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2012 Annual Expense Report
on
Demand-Side Management Programs
for

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DOCKET CONTROL

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Sulphur Springs Valley
Electric Cooperative, Inc.

Arizona Corporation Commission

A Touchstone Energy® Cooperative

DOCKETED

AUG 29 2012

DOCKETED BY *JM*

For Period January 1, 2012
through June 30, 2012
in compliance with
Decision #71274 of Docket E-01575A-08-00328

Submitted by
Jack Blair
Chief Member Services Officer
Member Services Department

Sulphur Springs Valley Electric Cooperative
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Table of Contents

Contents

Program Summary	3
DSM Budget, Income, and Expense Statement	4
Energy Efficient New Home Program (Touchstone Energy Home Program)	5
Energy Efficient Existing Home Program	6
Energy Efficient Water Heater Rebate Program	7
Residential Zero Interest Loan Program	8
C&I Energy Efficiency Zero Interest Loan Program	10
Advertising Report	11
Summary of Advertising Costs	13
Ad copy for January 2012 through June 2012	14
Home Audit Program	25

Program Summary

Included in the 2009 SSVEC rate case were the following Demand Side Management (DSM) Programs. The following pages show the status of the DSM Programs submitted by Sulphur Springs Valley Electric Cooperative (SSVEC) for the period January 1, 2012 and ending June 30, 2012, in compliance with Decision #71274, page 46, lines 11-21. (This replaces the DSM reporting requirement of Docket E-01575A-92-0220, Decision 58358).

Compliance Reporting Requirements as follows:

File its report on DSM PROGRAM EXPENSES semi-annually on March 1, for the period July through December, and September 1, for the period January through June. File the DSM program expense report in Docket Control and shall redact any personal customer information, and that the DSM program expense reports shall include the following: (i) the number of measures installed/homes built participation levels; (ii) copies of marketing material, (iii) estimated cost savings to participates; (iv) gas and electric savings as determined by the monitoring and evaluation process; (v) estimated environmental savings; (vi) the total amount of the program budget spent during the previous six months and, in the end of year report, during the calendar year; (vii) any significant impacts on program cost-effectiveness; (ix) descriptions of any problems and proposed solutions, including movements of funding from one program to another; and (x) any major changes, including termination of the program.

Item number (ii) for all programs is compiled into a separate section of the report.

DSM Budget, Income, and Expense Statement

Demand Side Management Report

Jan to June 2012

Labor	Budget
Touchstone EE Homes Inspections	\$ 50,000
Residential - audits	\$ 80,000
C&I - audits	\$ 12,000
Refrigerator Recycling (pending approval)	\$ 70,000
Low Income Weatherization (pending approval)	\$ 125,000
DSM - Admin	\$ 75,000
DSM - Program Development	\$ 30,000
Expenses	
Advertising	\$ 75,000
Misc	\$ 20,157
Rebates	
Water Heater	\$ 40,000
Heat Pump	\$ 150,000
On Demand HWP (pending approval)	\$ 25,000
C&I Lighting (pending approval)	\$ 125,000
Loan Programs	
Residential Loans	\$ 339,000
Commercial Loans	\$ 250,000

Budget Totals \$ 1,466,157

Income

Carry over from 2011	\$ 529,157
Collections in 2012	\$ 356,959
Loan Repayments in 2012	\$ 61,070
YTD Total	\$ 947,187

DSM Expenses

Touchstone EE Homes	\$ 2,112
Residential Audits	\$ 91,435
C&I Audits	\$ 1,640
Refrigerator Recycling	\$ -
Low Income Weatherization	\$ -
DSM - Admin	\$ 16,752
DSM - Program Development	\$ 13,495
Expenses	
Advertising	\$ 27,262
Misc	\$ 3,438
Rebates	
Water Heater	\$ 800
Heat Pump	\$ 10,600
On Demand HWP	\$ -
C&I Lighting	\$ -
Loan Programs	
Residential Loans	\$ 100,722
Commercial Loans	\$ 24,909
Expense Total	\$ 293,165

DSM Program Ending Balance = \$ 654,021

Energy Efficient New Home Program (Touchstone Energy Home Program)

The Touchstone Energy Home Program replaced the Goodcents Program we were previously using until 2002. The new home program promotes new home thermal performance standards that meet or exceed HUD/AzHERS guidelines for energy efficient mortgages. This program encourages the construction of houses that are more energy efficient than otherwise would be built. Inspections on Touchstone Energy Homes are on average \$196.00 each.

	(i) Number of Homes Certified	Estimated kWh \$ saved	Estimated Fossil Fuel \$ Saved	(iii) Total Estimated \$ Savings	Estimated kWh Savings per Year	(vi) Program Costs
Jan	0	\$ -	\$ -	\$ -	-	\$ -
Feb	1	\$ 311.19	\$ 660.66	\$ 971.85	1,859	\$ 234.70
Mar	0	\$ -	\$ -	\$ -	-	\$ -
Apr	3	\$ 933.58	\$ 1,981.98	\$ 2,915.56	5,576	\$ 704.09
May	1	\$ 311.19	\$ 660.66	\$ 971.85	1,859	\$ 234.70
Jun	4	\$ 1,244.77	\$ 2,642.64	\$ 3,887.41	7,435	\$ 938.79
Jul		\$ -	\$ -	\$ -	-	\$ -
Aug		\$ -	\$ -	\$ -	-	\$ -
Sep		\$ -	\$ -	\$ -	-	\$ -
Oct		\$ -	\$ -	\$ -	-	\$ -
Nov		\$ -	\$ -	\$ -	-	\$ -
Dec		\$ -	\$ -	\$ -	-	\$ -
YTD total =	9	\$ 2,800.74	\$ 5,945.94	\$ 8,746.68	16,728	\$ 2,112

(v) Estimated Environmental Impact

CO2 (1.844 lb. Per kWh)	30,847	pounds of CO2 emissions reduced
SO2 (.00342lb Per kWh)	57	pounds of SO2 emissions reduced
NOx (.0052 lb. per kWh)	87	pounds of NOx emissions reduced

Budget Impact

2012 Budget	\$ 50,000.00
2012 YTD Budget	\$ 25,000.00
2012 YTD Spent	\$ 2,112.28
2012 Budget Balance	\$ 22,887.72

Program Costs (since beginning of program)

Cost prior to 2012	\$ 82,446.61	estimated
Cost in 2012	\$ 2,112.28	

Total Program Costs = \$ 84,558.89

(vii) Significant impacts on program Cost Effectiveness

None

(ix) Problems and Solutions:

None

(x) Any major changes to the Program

None

Energy Efficient Existing Home Program

Under this program SSVEC pays \$500 per unit to a homeowner for the installation of air-to-air heat pumps with at least a SEER of 14 and \$200 for dual fuel. This program was approved for 1995 in your letter dated June 22, 1995. The following list is of rebates made during the period January 1, 2011 through December 31, 2011.

Heat Pump Rebate Program

	(i) Number of Rebates	(vi) Rebates Paid	(iii) Total Estimated \$ Savings	(iv) kWh Savings per Year
Jan	5	\$ 2,200.00	\$ 416.82	3,425
Feb	1	\$ 500.00	\$ 83.36	685
Mar	3	\$ 1,500.00	\$ 250.09	2,055
Apr	5	\$ 1,900.00	\$ 416.82	3,425
May	6	\$ 3,000.00	\$ 500.19	4,110
Jun	3	\$ 1,500.00	\$ 250.09	2,055
Jul	0	\$ -	\$ -	-
Aug	0	\$ -	\$ -	-
Sep	0	\$ -	\$ -	-
Oct	0	\$ -	\$ -	-
Nov	0	\$ -	\$ -	-
Dec	0	\$ -	\$ -	-
YTD Totals =	23	\$ 10,600.00	\$ 1,917.38	15,755

(v) Estimated Environmental Impact

(1.844 lb. Per kWh)	29,052	pounds of CO2 emissions reduced
(.00342lb Per kWh)	54	pounds of SO2 emissions reduced
(.0052 lb. per kWh)	82	pounds of NOx emissions reduced

(vi) Budget Impact

2012 Budget	\$ 20,157.00
2012 YTD Budget	\$ 10,078.50
2012 YTD Spent	\$ 10,600.00
2012 Budget Balance	\$ (521.50)

Program Costs (since beginning of program)

Cost prior to 2012	\$ 212,900.00	Estimate
Cost in 2012	\$ 10,600.00	
Total Program Costs = \$ 223,500.00		

(vii) Significant impacts on program Cost Effectiveness

None.

