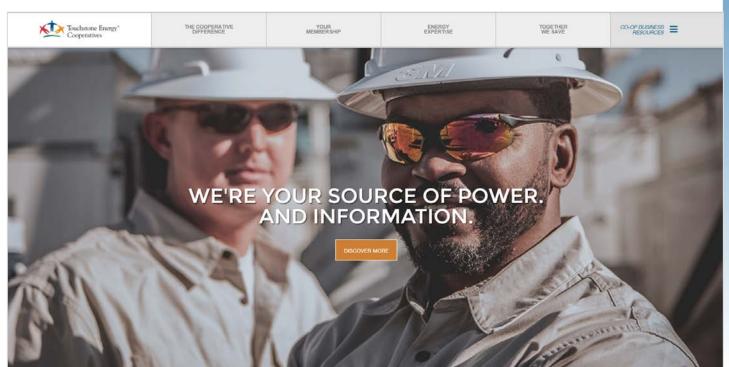




# TOUCHSTONE ENERGY PROGRAMS

### **Awareness**

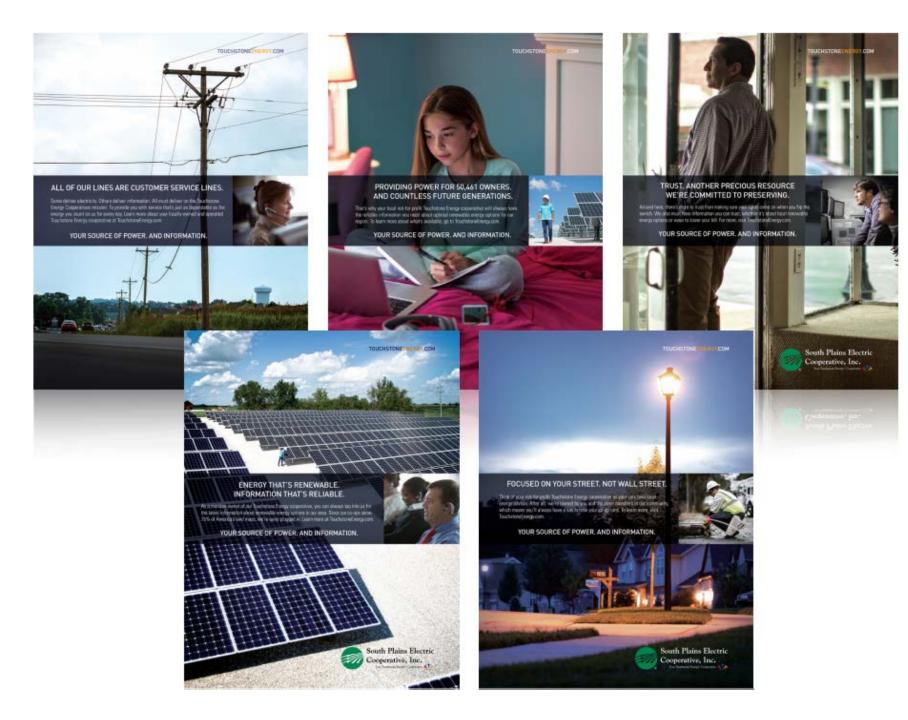
- Ad campaigns
- Multi-media





### YOUR SOURCE CAMPAIGN

- Positions cooperative as "trusted partner"
- Customizable print, radio, video advertising
- Builds on Power of Co-op Membership theme





### YOUR SOURCE MESSAGE

- Concept is not new
- Co-ops have filled a vital role since our founding
- Looking out for the Member
- Education energy use, energy management
- Touchstone Energy's TogetherWeSave campaign
- New challenges and questions



### YOUR SOURCE MESSAGE

- Provide tools and resources that deliver on the promise
- Web-based, public facing, written for memberconsumer
- Conversational & balanced
- Renewables, energy efficiency, new tech

### **FACT SHEETS**

- Solar FAQ
- 10 things before you do solar
- Questions to ask your contractor
- Community solar
- How to buy solar (lease, shares)
- The scales of Solar
- How does solar work
- Decision tree: Is solar right for me?
- Energy storage battery
- Electric vehicles
- Smart homes
- Water heating
- Geothermal heating and cooling
- Lighting





#### SOLAR ENERGY FREQUENTLY ASKED QUESTIONS

As your Touchstone Energy cooperative, we want to be your source for energy and information. Since solar power generation is rapidly becoming more widely available, we put together this information to help answer questions you might have.

