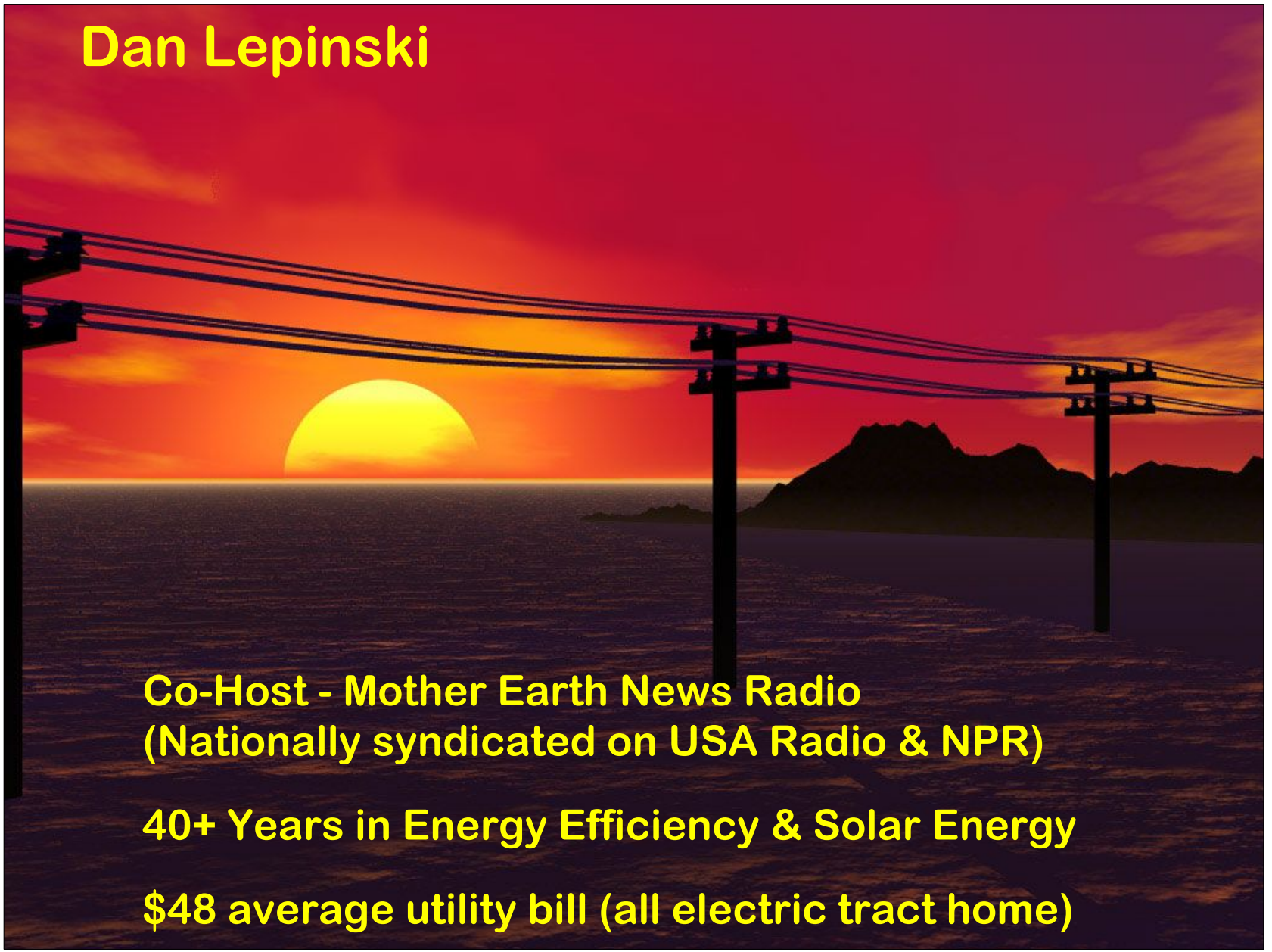

Welcome to the 2014 Texoma Earth Day Presentation …
April 26, 2014


"Green" Building Isn't Just for Experts...
April 26, 2014


Dan Lepinski
Co-Host - Mother Earth News Radio
(Nationally syndicated on USA Radio & NPR)
40+ Years in Energy Efficiency & Solar Energy
$48 average utility bill (all electric tract home)

We're all aware how painful energy costs have become.