(ix) Problems and Solutions:

None.

(x) Any major changes

None..

Energy Efficient Water Heater Rebate Program

SSVEC offers a \$100 cash incentive for the purchase and installation of a .90+ efficient water heater.

Energy Efficient Water Heater Rebate

	(i) Number of Incentives Paid	(vi) Cost of Incentives Paid	(iii) Total Estimated Savings by Customer	(iv) Estimated kWh Savings per Year
Jan	1	\$ 100.00	\$ 120.00	986
Feb	3	\$ 300.00	\$ 360.00	2,958
Mar	0	\$ -	\$ -	-
Apr	1	\$ 100.00	\$ 120.00	986
May	1	\$ 100.00	\$ 120.00	986
Jun	2	\$ 200.00	\$ 240.00	1,972
Jul		\$ -	\$ -	-
Aug		\$ -	\$ -	-
Sep		\$ -	\$ -	-
Oct		\$ -	\$ -	-
Nov		\$ -	\$ -	-
Dec		\$ -	\$ -	-
YTD Totals =	8	\$ 800.00	\$ 960.00	7,888

(v) Estimated Environmental Impact

(1.844 lb. Per kWh)	14,546	pounds of CO2 emissions reduced
(.00342lb Per kWh)	27	pounds of SO2 emissions reduced
(.0052 lb. per kWh)	41	pounds of NOx emissions reduced

(vi) Budget Impact

2012 Budget	\$ 40,000.00
2012 YTD Budget	\$ 20,000.00
2012 YTD Spent	\$ 800.00
2012 Budget Balance	\$ 19,200.00

Program Costs (since beginning of program)

Program began in 2011	\$ 8,700.00
Cost in 2012	\$ 800.00
Total Program Costs =	\$ 9,500.00

(vii) Significant impacts on program Cost Effectiveness

None

(ix) Problems and Solutions:

None

(x) Any major changes

In our 2012/2013 DSM program (as yet to be approved) we modified this to match the recommendations from ACC Staff setting the required EF based on tank size.

Residential Zero Interest Loan Program

The Residential Zero Interest Loan Program is designed to help bring the older homes in our service area up to current thermal standards. This includes adding insulation to attics to an R-38 or higher, replacing single pane or damaged older dual pane windows, replacing hollow core exterior doors with insulated steel or fiberglass doors. If the Customer makes \$2,000 of the proceeding improvements, they could also replace 60% efficient gas furnaces with a 80% efficient gas furnace or a 14 SEER or higher Heat Pump or A/C with gas under the loan program.

(i) Participation Levels:

In 2012 we issued 9 loans for a total of \$79,897.36

(ii) Marketing Materials:

See advertising section

(iii) Estimated Savings to Participants:

Using the following methodology from the Manual J Load Calculation we estimated* the savings in Gas and Electricity with these formulas.

Heating Season Requirements by building components

$$\text{Heating Season Requirement (in Btu's)} = \frac{\text{Surface Area X Heating Degree Days X 24 hrs}}{\text{U-Value of Surface}}$$

$$\text{Cost of Heating} = \text{Heating Btu's} \div \text{Efficiency of Furnace X Cost per Therm}$$

Cooling Season Requirements by building components

$$\text{Cooling Season Requirement (in Btu's)} = \frac{\text{Surface Area X Cooling Degree Days X 24 hrs}}{\text{U-Value of Surface}}$$

$$\text{Cost of Cooling} = \text{Cooling Btu's} \div \text{Efficiency of A/C X 3125 (Btu per kWh) X Cost per kWh}$$

*Lifestyle and differences in perceived comfort are not included in the estimates and HDD and CDD assume a constant temperature settings.

The following Assumptions were used:

Heating Degree Days	2486	There are 3125 Btu's per kWh of electricity
Cooling Degree Days	2174	Old Furnace is 60% efficient
Heating hours	1261	New Furnace is 80% efficient
Cooling hours	1842	Old Windows U-Value of 1.1
Cost of Natural Gas	\$1.13776 per therm	New Windows U-Value of at least .58
Cost of Electricity	\$ 0.1217 per kWh	Old Doors R1.79
A/C Coefficient of Performance	2.5	New Doors R5 or better

Using the above formulas we estimate* the 9 completed project will:

(iii) Estimated Cost Savings to Participates

Btu Reduction =	200,715,791
Heating Cost Reduction =	\$ 1,914
Cooling Cost Reduction =	\$ 1,459

Improvements to the homes by sealing cracks and openings in the walls and ceilings will also lower the costs above but there is not a reliable method to calculate them other than an estimated 10-20% improvement in heating and cooling cost. Infiltration improvements are not included in the cost savings listed above.

*Variables such as the customer's choice of set temperatures for their comfort cannot be defined.

(iv) Gas and Electric Savings:

Estimated Reduction in Gas Purchases =	1,338.46	therms
Estimated Reduction in kWh Purchases =	11,985.75	

(v) Estimated Environmental Savings (electric only)

CO2 (1.844 lb. Per kWh)	22,102	pounds of CO2 emissions reduced
SO2 (.00342lb Per kWh)	41	pounds of SO2 emissions reduced
NOx (.0052 lb. per kWh)	62	pounds of NOx emissions reduced

(vi) Program Expenditures:

Total amount of money Loaned:	\$100,722
Loan payments received:	\$ 48,962

(vii) Significant impacts on program Cost Effectiveness

None

(ix) Problems and Solutions:

The current economy still has people hesitate to increase debt even at 0% interest.

(x) Any major changes to program

None.

C&I Energy Efficiency Zero Interest Loan Program

The C&I Zero Interest Loan Program is unique in that it rather than promoting a single technology such as lighting (via fixture rebates) or HVAC upgrades, which we expect to be the most common upgrades, it allows for technology that might be specific to a single business sector.

(i) Number of participants: 2

(ii) Copies of Marketing Material

Marketing in 2011 was limited to verbal presentations to individual businesses by our Irrigation Manager as he presented the savings from the Cochise Groves Project. The loan program was presented to each business that had a Commercial Energy Audit as part of the report and audit.

(iii) Estimated Cost Savings to Participants

Acct #	Measures	(iii) Estimated Annual Savings (\$)	(iv) Estimated Annual kWh Savings	Loan Total
7017703	75 HP Hitachi VFD & motor	\$ 1,405.13	16,320	\$ 14,779.11
4844600	HVAC replacement / Upgrade	\$ 1,348.00	27,517	\$ 10,130.00

(iv) Gas and Electric Savings as determined by M&V process

VFD Project

Using the consumption history from 2009 to 2011 to produce a “baseline” the savings to date re as follow;

Savings	kWh	Cost Reduction
May	1,333	\$125
June	6,827	\$578

Magic Circle Project: Savings based on Computer Model because the clubhouse shares the meter with the entire RV park including the space rentals.

Annual Savings	kWh	Cost Reduction (gas & electric))
For the Clubhouse	27,517	\$1,348

(v) Estimated Environmental Savings (total program)

(vi) Program Expenditures:

YTD Total amount of money Loaned: \$24,909
 YTD Loan payments received: \$12,108

Emissions Reductions		
CO2	316,995	lbs per year
SO2	588	lbs per year
Nox	894	lbs per year

Source: Arizona Electric Power Cooperative, 1993 & 1994 emissions compliance test results.

(vii) Significant impacts on program Cost Effectiveness

None

(ix) Problems and Solutions:

The current economy still has people hesitate to increase debt even at 0% interest.

(x) Any major changes to program

None.

Advertising Report

Marketing expense and supporting data for item (ii) as outlined on page 46 of Docket No. E-01575A-08-0328, Decision No. 71274.