Contact us for more information about solar.

#### HOW DO WE GENERATE ELECTRICITY FROM THE SUN?

Solar energy systems work when sunlight hits a solar photovoltaic module (solar panel or PV pane0 and causes electric current to flow. The current produced from the PV panels is controlled and regulated by an inverter, which converts direct current (DC) to alternating current (AC), needed for use by household appliances. The electrical panel is where the power gets distributed throughout your house: any excess electricity may be sent from the panel back to your cooperative's power grid.

#### HOW MUCH ELECTRICITY CAN I GENERATE?

That depends on several factors. 1) The size of your system. You can determine how much electricity you want to produce: then size your system accordingly. Note that you can start out small and add on. A system that will generate 100% of your energy needs is expensive, so most systems are sized to generate only a portion of your home's needs. 2) Your site. If you have a shade-free area from 9 a.m. to 3 p.m., you'll be able to collect more sun and produce more energy than if your site is shaded. 3) Your region. The more sunny days in your area, the more electricity you'll be able to generate. For example, systems in the Southwest produce more electricity per year than in the northeast. You can find online calculators to help answer this question in more detail, and installers can provide details about your situation, too.

#### WHAT HAPPENS WITH A SOLAR PV SYSTEM AT NIGHT AND ON CLOUDY DAYS?

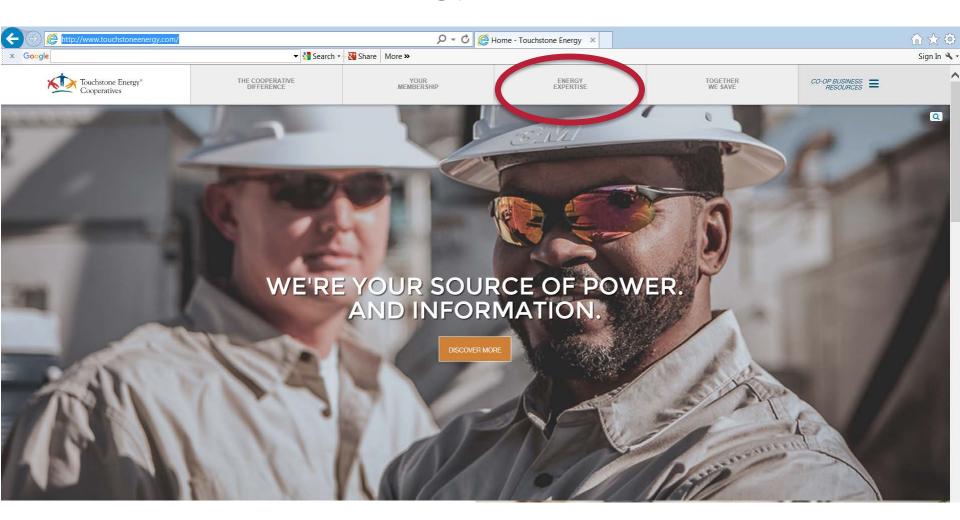
Battery-backed or grid-independent systems use on-site energy storage to store excess energy produced during the day for use at night or when the sun is not producing enough power. Choosing this option will add significant cost and maintenance to your system. Most people opt for grid-connected systems for reduced cost, maintenance, and high reliability. With this type of system, your cooperative continues to provide energy to you when you need it 247. Your PV system will produce energy, and even excess energy, on sunny days. Your system will not collect sunlight at night and on cloudy days. That means, you will continue to draw electricity from your cooperative during these times.