Energy Efficiency is Your Goal

Being energy efficient doesn't mean sacrifice.

It means making better use of the energy we consume.

When "energy efficiency" is mentioned, does it bring this lifestyle to mind?

So .. What Should We Do?

#1: Have An Energy Audit Performed

An energy audit will reveal problems that may, when corrected, save you amounts of energy and money over time.

A professional energy auditor uses a variety of techniques and equipment to determine the energy efficiency of a structure. Thorough audits use equipment such as blower doors, which measure the extent of leaks in the building envelope, and infrared cameras, which reveal hard-to-detect areas of air infiltration and missing insulation.

#2: Insulate Your Attic to R-40 or Better

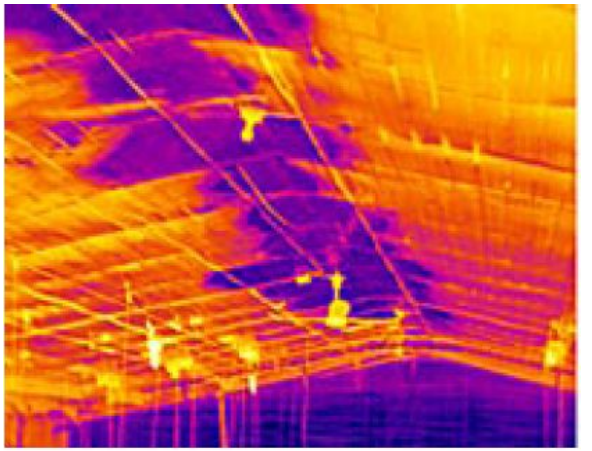
Radiant barrier (the shiny foil-like material attached to the roof rafters) reduces heat gain.

Here, cellulose (the gray material) is visible on the attic floor. See anything wrong here?

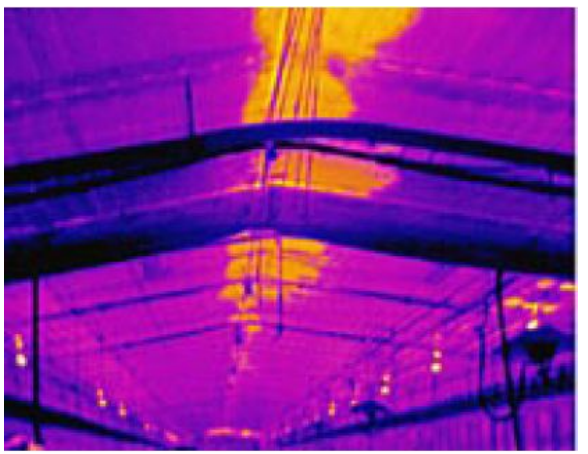
Insufficient insulation in an attic.

Tops of the 2x4 ceiling joists are clearly visible. This insulation is less than 2” thick.

What do you think this would cause?



A thermal image of the attic in winter. Cold areas are dark blue.



The same attic in summer. Hot areas are orange.

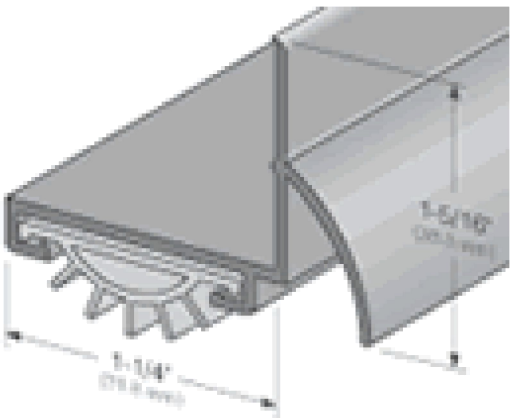
#3: Reduce Infiltration (Air Leaks!)