Demand Side (Energy Management) articles in the SSVEC Bill Insert *Co-op Connections*

January 2012

None

February 2012

**“Save energy (and keep comfortable during
cold weather”**

.6 page

.6 page of 2 pages @ \$2,935.00

\$880.50

1 hour of labor at \$28.52 per hour

\$ 28.52

March 2012

None

April 2012

None

May 2012

None

June 2012

“Going on vacation? Be sure your electric

meter also “takes time off”

.5 page

.5 page of 2 pages @ \$2,935.00

\$733.75

1 hour of labor at \$28.52 per hour

\$ 28.52

Total for *Co-op Connections*

\$1,671.29

Demand Side (Energy Management) articles in the SSVEC Member Magazine *Currents*

January 2012

"Together We Save"	page 3	.5 page	
"Beyond Swirly Bulbs"	page 6 & 7	2.0 pages	
"Explore Heating and Cooling Options"	page 25	1.0 pages	
3.5 pages of 32 pages at \$21,985.94			\$2,404.71

March 2009

"Resolution to Save Broken?"	page 3	.5 page	
"How Energy Efficient Are Your Appliances?"	page 5	.5 page	
"In-Home IQ Expands"	pages 6 & 7	2.0 pages	
3.0 pages of 32 pages at \$21,988.36			\$2,061.42

May 2012

"Clean AC Coils Lead to Higher Efficiency"	page 25	1.0 pages	
1.0 page of 32 pages at \$16,842.97			\$ 526.34

Total for <i>Currents</i>	\$4,992.47
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Ad copy for January 2012 through June 2012

Go-op CONNECTION

News and Information from SSVEC February 2012

February 28
SSVEC office closed for Presidents Day Holiday. To report an outage or other electrical emergency, call 1-800-422-3275.

February 22
SSVEC Board of Directors Meeting, 9:30 a.m. at 311 E. Wilson Drive, Santa Mesa, Arizona. Call to members is at 9:35 a.m.

March 8
SSVEC and APCA's Health Maintenance and Safety Fair. At the Warehouse Center and Conference Center. Open to the public 9:00 a.m. to 7:00 p.m. members at 7:00 p.m.

March 21
SSVEC Board of Directors Meeting, 9:30 a.m. at 311 E. Wilson Drive, Santa Mesa, Arizona. Call to members is at 9:35 a.m.

April 18
SSVEC Board of Directors Meeting, 9:30 a.m. at 311 E. Wilson Drive, Santa Mesa, Arizona. Call to members is at 9:35 a.m.

Save energy (and keep comfortable) during cold weather

There are still some cold days ahead for this heating season. Fortunately there are steps you can take to keep that warm air in and the cold air out of your house, making it more comfortable and saving you some money on your monthly electric bill.

(And these same measures will work this summer to help keep the cool air in your house and the hot air outside!)

- 1. Block those air leaks**
It's amazing just how much conditioned air can leak from cracks and spaces around doors and windows or plumbing vents. See the information on the right about sealing these leaks.
- 2. Use exhaust fans sparingly**
Just because the weather is cold doesn't mean you stop using the kitchen or bathroom exhaust fans. Just be sure to turn them off after a few minutes use.
- 3. Close the damper**
If you use a conventional fireplace, remember to close the damper when you do not have a fire burning.
- 4. Change out the filter**
Check your furnace or heat pump air filter at least twice a month. A clogged filter can cause a heating system to work much harder than it needs to and cost you more

Seal air leaks and block off at your attic and crawl spaces and under your chimney cap. There's a lot of energy being wasted. Seal them with caulk, weatherstripping or other appropriate materials for plastic caulk and weatherstripping.

Windows and Doors

Wiring Holes

Recessed Lights and Open Soffit
(the box that hides recessed light)



Source: Arizona State Energy Guide to Home Sealing

Seal your furnace or heat pump air filter at least twice a month. A clogged filter can cause a heating system to work much harder than it needs to and cost you more

Check out SSVEC's website at www.ssvvec.org

Go-op CONNECTION

News and Information from SSVEC June 2012

June 20
SSVEC Board of Directors Meeting, 9:30 a.m. at 311 E. Wilson Drive, Santa Mesa, Arizona. Call to members is at 9:35 a.m.

July 4
SSVEC Offices closed for Independence Day Holiday. To report an outage or other electrical emergency, call 1-800-422-3275.

July 18
SSVEC Board of Directors Meeting, 9:30 a.m. at 311 E. Wilson Drive, Santa Mesa, Arizona. Call to members is at 9:35 a.m.

August 22
SSVEC Board of Directors Meeting, 9:30 a.m. at 311 E. Wilson Drive, Santa Mesa, Arizona. Call to members is at 9:35 a.m.

September 3
SSVEC Offices closed for Labor Day Holiday. To report an outage or other electrical emergency, call 1-800-422-3275.

Check out SSVEC's website at www.ssvvec.org

Going on vacation?

Be sure your electric meter also "takes time off"

Vacation time is a great opportunity to relax and enjoy being away from home. But remember, if you're not careful, you could be using electricity needlessly while you're away from home.

Be smart when you're first, decide what doesn't have to be left "on" while you're away.
For example, even though you're not at home, the water heater will automatically operate as the water in the tank cools. **Turn off the water heater!** A refrigerator operating in a house that is "closed up" in warm weather will be forced to run longer and more often using more energy than it otherwise would.

If you're going to be gone for two weeks or more, consider emptying, defrosting and unplugging your refrigerator. (Be sure to prop the door open to allow air to circulate in the refrigerator cabinet.) You may save enough on your electricity costs to make it well worth basic when you return.

With your thermostat set off. Turn your air conditioner off. This will ensure it uses no electricity.

However, if you have knowleaves that would suffer from the heat, or if someone will be checking on your house from time to time, you may want to leave your cooling system on. If so, adjust the thermostat to a higher setting than usual. You may also want to leave a lamp or two on a timer to give the impression that someone is at home.

Other ways to save:
You can turn the heater off on a pool or spa and reduce the filter time to a minimum. Many appliances such as microwaves, computers or televisions have "instant on" features that draw some power at all times. Unplug these appliances and you'll save energy as well as prevent possible damage related to surges or power surges.

Paying Your Electric Bill When You're Out of Town

If you're going on vacation for an extended period of time, you have several options to be sure your bill is paid on time and your electric service is not interrupted.

- You can come in to an SSVEC office prior to your vacation and prepay your monthly electric bill.
- Or you can check the amount of your bill on-line and use a credit card to pay your bill on-line or by phone from your vacation destination.
- Finally, you can sign up for Automatic Payment. That way your electric bill will be paid from your checking or savings account or from your debit or credit card each month.

For more information, contact your local SSVEC office.



Washington Youth Tour: WISCONSIN PAGE 2 | Co-op Connections Card Businesses PAGE 28

Currents

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Energy Smarts

Making the Most of Your Electricity

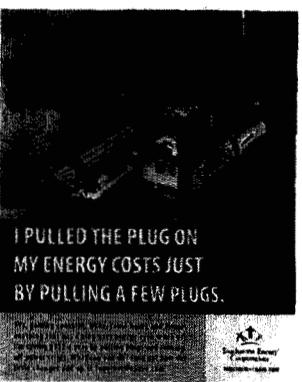
Together We Save

Interactive website shows \$35 million savings in two years

Two years ago, Touchstone Energy cooperatives nationwide launched a website—www.togetherwesave.com—to help members examine ways they can reduce their energy consumption.

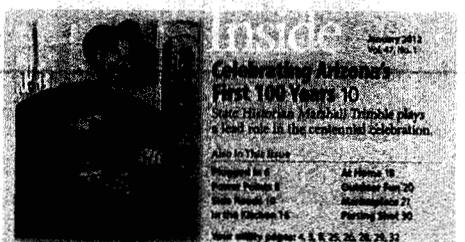
It has been a big hit for members, saving a potential of more than \$35 million. Interactive activities on the site show savings from taking simple steps, such as replacing incandescent light bulbs with compact fluorescents, to more significant changes, such as buying energy-efficient appliances or adding insulation.

More than a dozen informative energy-saving videos are on the site. Several provide step-by-step guides for energy-efficiency projects.



Both fun and informative, the virtual home tour allows visitors to choose a variety of energy-reducing strategies, while an online calculator tabulates overall savings.

Calculators are based on a 3,000-square-foot home in the middle of the United States. To find out how much you can save at your house, visit www.togetherwesave.com.