#### WHAT HAPPENS WITH A SOLAR PV SYSTEM DURING POWER OUTAGES?

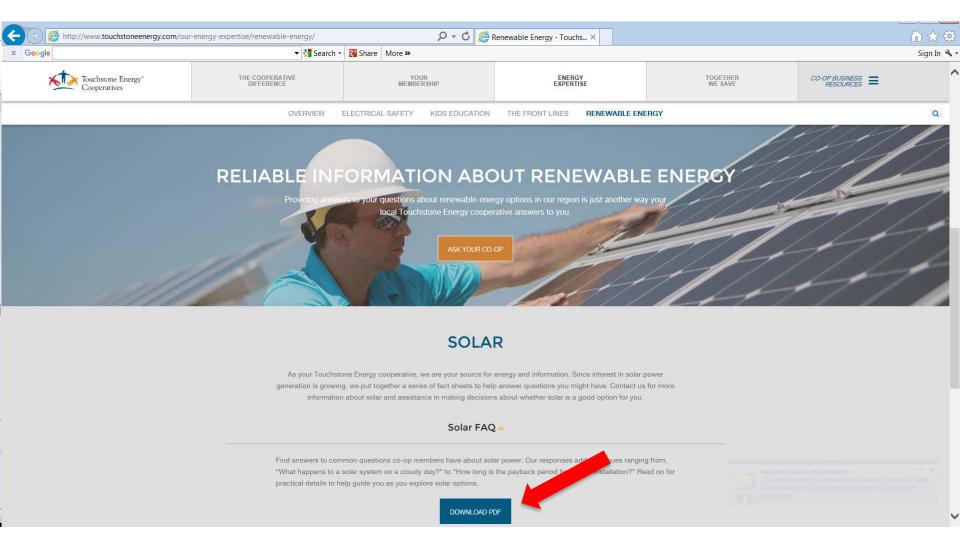
Most grid-connected PV systems shut down to prevent backfeeding electricity into de-energized power lines that may have fallen or that line crew members may be working on. It's important to have this shut-down feature to prevent injuries—and even death to those working on the line.

1

# WHERE ARE THEY? TouchstoneEnergy.coop



# WHERE ARE THEY? TouchstoneEnergy.coop





### YOUR SOURCE FACT SHEETS

- PDFs
  - Print, download, share...
- Editable versions on Cooperative.com
  - Customize, co-brand, re-purpose
- Starting point
  - More on the way
  - New tech, energy efficiency, wise use
- Additional tools
  - How Solar Works, decision tree, calculator, portable...



## Save the Date!

Pre-Conference: April 4; Conference: April 5-6, 2016

The Lexington Convention Center & The Hyatt Regency Hotel Lexington, Kentucky

#### WHO SHOULD ATTEND?

Home Builders • Remodelers • Architects • Government Officials • Codes
Officials • Financial and Mortgage institutions • Realtors • Appraisers •
All Energy Efficient systems, equipment, products and services vendors
and installers such as for HVAC Insulation, Lighting, Windows, Etc., •
HERS Raters • Building Analysts • Home Performance Auditors and
Inspectors • Industry Trade Association Representatives

www.MidwestEnergyConference.com





# TOUCHSTONE ENERGY PROGRAMS

### Touchstone Energy Home Program

- Prescriptive and performance-based
- Very successful in limited area
- RESNET Partnership

### In the works

- Program for Existing Homes
- Manufactured Housing





# TOUCHSTONE ENERGY PROGRAMS

### **Training**







### **Essential Energy Conversations**

- 2-hour basic course for non-tech audience
- Marketing, member services, call center staff
- High usage / high bills -> energy saving solutions

### Residential Energy Auditing

- 2.5 day intensive course for energy service staff
- Building science, energy saving tech, cost calculations