Find and stop infiltration.
(A particularly serious problem in older homes!)

Use Window Kits.

Reducing infiltration requires good door seals.

- Replace gaskets (sides) and sweeps or sills (bottom) if worn out.



Caulking leaks will prevent infiltration of cold air (winter) and hot, humid air (summer).

#4: "CFL" and "LED" lamps.

- Replace high use incandescent bulbs with compact fluorescent and/or "LED" bulbs.

Think the twisty little compact fluorescent lamps are the only ones available?

Think again!

And LEDs!

Every lamp here is a compact fluorescent!

#5: Buy Energy-Efficient Appliances

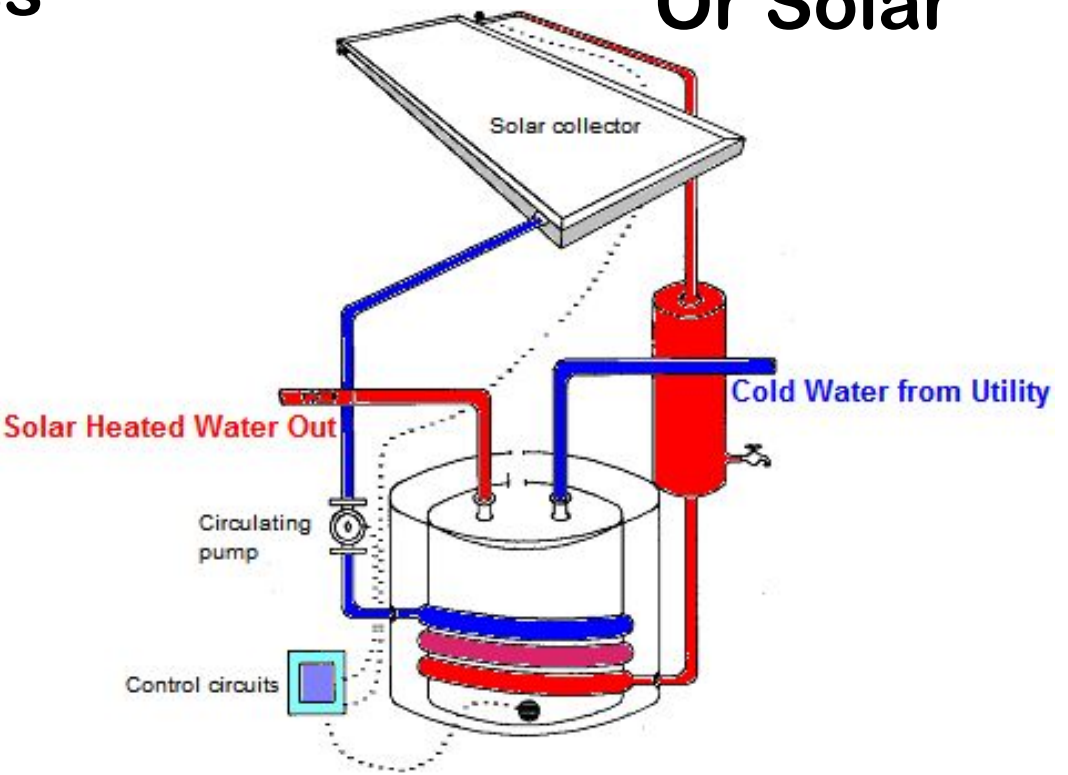
When shopping, look for the Energy Star Label.

Products bearing this label consume 10 to 20% less energy than their non-Energy Star counterparts.