Also in This Issue
 December 18
 October 20
 August 21
 Parking 2012
 4, 8, 12, 20, 26, 28, 32

Plugged In

Using Electricity Safely and Efficiently

Beyond Swirly Bulbs

Federal regulations that will phase out inefficient bulbs spur new lighting options

By Megan McKey-Now

Children love chasing fireflies and catching them in jars. The real magic begins as the iridescent glow captivates the captors. That same sense of wonder is found in halos as scientists refine the process of making light-emitting diodes—highly efficient light bulbs comparable to the glow of fireflies.

Manufacturers are searching for economical ways to contain a colony of LEDs in a single lighting shell, just as children attempt to gather enough fireflies to make a lamp, an LED “jar” would create enough light output (lumens) to match that of traditional incandescent bulbs.

The research is part of a national effort aimed at redefining household lighting. Starting this month, 100-watt incandescent bulbs—a technology developed in the United States by Thomas Edison in 1878—must become more energy efficient.

The U.S. Energy Information Administration estimates 13.6 percent of our nation's energy supply is used to keep the lights on. A lot of that power is wasted. If you have ever touched a traditional light bulb when it is on, you realize much of the energy—90 percent—is released as heat. That leaves a lot of room for improvement.

In 2007, Congress passed phase-in legislation that requires household light bulbs using 40 to 100 watts to consume at least 28 percent less energy by 2014 than traditional incandescents, saving Americans an estimated \$6 billion to \$10 billion in lighting costs a year. The law also requires light bulbs to become 70 percent more efficient than traditional bulbs by 2020. LEDs already exceed this goal.

“With shifting lighting options and consumers looking for every opportunity to save, navigating lighting solutions has never been so important,” says David

Not Exactly a Ban

As of January 1, new federal efficiency standards require light bulbs to consume less electricity (measured in watts) for the amount of light produced (measured in lumens).

Traditional 100-watt bulbs—typically incandescents—will give way to bulbs that use 72 W or less to provide you a comparable amount of light. If you are replacing a 100-W bulb, a good rule of thumb is to look for one that delivers about 1,600 lumens.

The act limits the import or manufacture of inefficient bulbs, but stores will be able to sell their remaining inventory.

Source: U.S. Department of Energy



Schaefflerman, GE Lighting's public relations manager. The act does not actually ban incandescent bulb technology. It's equivalent to standards passed in the 1980s to make refrigerators more energy efficient,” says Brian Stoboda of the Cooperative Research Network, a division of the National Rural Electric Cooperative Association. “Refrigerators use less than one-third of the electricity today than they did in the mid-1970s, but consumers can't tell a difference in how their food is cooled. The premise is, why not do the same for light bulbs?”

The improved efficiency requirements apply only to screw-based light bulbs. Specialty bulbs for appliances, heavy-duty bulbs, colored lights and three-way bulbs are exempt.

Look for More Labels

Consumers must switch from thinking about light bulbs in terms of watts (energy used) to lumens (light produced). “Lumens, not watts, tell you how bright a light bulb is, no matter the type of bulb,” says Amy Hebert of the Federal Trade Commission. “The more lumens, the brighter the light.”

The FTC has designed a “Lighting Facts” label and shopping guide that compares bulbs with traditional incandescent bulbs based on wattages and equivalent lumens. Beginning in 2012, labels on light bulb packages will emphasize a bulb's brightness



LED bulbs, such as the Energy Smart model from General Electric, use 75-percent to 80-percent less energy than incandescent bulbs.

According to Schaefflerman, CFLs generally are best used where lighting is left on for extended periods and full brightness is not immediately necessary. As with all fluorescent bulbs, CFLs contain a small amount of mercury—five times less than a watch battery—but should be recycled. Many retailers offer free CFL recycling. For details, visit www.epa.gov/cfl.

Although still developing, LED lights, recessed fixtures and some lower wattage replacement bulbs are on store shelves. “LEDs are the up-and-coming solution,” says Schaefflerman. “As they come down in price, homeowners will embrace them. Currently, most residential LEDs are used for outdoor lighting, where fixtures are left on for extended periods and changing bulbs is not easily done. LEDs are also great for linear applications like undercabinet lighting.”

LEDs are more expensive than other options: a replacement for a 60-watt incandescent bulb costs \$30 to \$60. Costs will fall as manufacturers respond to growing consumer demand.

But LEDs are not without their problems. They have to stay cool to operate efficiently, and when several bulbs are placed together in a brighter, more consumer-friendly light, lifespan decreases. Many manufacturers are accounting for this by adding cooling elements. Some bulbs feature a spine design to allow air to flow around the base; others have fans built into the ballast.

Can You See a Difference?

Some consumers believe more efficient bulbs will not provide the same warm look and feel as classic bulbs. Schaefflerman disagrees. “Lighting technologies are advancing at such a rate that consumers won't notice a marked difference in the color of light from different technologies or how that light is dispersed,” he says. “You also won't necessarily see a difference in bulb shape. Some consumers don't like the look of twist-shaped CFLs, for example, so we offer covered CFLs that look just like incandescent bulbs. We also have an LED bulb that is a replacement for a 40-watt incandescent, as well as halogen bulbs, that both are housed in incandescent-shaped shells.”

The difference will be found on your monthly electric bill. More efficient bulbs use 25 percent to 80 percent less energy than traditional incandescents, and last much longer.

The U.S. Department of Energy says each household can save \$50 a year by replacing 15 traditional incandescent bulbs.

“With these new technologies, homeowners will be spending less on electricity bills for lighting and changing fewer bulbs,” says Schaefflerman.

To learn more about lighting options, visit www.energyrights.gov/lighting. For details on the design and shopping tips, visit www.fuelcellbulbs.com. Megan McKey-Now writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association.

Explore Heating and Cooling Options

Q: My old heating and cooling system must be replaced. With high energy costs and future energy price volatility, how can I determine the best type to go with?

As it can make economic and environmental sense to switch to an entirely different type of heating source for your home. The costs of fuels, such as natural gas, propane, heating oil and electricity, have shifted dramatically in the past decade. Many new heating systems last 20 years or more, so with wide variations in fuel costs, long-term estimated operating costs and pay backs are not always reliable.

Electricity prices are the most stable and will probably continue that way. For homes heated with electricity, air-source or geothermal heat pumps make good sense because they can heat, as well as cool, your house efficiently.

A standard air-source heat pump is basically a central air conditioner with a few extra

parts. The outdoor unit looks exactly the same as a central air conditioner. It is called a heat pump because it literally pumps heat out of your house (cooling mode) or into your house (heating mode) to or from the outdoor air around the outdoor compressor/condenser unit.

Among central heating and cooling systems, geothermal heat pumps provide the highest efficiency and lowest year-round utility bills. While geothermal heat pumps have much higher initial installation costs, due to the need to place loops, or tubing, to run through the ground or to a well or pond, the federal stimulus bill provides consumers—through the

end of 2016—a 30-percent tax credit on the cost of putting in a geothermal heat pump system, which makes them much more affordable.

The primary advantage of installing a heat pump of any kind is they can be used year-round for both heating and cooling. This provides year-round savings and shortens the payback period. In contrast, a super-efficient furnace is used only during winter and a central air conditioner only during summer.

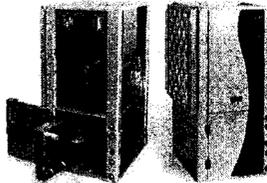
I use a portable heat pump in my own home and office for year-round savings. In addition to cooling the room during summer, it also functions as an efficient portable heater during winter. It produces 14,000 Btu per hour of cooling and 11,000 Btu/h of heating. This is much more heat output than a standard electric space heater using the same amount of electricity during winter.

The efficiency of a portable air conditioner is similar to a window air conditioner. Although this is less efficient than the newest central air conditioners, using one can still save money. By keeping just one or two rooms comfortably cool with clean air, you can set your central thermostat higher and save electricity overall. Use it in the dining room for dinner, roll it into the living room and then to the bedroom for sleeping.

They are typically mounted on casters so they can be easily rolled from room to room. Most operate on standard 120-volt electricity, so they can be plugged into any wall outlet near a window.

A portable air conditioner/heat pump operates similarly to a typical window unit. The internal rotary compressor, evaporator and condenser function in the same way. The primary difference is it is on casters and rests on the floor.

