10 Ways to Reduce Your Home Energy Costs

Presented by:
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Overview

• 10 Ways to Reduce Your Energy Costs
• Long-Term Savings Improvements—larger investment today, saving over the coming years
• "Green" Alternatives—new technology that can change how you heat, cool, and power your home
• Resources
• Questions

10 Ways to Reduce Your Energy Costs
1. Perform An Energy Audit – (Self-Assessment)

- Did you know that half of all home energy use is for heating?
- Start with a simple self-assessment:
  - Utility bills for energy consumption (note peak and total usage available with most providers)
  - Insulation (attic, exterior & basement walls, stringers, floors, and crawl spaces)
  - Check for air leaks (walls, ceilings, windows, doors, lighting and plumbing fixtures, switches, and electrical outlets)
  - Fireplace dampers
  - Appliance operation: Check your manual for recommended use and energy conservation
  - Large appliances (HVAE): Have serviced regularly
  - Lighting: Study your use, consider sensors, dimmers, or timers to reduce usage.

1. Perform An Energy Audit – (Self-Assessment)

- Professional Energy Audit Recommendations
- Certified Home Energy Auditor: Examine:
  - Your billed energy consumption
  - Problems you are aware regarding how the home operates
  - Interior and Exterior Spaces
  - Home Health and Safety
  - Electrical Systems
  - Combustion appliances
- Provide summary and recommended actions in a comprehensive energy report

1. Perform An Energy Audit – (Professional-Assessment)

- Average cost of a Professional Home Energy Audit: $500 - $500
- Where to find an auditor:
- Local electric or gas utility
- RESNET
  - Use the RESNET Home Energy Rating System (HERS) to assess the energy efficiency of a home and the potential for energy savings.
2. Adjust Ceiling Fans For The Season

Ceiling Fan Facts:
- Ceiling Fan's work best in rooms:
  - When buying a fan, consider ones
    • Turn fan off once exhausted:
    • ENERGY STAR rated models:
      • Usually cost $60.00 more
      • Quieter and are 20% more efficient.
    • Turn fans off in empty rooms
    • When blades are 7' – 9' off the floor
    • Blades are 10” – 12” below the ceiling
    • Ceiling Fan’s work best in rooms:
      • Blades that are 7’ – 9’ off the floor
      • Blades are 10” – 12” below the ceiling
    • Ceiling Fan’s cool people – not rooms:
      • The produce a wind chill effect to cool
      • Turn fans off in empty rooms
    • Ceiling Fan’s provide an updraft in the
      • Summer: Run the fan counterclockwise
      • Winter: Run the fan clockwise
    • If used properly, ceiling fans can
      • Help to keep RH below 50%.
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    • Turn off computers if you are not using for a period of 2 hours.
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3. Use Home Ventilation Fans Only When Necessary

- Home ventilation fans are used to help control moisture and
  • ENERGY STAR rated models:
    • Use 70% less energy
    • Feature high performance motors
    • Improved blade design,
    • Providing better performance
    • Longer life.
  • Turn fan off once exhausted:
    • Bathroom fan - 15 – 20 minutes
    • Consider models with auto-off
  • Serve a critical role in creating a
  • Can remove much of the
  • Help to keep RH below 50%.

4. Energy-Efficient Computer Use

- Turn off monitors if not using for a period in excess of 20 minutes.
- Turn off computers if you are not using for a period of 2 hours.
- Plug monitors, printers, and other peripherals into a power strip or
- Turn the power strip off when not in use for an extended period.
- Use the ENERGY STAR® sleep mode feature to improve energy
  • Bonus: Turning off a PC can also reduce heat (keeping cooling costs down)
5. Energy-Efficient Home Appliance Use

- How do you use your home appliances?
- Is there a vampire in your home?
  - "Vampire loads" – power drawn that most small appliances use when they are turned "off" but plugged in.
  - DVD player
  - TV
  - Stereos
  - Computer
  - Kitchen appliances
- Unplug these devices
- Plug these appliances into a power strips that you can turn off when not in use.