#6: Upgrade Your Water Heater

Go Tankless

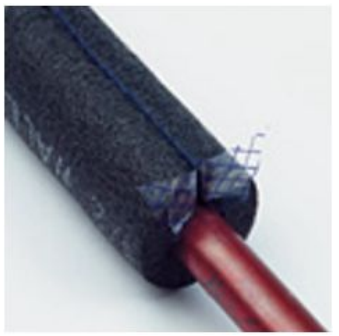
Or Solar



Tankless water heaters don't store hot water. They generate it on demand. "Solar" heats water using the sun, and is the most cost-effective method of heating water!

Jacket the Water Heater Tank! (Also solar tanks!)

- Install insulating jacket of at least R-8
- Insulate first 10 feet of hot water pipe
- Set standard water heater thermostat to 120F.

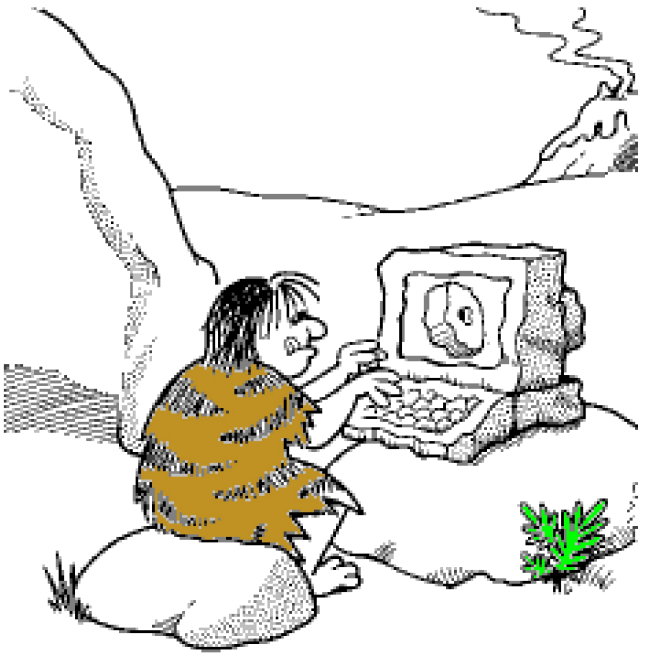


Reduces standby heat loss by 25-45%.

#7: Ensure Electrical Devices Are Really Off When Not In Use…

Unplug cell phone chargers. Use power strips on your computers, TV, stereo and entertainment devices.

Any others???



#8: Use Ceiling Fans and Programmable Thermostats

Blow air toward you in summer.

Turn off the fan if you leave the room!

Buy "Gossamer" brand fans for the ultimate in efficiency.

Set thermostats warmer in summer by 3 degrees or more and cooler in winter by the same amount.

#9: Develop Conservation Habits

In winter, let the sunlight in to aid heating. In summer, close drapes during the day to prevent heat gain.

Wash full loads of laundry only – don't overfill. Use cold water with cold-water detergents.

Wash full loads of dishes only. Use the no-heat dry setting.