When choosing a heating and cooling system, there are other intangible factors to consider. Every type of system requires some maintenance, which can increase the overall costs. A heat pump requires about the same amount of service as an air conditioner. ■

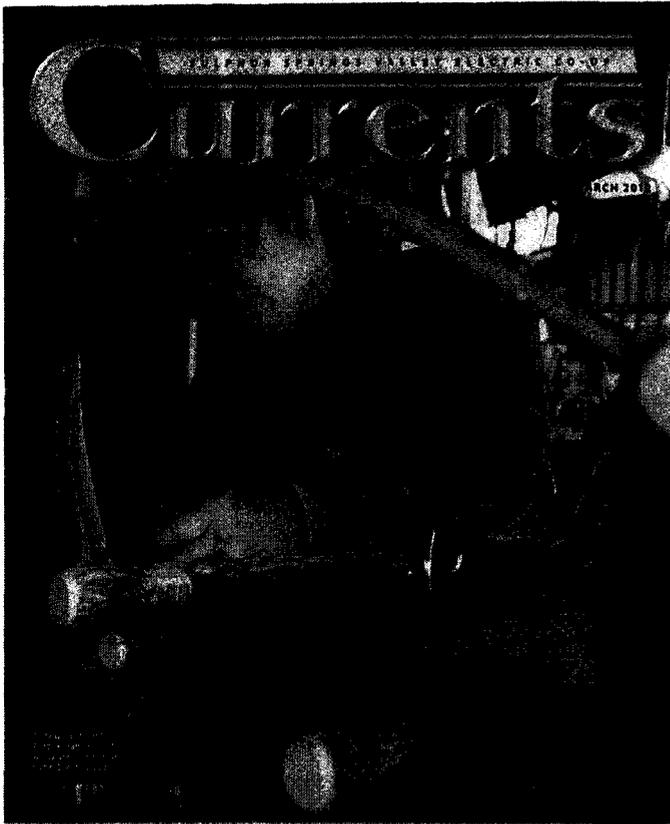


An efficient geothermal heat pump is shown with and without the front cover. Notice the large air cleaner and water fittings for also heating water. Photo courtesy of WaterSense.



To ask a question, write to James Dulley, Energy Editor, ENR, 1200 Pennsylvania Dr., Cincinnati, OH 45246. Or check his web page, www.enr.com.

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SSVEC's 74th Annual Meeting PAGE 4 | How Co-op Connections Can Drive Change PAGE 28

Currents

With Spring's Consumer Energy Show, members' opportunities also increase. Opportunities to meet with representatives from the electric utility industry, as well as other industry groups, are available. For more information, contact the SSVEC office at 1-800-277-8906.

SSVEC's 74th Annual Meeting is a great opportunity for members to meet with representatives from the electric utility industry, as well as other industry groups. For more information, contact the SSVEC office at 1-800-277-8906.

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Energy Smarts

Making the Most of Your Electricity

Resolution to Save Broken?

Did you already break your New Year's resolution? Don't despair. There are still 10 months to make your home more energy efficient and save.

March: Seal leaky ducts to stop air from escaping your home and money from escaping your wallet.

April: Air leaks in your home add up. Caulk cracks and openings to the outside to save more than \$200 a year.

May: Put your refrigerator on your spring cleaning to-do list. Throw out expired items, clean inside and out, and check the temperature.

June: Replace furnace and air conditioner filters. Dirty filters restrict air flow and reduce efficiency, forcing your cooling system to work harder.

July: Along with the outside temperature, your cooling costs can skyrocket. Keep your thermostat set between 78 and 80 degrees to save up to 8 percent a month.



August: Unplug computer equipment, TV, cable box, DVD players and microwaves when on vacation. Even when not in use, electronics with instant-on features and digital displays consume energy.

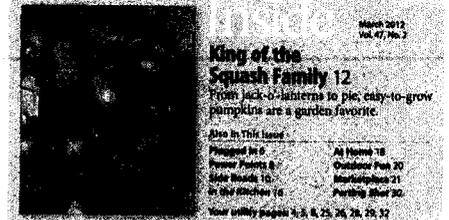
September: Be a "fanatic." While they don't replace an air conditioner or a heat pump, fans move the air and improve comfort. On a milder day, it is more energy efficient than cranking up the air conditioning. Fans cool people, so turn them off when you leave.

October: Insulate your attic. Adding nine or more inches of insulation could save you more than \$150 a year.

November: As the weather cools, open your window shades. That lets heat from sunlight in, reducing the need to turn up your thermostat.

December: Put a new Energy Star appliance at the top of your Christmas wish list. Upgrading appliances like washing machines or Energy Star-rated models can save up to \$140 a year.

For more energy-saving tips, check out *Together We Save*, coon. Small changes in behavior can add up to big savings.



How Energy Efficient Are Your Appliances?

A first step in improving your home's energy efficiency is understanding how much electricity your appliances use. SSVEC is making it easier for co-op members to do that with a metering device called a kWh A Watt.

To make these devices more accessible to members, the units are available for check-out at libraries throughout SSVEC's service area.

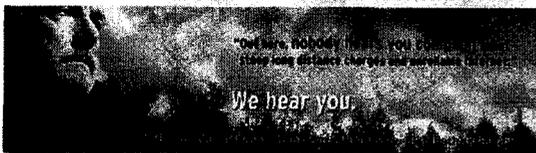
The Device

The kWh A Watt plugs into an ordinary wall outlet. The appliance then plugs into the device, which measures electric current used to operate it.

The device provides a digital readout of the watts used and can monitor the continued use of kilowatt-hours. To calculate the cost to operate a refrigerator, television or computer, multiply usage by the cost per kWh.

Library Locations: Libraries throughout Cochise and eastern Santa Cruz counties have the devices, with instructions for check-out.

Right, Tim Chastity, supply and demand risk management specialist for SSVEC, explains the features of a kWh A Watt unit and demonstrates its use for Spide Street, a library in Wilcox.



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Plugged In

Using Electricity Safely and Efficiently

In-Home IQ Expands

Technological innovations make appliances smarter about their energy use

By Megan McElroy-Hess

Does your refrigerator have Wi-Fi or a door with a view? Select dishwashers self-diagnose clogs and clean based on the number of dishes. And you might be surprised to learn some ovens double as refrigerators. I ate dinner in the oven in the morning, then sent a text message for the oven to switch from cooking to cooling mode.

"When it comes to appliances in the kitchen, things are getting smarter," says Kevin Dexter, senior vice president of home appliance sales and marketing at Samsung Electronics America. "We're listening closely to consumers and adding improvements that busy moms want."

During the 2012 International Consumer Electronics Show, Samsung unveiled several appliance twists, including an LCD refrigerator featuring Wi-Fi with a grocery app and a Flex Duo Oven using a "smart divider" to cut wasted cooking space.

Samsung isn't alone. Other manufacturers also are looking for twists to make appliances smarter and keep consumers happy.

"At GE Appliances, we're rapidly expanding our Energy Star ratings because it's what consumers demand and it's the right thing to do," says Rod Barry, director of efficiency and environmental relations. He claims a kitchen equipped with GE's convection appliances reduces electricity use by 20 percent compared to standard models.

But with so many cooks in the kitchen, not all innovations make energy sense. Appliances use 13 percent of a home's energy—a hefty chunk. Public electric utilities are evaluating emerging technologies to find the recipe for innovative appliance success.

Manufacturers constantly enhance appliances to comply with consumer requests and to meet ever-evolving federal efficiency



Samsung's Flex Duo Oven uses a "smart divider" to cut wasted cooking space. The divider also allows you to cook two things simultaneously at different temperatures.

standards. These standards, first enacted in 1987, drive efficiency innovations and are credited with saving more than \$300 billion in electric bills during the past quarter-century, according to the American Council for an Energy Efficient Economy.

Current standards set the bar for furnaces, air conditioners, water heaters, refrigerators, freezers, washers, dryers, motors, lamps and other products. In 2011, a U.S. Senate committee considered tightening appliance standards even more, but the bill has not moved forward for a vote.

After an influx of appliance rebate funds—almost \$300 million—from the American Recovery and Reinvestment Act of

2009, many consumers bought efficient appliances in 2010 and 2011. Although rebates also were offered for HVAC systems and water heaters, kitchen and laundry workhorses were the clear favorites, garnering 88 percent of all redeemed rebates. About 586,000 consumers added refrigerators, 551,000 added clothes washers and 297,600 dishwashers were updated.