### Commercial courses

- Commercial Energy Auditing
- School Energy Auditing
- Lighting



### **CHALLENGES**

Large, diverse area
One size doesn't fit all
Missing pieces

- Contractors
- Training
- Code enforcement
- Consumer awareness
- \$

## SOLUTION

"When two organizations with common objectives work together, the impossible can become possible"









#### **ENERGY ADVISOR TRAINING**

### Need something more

- Individualized a refresher or master something new
- Self-paced take it when I want it
- Fresh keep content up-to-date
- Low-cost reduce course and travel expense
- Standardized create network-wide training
- Trackable help co-ops monitor learning and professional advancement



### **ENERGY ADVISOR TRAINING**

### Solution: On-line Training

- Self-paced, on-line courses
- Multimedia, video, animation, checklists, workbooks
- End-of-course testing with performance tracking
- On-site versions of the training to be available
- Partnership with RESNET



- 1. Energy Solutions Kick Start –
- Educational tool for all co-op staff
- Introduces HERS Index
- On-line version of "Essential Energy Conversations" course
- Non-technical
- Building science basics
- Creates foundation for turning high bill complaints into energy saving solutions



#### 2. Energy Advisor Clipboard –

- Covers walk-thru, clipboard assessment.
- Identify opportunities to save money
  - Faulty equipment
  - Inappropriate energy use
  - Envelop deficiencies
- Brings HERS Index to members
- Builds on basic vocabulary of "Kick Start" course
- Uses standardized tools, checklist
- Covers the "why" and "how"



#### 3. Energy Advisor Prime –

- Covers instrumented assessments using diagnostic tools.
- In-depth investigation supports prescriptive programs for new and existing homes.
- Earn RESNET HERS Field Rater certification.



#### What is a Field Rater?

- Does take-offs
- Does testing Blower door, duct leakage, thermal bypass
- Submits data to HERS Rater
- Meets RESNET Standards, works under RESNET Provider
- (Does not do software analysis or interpretation)
- Provides support to areas underserved by RESNET
- Improves reach



#### 4. Touchstone Energy HERS Rater –

 Complete coursework, testing, and software training to become RESNET HERS Rater



### **ENERGY ADVISOR TRAINING**

#### Schedule

- First two levels are in development now.
- Limited pilot testing this winter
- Full roll-out 2016



### **BIG PICTURE**

Electric cooperatives formed in 1935 to provide infrastructure and electricity to rural, underserved areas where not profitable for others to operate.





### **BIG PICTURE**

We need to do the same thing for residential energy efficiency.





# Touchstone Energy® Cooperatives

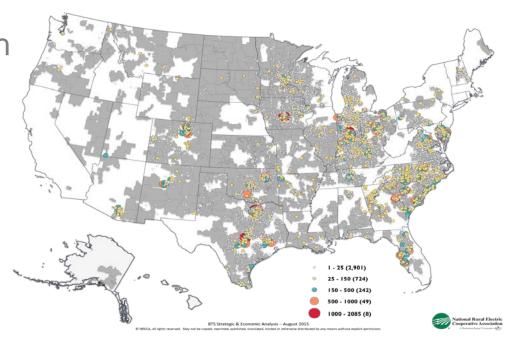
### **BIG PICTURE**

- New home construction important
- Existing homes more and bigger challenge
- Need Education & Infrastructure

Co-ops have unique opportunity and responsibility

Need to expand reach

 Won't happen overnight





### **BLUE GRASS ENERGY**

- Unique model
- Raters in-house
- Provider at East Kentucky Power
- Very successful
- What next?
  - Contractors' Model for new homes
  - Existing homes???
  - On-bill financing???

## DISCUSSION



## THANKS!



#### **ROY HONICAN**

Residential Services Coordinator royh@bgenergy.com (859) 885-2162



#### **ALAN SHEDD**

Director, Energy Solutions alan.shedd@nreca.coop 770.654.0027