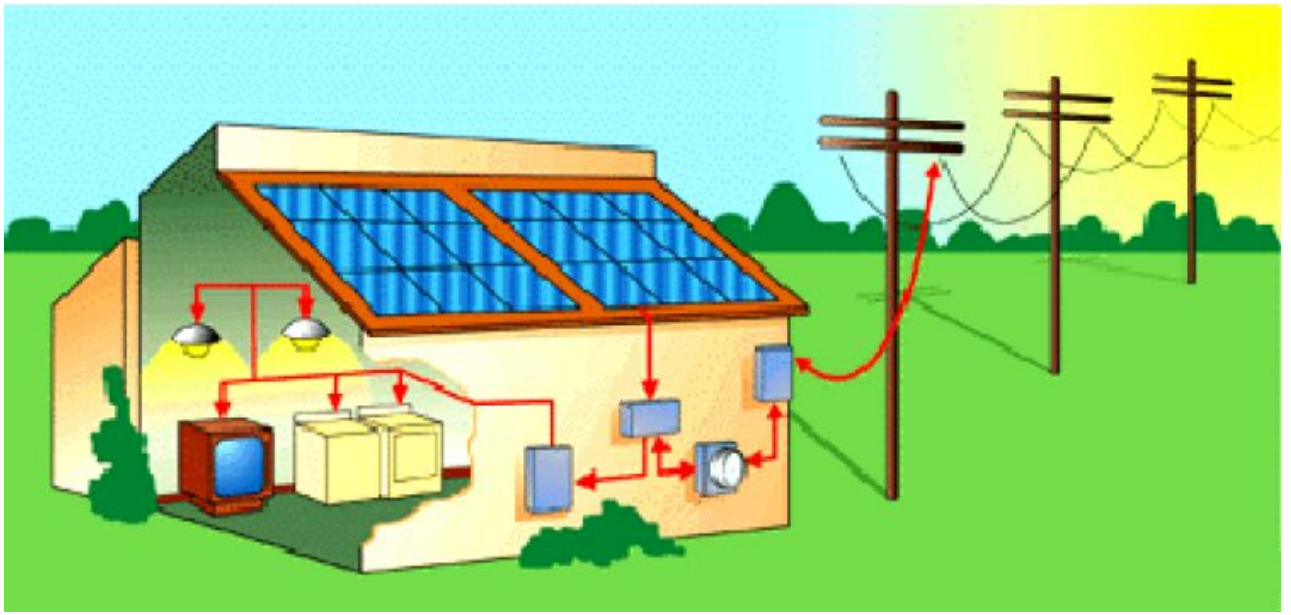
Don't run bath or stove fans longer than necessary. They remove conditioned air from the house that must be replaced from outside.

Avoid installing a refrigerator or freezer in an unconditioned garage or other warm location.

Check refrigerator temperature settings. Freezer section should be 0° to 5°, refrigerator section should be 35° to 40°.

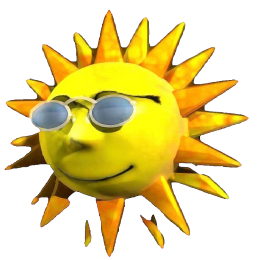
#10: Solar Energy

This is an illustration of a "solar electric" home.



Power generated by the solar modules on the roof is converted to household electricity, slowing the meter.

If more power is generated than consumed, the meter will run *backwards*, earning credit toward your bill from some electric providers.



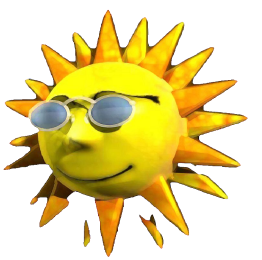
Solar Electricity

The two most commonly asked questions:

How much solar equipment / money will it take for me to:

1) Run my air conditioner?

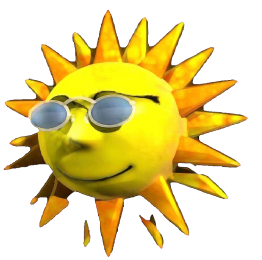
2) Have a “zero” electric bill?



Unfortunately, there are no "pat" answers to these questions. It depends on many things, such as how much power you use, the efficiency of your home and appliances, and other variables.

In all cases however, it's far better and MUCH less expensive to improve your home's energy efficiency first .. THEN look to solar energy as a next step.

For the moment, let's consider …



The Top Four Solar Myths:

1. Solar devices require more energy to manufacture than they produce in their lifetime.
2. Solar manufacturing results in more pollution than is saved by solar usage.
3. Solar energy is too expensive.
4. Solar equipment is ugly.

Take a close look – is this the profile of a young lady, or the face of an old woman?

They're both here, but some of you see one woman, some see the other.

Some homeowner's associations prohibit installation of solar energy equipment because it's considered "unsightly".