The U.S. Department of Energy estimates this influx of efficient appliances will save \$48 million in energy costs annually. But these savings are only realized when consumers follow the adage, "Out with the old, in with the new."

Unfortunately, a national electric cooperative survey shows that is not always the case.

"A lot of folks buy these great new Energy Star refrigerators, then put the old energy hog model in the basement as a soda fridge for the kids," says Brian Sloboda, a program manager for the Cooperative Research Network, a division of the National Rural Electric Cooperative Association that monitors, evaluates and applies technologies to help electric cooperatives control costs, increase productivity and enhance service to their members. "As a result, a lot of potential savings are lost. Sure, it's convenient to have the extra space, but these folks are paying significantly more just to have cold drinks handy."

CRN partnered with E-Source, a Colorado-based efficiency group, to conduct a national survey of appliances. The study found 19 percent of American homes plug in two refrigerators, and 40 percent of households run a stand-alone freezer, adding expensive cold storage to electric bills.

Older models drain energy dollars. A refrigerator from the 1970s costs \$200 more to operate every year than a current model. A 1980s fridge is not much better, wasting \$100 in energy dollars annually.

Consumers should look beyond fancy bells and whistles and research appliances to guarantee energy savings, according to the Federal Trade Commission. The agency enforces mandatory EnergyGuide labels to help consumers compare brands and shop effectively.

"Most of the differences are on the inside—in the motors, compressors, pumps, valves, gaskets and seals, or in electronic sensors that make appliances 'smarter,'" warns the FTC. "Even if two models look the same from the outside, less-obvious inside features can mean a big difference in monthly utility bills."

Appliance Aid

Most states have exhausted their allocated appliance rebate funds. As of January 30, 2012, Alaska, Oregon and California still had federally approved appliance rebate programs. Some states and local utilities provide rebates and appliance loans. Check www.dseusa.org for local incentives or contact your local electric utility to see if appliance aid is available. ■

Megan McKay-Noc writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association.

How to Use the EnergyGuide Label

Appliance manufacturers are required to provide an EnergyGuide label so consumers can compare energy use between different brands and models.

Appliance features that affect cost range

Product make, model and size

Amount you might pay to run the appliance for a year based on energy use and the national average cost of electricity.

Range of operating costs for models with similar features.

How much electricity the product uses. Multiply this by your local electricity rate for an idea of your actual operating cost.

Source: Federal Trade Commission

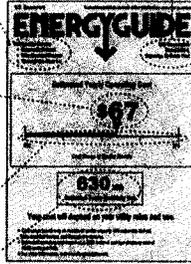
You can learn about the energy efficiency of an appliance that you are thinking about buying through the yellow-and-black EnergyGuide label.

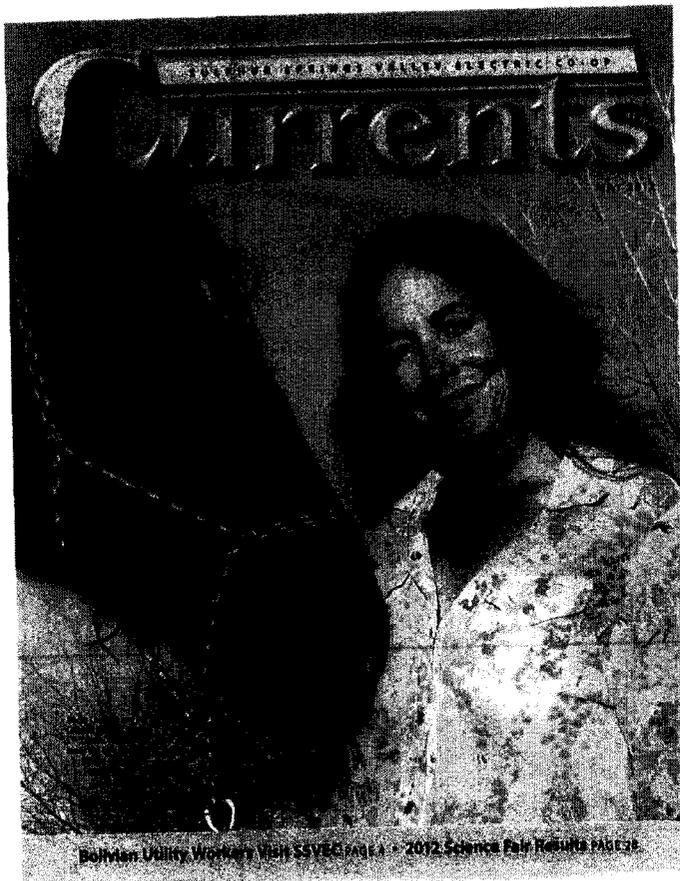
The Federal Trade Commission's Appliance Labeling Rule requires appliance manufacturers to put these labels on refrigerators, freezers, dishwashers, clothes washers, water heaters, furnaces, boilers, central air conditioners, room air conditioners, heat pumps and pool heaters.

When you shop for one of these appliances in a dealer's showroom, you should find the labels hanging on the inside of an appliance or secured to the outside. The law requires that the labels specify:

- ▶ The capacity of the particular model.
- ▶ The estimated annual energy consumption for refrigerators, freezers, dishwashers, clothes washers and water heaters.
- ▶ The energy efficiency rating for air conditioners, heat pumps, furnaces, boilers and pool heaters.
- ▶ The range of estimated annual energy consumption, or energy efficiency ratings, of comparable appliances.

Some appliances also might feature the Energy Star logo, which means the appliance is significantly more energy efficient than the average comparable model. ■





Bohman Utility Workers Union 55VEG PAGE 1 • 2012 Science Fair Results PAGE 28

Clean AC Coils Lead to Higher Efficiency

Q: I want my old air conditioner to run as efficiently as possible. If my cooling costs are still too high, I may replace it. What can I do to tune it up myself?

As it is wise to make sure your existing central air conditioner runs as efficiently as possible to reduce your electric bills. Because actual cooling costs depend on weather conditions, they vary significantly, making accurate comparisons difficult.

The easiest way to determine the savings from installing a new air conditioner is to compare the seasonal energy efficiency ratio of your existing model to that of a new model. You can be pretty sure your existing unit is not operating more efficiently than when it was new, so savings will be on the conservative side.

Installing a more efficient model offers additional savings. Electric utilities must provide enough electricity generation capacity to meet peak demand. If peak electricity demand can be decreased by homes running newer, higher-efficiency air conditioners, fewer power plants will have to be built. The enormous cost of building a power plant is a factor in rates.

You can do some things yourself to keep your air conditioner running efficiently. This does not preclude having regular professional service calls. Technicians have special equipment and pressure gauges to check internal components of the system, which is impossible for homeowners to do on their own.

It helps to understand how an air conditioner works. It operates on a delicate balance of air flow rates over the indoor and outdoor coils and proper pressures of the refrigerant. The compressor makes the refrigerant very hot. The hot liquid is hotter than the outdoor air, so it loses heat to the air through the condenser coils.

The cooler refrigerant then goes through an evaporator, which makes it very cold. This is similar to how your skin cools off when perspiration evaporates. The cold refrigerant flows through the indoor coil. The blower moves indoor air over the cold coils, which cools your

house air. At the same time, water condenses on the cold coils so the indoor air is both cooled and dehumidified.

Getting adequate air flow through the outdoor condenser coils is important for efficiency so refrigerant will be colder when it gets indoors. Make sure weeds and shrubs do not grow too close to the outdoor unit and impede air flow. Don't rest rakes or other items against the unit, which also may block air flow.

Switch off the circuit breaker to the unit and remove the outdoor cabinet. Clean out debris that has accumulated inside it, which may block the coils. You don't have to make it spotless. If fins are bent over in spots, try to straighten them enough so more air gets through.

It is important that all of the screws holding the cabinet sections together are tight when you reinstall the cabinet. Even if it is clean, and you do not remove the cabinet, check all of the screws. If they are loose, leaks will draw air in gaps instead of through the coils as designed.

Just as the proper amount of air flow is important through the outdoor coils, it is also important through the indoor coils. With the circuit breaker still switched off, remove the side cover on the indoor unit to expose the evaporator coils and the blower. When you reinstall the cover, make sure to tighten the screws.