6. Lighting

- Turn lights off in empty rooms
- Use Automated lighting controls:
  - Dimmers
  - Motion, occupancy, and photo sensors
  - Timers – turn lights on/off at specific times
- What types of bulb do you have?
- Type of bulb used = cost effectiveness
- Traditional
  - Incandescent: Least expensive - shortest life span
  - Halogen: A more efficient incandescent
  - Energy-saving
  - Reflectors or parabolic reflector (flood light)
- Better:
  - CFLs:
  - Use 25% of the energy of Incandescent
  - Typically used to make white light
  - Uses a mix of red, green, and blue
  - tubes last 10 times as long
  - More expensive to acquire
  - Replacement is over the long term.
  - Source: US Department of Energy
- LED:
  - Use of a flux of phosphors
  - Use a mix of red, green, and blue
  - Typically used to make white light
  - Use 25% of the energy of incandescent
  - Unit just 10% of the heat
  - Only 25% of the heat of CFLs

7. Water Heating

- Hot water can account for 12% of a family's utility bill.
- DOE tips to help reduce your hot water usage:
  - Take short showers instead of baths
  - Use cold water for most laundry loads
  - Use cold water for the rinse cycle.

- Use your dishwasher efficiently
- Fix leaks
- Install low-flow fixtures
- Install heat traps on your water heater tank (older units)
- Insulate hot water tank
- Insulate the first few feet of the hot and cold water pipes connected to the water heater
- Install a timer (electric heaters)
3. Heating and Cooling Spaces Efficiently

8. Heating and Cooling Spaces Efficiently

Tips to Maintain Your Air Conditioner

Tips to Maintain Your Heating System

9. Effective Thermostat Management

Basic Thermostat:

- Winter:
  - Set the thermostat to 68°F while awake and at home.
  - Set the thermostat back 10°F to 15°F while asleep or away from home – can save 5 to 15% per year.

- Summer:
  - Set the thermostat to 78°F while at home and needing cooling.
  - Follow the same approach to keeping the home warmer than normal when away.

- Common misconception:
  - Setting your home temperature drop/six makes the unit work harder.

- As your house drops below its normal temperature, it will lose energy to the surrounding environment more slowly.

Programmable Thermostat:

- Lets you set times for adjusting the temperature automatically.
- Allow you to store multiple programs.
## 10. Identify and seal air leaks

- Air leaks waste a lot of money
- Caulk, seal, and weather strip all seams, cracks, and openings to the outside.

**Target Areas:**
- Dropped Ceilings
- Access Entrance
- Sill Plates
- Water and Furnace Flues
- Air Ducts
- Door Frames
- Chimney Flashing
- Window Frames
- Outlets and Switches
- Plumbing & Utility Access

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## Reference Resources

<table>
<thead>
<tr>
<th>Link</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOE: Air-Source Heat Pumps</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Lawrence Berkeley National Laboratory: Standby Green/Alternative Solutions</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>US EPA Indoor Air Quality</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Energy Star: RESNET HERS Index</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>DOE: Do-It-Yourself Home Energy Audits</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>DOE: Energy Saver Lighting Controls</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>DOE: Energy Saver Energy-Efficient Computer</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>DOE: Energy Saver Savings Project: How to Test your home for air tightness using an incense stick or smoke pen.</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>DOE: Energy Saver Reduce Hot Water Use for Energy</td>
<td><a href="#">Link</a></td>
</tr>
</tbody>
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## Dropped Ceiling

- Sill Plates

## Ceiling Fans

- Inspect dirty spots in your insulation for air leaks and mold. Seal leaks with low-expansion spray foam.

## Water and Furnace Flues

- Cover single-pane windows with storm windows.
- Use foam sealant on larger gaps around windows, basements, and other places where air may leak out.
- Cover your kitchen exhaust fan to stop air leaks when not in use.
- Check your dryer vent to be sure it is not blocked. This will save energy and may prevent a fire.
- Replace door bottoms and thresholds with ones that have plastic sealing gaskets.
- Keep the fireplace flue damper tightly closed when not in use.
- Seal air leaks around fireplace chimneys, furnaces, and ducts. Look for any holes or cracks where air or draft can escape.

## Air Leaks

- Inspect for dirty spots in your ceiling paint and carpet, which may indicate air leaks at interior wall/celing joints and wall/floor joints, and caulk them.

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Questions

Community Blog Sites

NASA Center Communities:
- www.nasafcu.com/afrcc
- www.nasafcu.com/ames
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Thank You!

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