Manufacturers responded by creating solar panels resembling roofing shingles. There's also a 2011 Texas law prohibiting HOA restrictions (with caveats!).

Solar electric shingles are installed in the same manner as regular shingles. When in place, they're almost impossible to spot! Want proof?

The entire Lakeside subdivision near Elk Grove California has rooftop solar shingles!
Can you see them?

Here's a view from a different angle. The "shingle" solar panels are almost indistinguishable from ordinary shingles, even close up!

Though solar shingles are are almost invisible when viewed from the ground, from the air they're easily seen. Many communities such as Premier Gardens near San Francisco have solar shingles installed on every house.

The average electric bill for each of these homes is about $40 a month.

Some even have a zero electric bill !

This is a solar hot water system on an American home. The water circulates through the panels, is heated by the sun, and is stored in a tank in the garage or elsewhere for later use.

This Texas home uses the sun for hot water AND electricity.

Most of this family's hot water needs, and about 20% of their electrical consumption are provided by the sun.

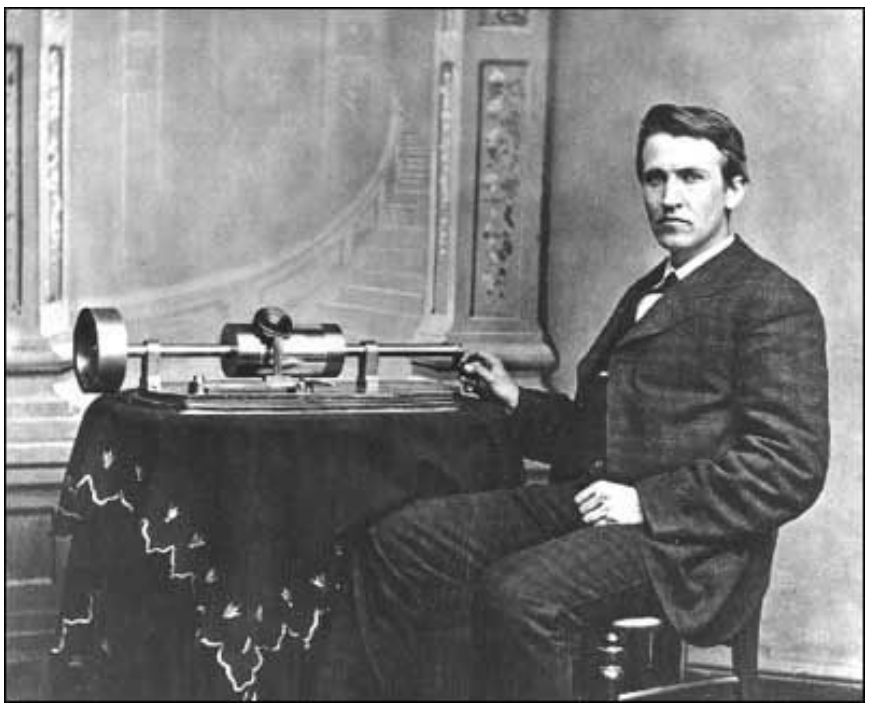
In closing .. I'd like to leave you with the words of one rather famous American, who said:

"I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that."

Any idea who may have made such an insightful statement?

~Thomas A. Edison ~
(1847-1931)

…in conversation with Henry Ford and Harvey Firestone…



Where Can I Get More Information?

ONCOR

www.takealoadofftexas.com (Click on "Homes" tab)
Incentives for: Home energy efficiency. Low income programs.
Solar energy. Energy efficient appliances & HVAC upgrades.

US Department of Energy

www.energystar.gov/certified-products/certified-products
Energy Star Products

United States Green Building Council

www.usgbc.org
Energy-efficiency-aware architects and contractors.

North Texas Renewable Energy Group

www.ntreg.org
North Texas Chapter of the Texas Solar Energy Society.
A one-stop shop with many links to things "energy efficient".

Thank You!

Questions?

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