A lot of dirt can accumulate on the indoor coils because the coils get damp when the air conditioner is running and dirt sticks to them. The dirt blocks air flow and insulates the coils from the air. Wipe the coils and use the brush attachment on your vacuum cleaner to clean them and the blower as well as possible.

Although you often hear the blower filter should be changed regularly, most people don't do it. At the beginning of the cooling season, change the filter whether you think it is dirty or not. A dirty filter increases air flow resistance, which reduces efficiency. Check the joints in the ducts for any air leaks. Seal them with aluminum tape or black Gorilla duct tape. ■

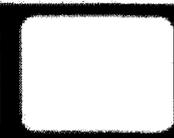


Remove garden tools and other items from around the central air conditioner condenser coil so air flow is not restricted.



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MR. GREEN THEY ARE UP! SUPERSTARS!	BUT THEY ARE PEOPLE FROM A...	SOMEbody THAT IS
		
THEY ARE ENERGY AND THEY ARE GONE...	AND THEY ARE THE PEOPLE WHO BRING US ENERGY...	AND WITHOUT THEM OF COURSE...
		
WE'VE GOT TO FIND A WAY TO GET OTHER ENERGY	AND WE'VE GOT TO FIND RESOURCES.	AND WE'VE GOT TO FIND OUR COUNTRY MORE

		
WE'VE GOT TO FIND A WAY TO GET OTHER ENERGY	AND WE'VE GOT TO FIND RESOURCES.	AND WE'VE GOT TO FIND OUR COUNTRY MORE
		
		

Home Audit Program

Residential audits have been offered by SSVEC for well over 20 years at the request of the Customer. The ARRA grant discussed below allowed us to expand the audit program using four part time auditors and actively promoting audits with direct mailings.

SSVEC Energy Auditing

Sulphur Springs Valley Electric Cooperative (SSVEC) was awarded American Recovery and Reinvestment Act matching grant funds from the Department of Energy to expand and expedite in SSVEC's smart grid modernization efforts. This effort includes an Energy Audit program to educate members on energy awareness and to improve the thermal envelope of homes as well as improve a home's energy efficiency. The energy audits would direct members to existing SSVEC no/low interest energy efficient based loan programs.

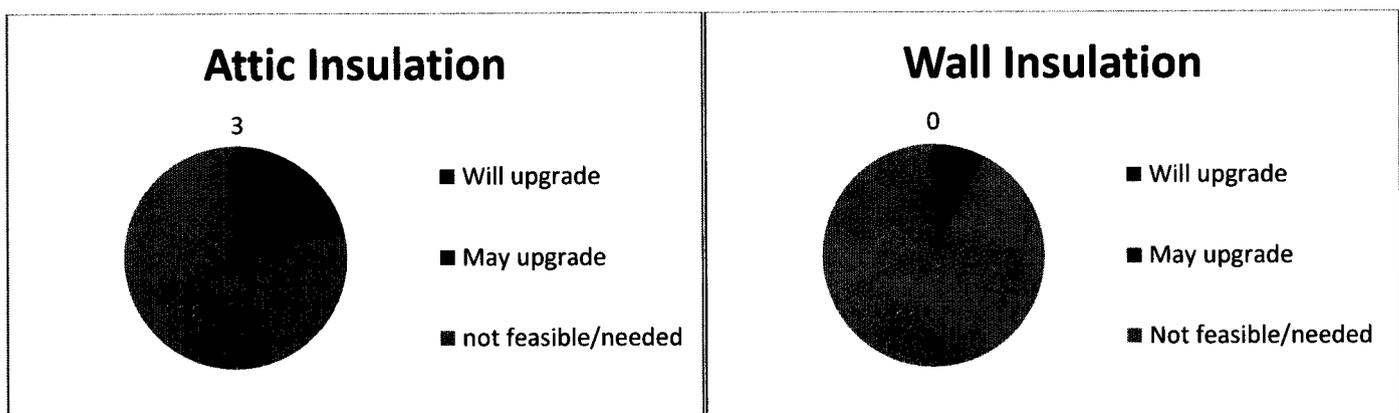
SSVEC began conducting energy audits in May 2011. These energy auditors visit a member's home upon request, conduct an in-depth analysis and make specific recommendations on what the home owner can do to decrease electric consumption. Upon completion of the energy audits, the auditors inquired how likely the members would be to implement these recommendations; Answers were limited to a) the member will implement the recommendations, b) the member may implement some or all of the recommendations or c) the member will not implement any of the recommendations. These auditors also promote SSVEC's DSM program and helps the member to determine which programs will provide them with the most help.

SSVEC completed 397 audits in the first half of 2012, yielding 32 recommendations which member indicated they will implement and 586 recommendations which member may implement. The auditors recommended several actionable items to enable members to lower their overall energy usage. The categories recommended to upgrade or improve were Infiltration, Windows, Doors and Insulation as well as heating and cooling appliances.

SSVEC has an energy efficiency zero interest loan program. The goal of this program is to get members to upgrade their thermal envelope as well as their heating & cooling units to more energy efficient ones.

Insulation

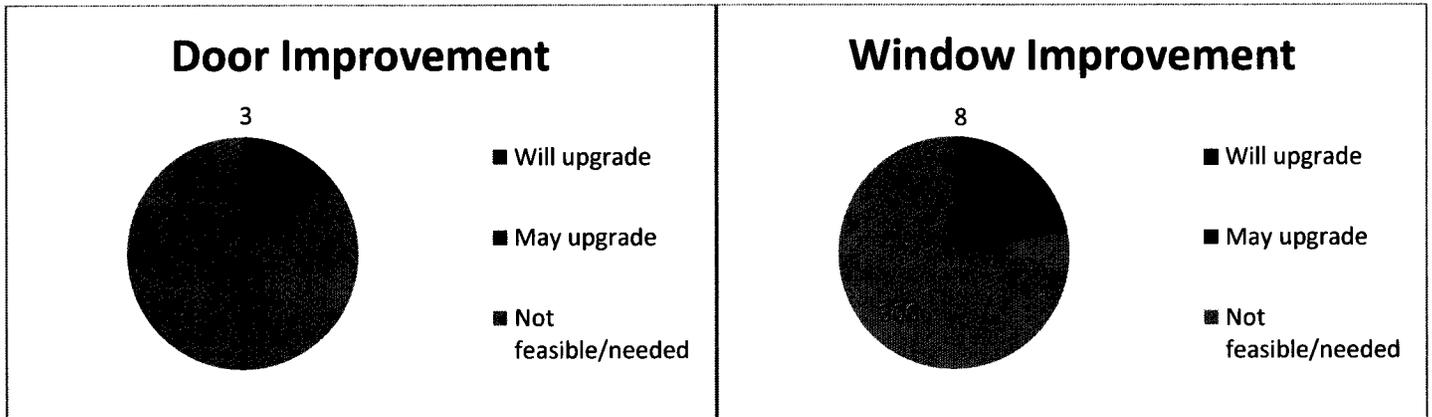
Attic and wall insulation can improve the thermal envelope of a residence. The goal of SSVEC is to improve attic insulation levels to at least R-38. Some walls are initially between R-2 and R-4; the goal is to increase wall insulation levels to between R-5 and R-10. Many of the homes audited did not have attic space (113). The homes attics who indicated they will not improve their attic insulation all but five had R-values greater than or equal to R-30.



Note: Not feasible / needed means that the attic or wall meets current thermal requirements or physically cannot be upgraded to current standards.

Windows & Doors

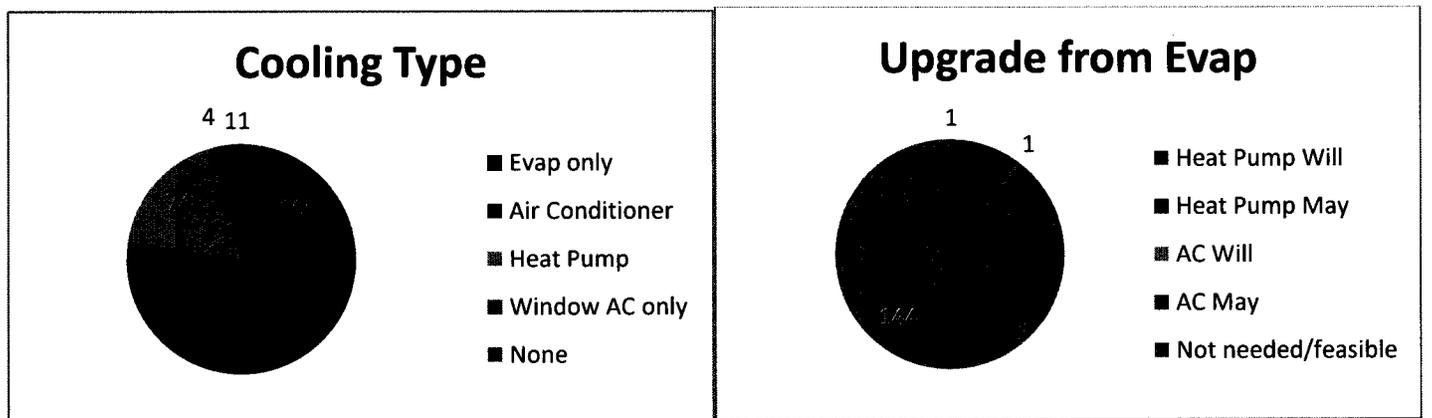
Door and window upgrades can also improve the thermal envelope of a residence. The goal of SSVEC is to replace old wooden exterior doors with insulated steel or fiberglass doors with an insulation value of R-5 or better and replace single pane window with dual pane windows with an insulation value of R-1.7 or greater (a U value of at least 0.58).



Note: Not feasible / needed means that the attic or wall meets current thermal requirements or physically cannot be upgraded to current standards.

Heat Pumps & Air Conditioning

New heat pumps and air conditioning systems are more efficient than older heating and cooling systems. Upgrading to a newer unit can reduce the energy consumed by a member. The goal of SSVEC is to replace old heating and cooling units with ones with a minimum SEER rating of 15 (16 SEER for split system heat pumps). There are 74 members with heat pumps; five indicated they may upgrade their heat pump and two members they will upgrade to an A/C unit. There are 208 members with air conditioners; only 11 members indicated they may upgrade to a heat pump and 10 members may upgrade their A/C unit.

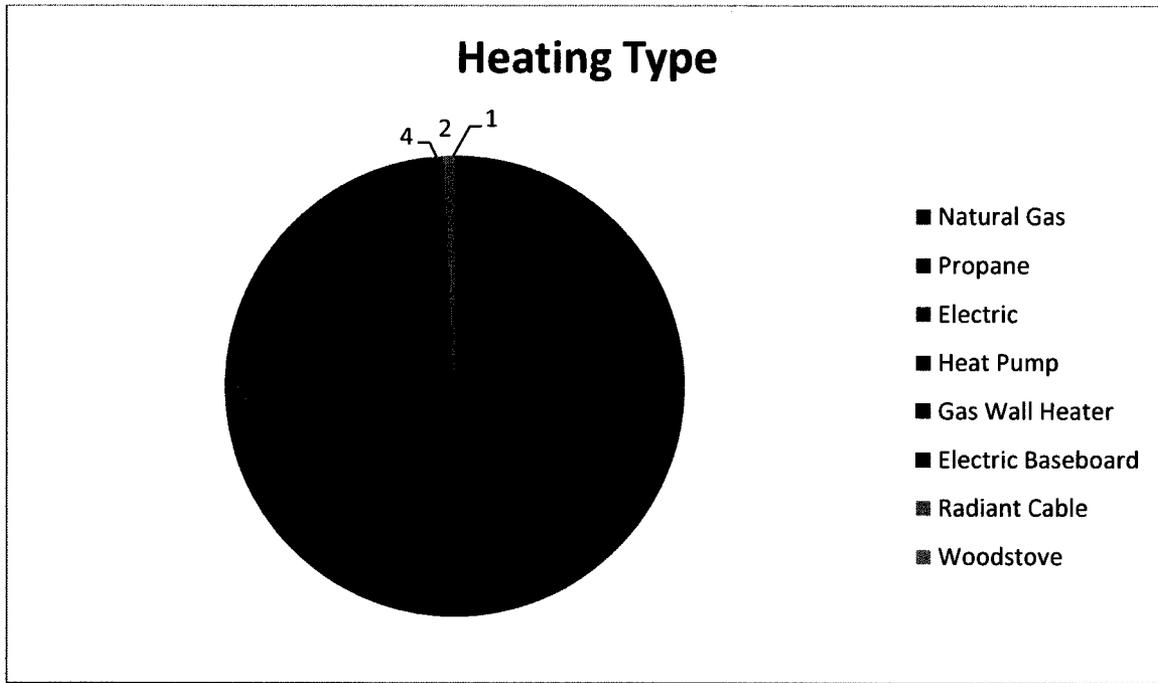


Note: Not feasible / needed means that the attic or wall meets current thermal requirements or physically cannot be upgraded to current standards.

Heating

There are some SSVEC members who prefer to heat their home by gas or other means. SSVEC's energy auditors also asked members if they would consider replacing an older, less efficient furnace (typically around

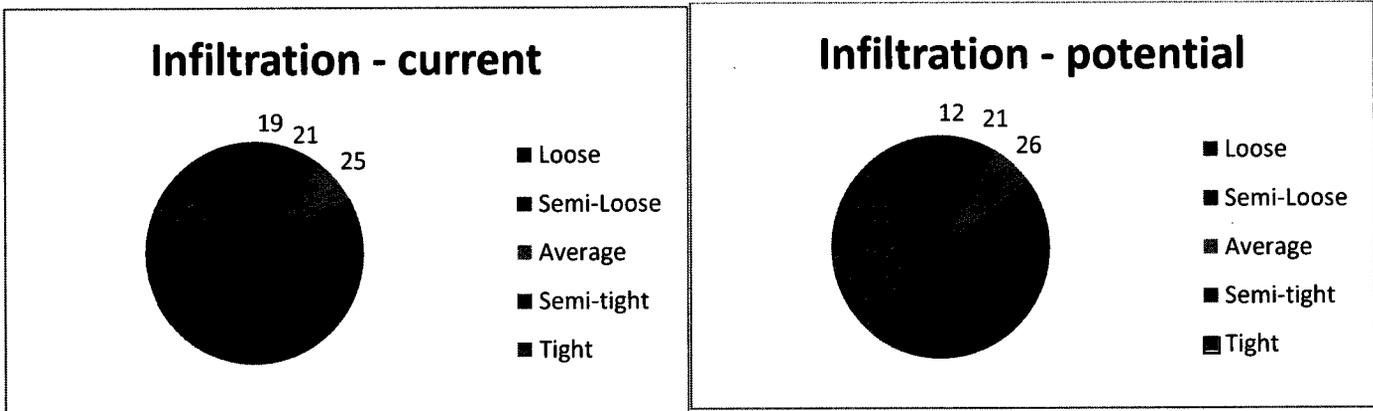
60% efficient) with a newer one (greater than 80% efficient, but less than 90% efficient; one member indicated they will, 12 stated they may and 173 do not need to upgrade.



	Qty	Will upgrade to Heat Pump	May upgrade to Heat Pump	Heat Pump Upgrade not needed or feasible	Will upgrade to Furnace	May upgrade to Furnace	Furnace Upgrade not needed or feasible
Natural Gas	187	---	12	173	1	12	173
Propane	85	---	5	80	1	3	80
Electric	31	1	6	24	---	1	29
Heat Pump	70	---	6	64	---	3	67
Gas Wall Heater	6	---	2	4	---	---	6
Baseboard Electric	4	---	---	4	---	---	4
Radiant Cable	2	---	1	1	---	1	1

Infiltration

Infiltration is the unintentional or accidental introduction of outside air into a building, typically through cracks in the building envelope, and worn or missing weather stripping around windows and doors. This is often the least expensive, yet most cost effective, method to decrease the energy needed to cool or heat one's home. The charts below show the current infiltration level and the potential infiltration level when recommended upgrades are complete.



These charts use construction labels based upon **Air Conditioning Contractors of America**

SSVEC's energy auditors also asked members if they would consider any other energy efficiency improvements to their homes; 69 stated they may and 270 find it not feasible to upgrade their homes using other energy efficient improvements.