What Can I Do Now?

Presented by

Clackamas County Weatherization Services
Children, Families, & Community Connections
What Uses the Most Energy in My Home?
THE WEATHERIZATION MIX

The Structure

The Heating System

The Occupants
Energy Efficiency vs. Conservation

- **Energy efficiency**, or performing the same task using less energy, is a cornerstone of Oregon’s energy plan. This most often involves physical changes in a system or **hardware**.
- Examples include LED lights, heat pumps, efficient refrigerators, air sealing a home, etc.
Energy Efficiency vs. Conservation

- **Conservation** is using less energy through saving, such as turning down thermostats, turning off lights and appliances, etc.

- **Conservation** is more like software in a computer analogy, e.g. we are using the same device such as a heater, but in a way to save energy.
A home is a complex energy system and both efficiency and conservation have their places.
Your Account

Account Summary

CHRISTOPHER BOND

Account number: 1234567890
Service address: 4123 SE YAMHILL, PORTLAND, OR 97214
Mailing address: Add mailing address
E-mail address: chris.bond@pgn.com

Billing & Payment Options

- Paperless: Not Enrolled
- Auto Pay: Not Enrolled
- Equal Pay: Not Enrolled
- Renewable Power: Not Enrolled

Amount Due: $77.10
Due Date: 11/21/2010
Payment Received: 10/23/2010

Average Hist. Chart

<table>
<thead>
<tr>
<th>Period Ending</th>
<th>Avg Daily Temperature</th>
<th>Avg kWh Per Day</th>
<th>Avg Cost Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 2010</td>
<td>61</td>
<td>56.2</td>
<td>5.54</td>
</tr>
<tr>
<td>Sep 2009</td>
<td>63</td>
<td>52.8</td>
<td>5.18</td>
</tr>
</tbody>
</table>

*Temperature source: Hillsboro Airport
WHAT IS A KILOWATT-HOUR?

• A) A nine watt LED burning for 111 hours

• B) A portable electric heater running for 40 minutes (on high)

• C) A clothes dryer running for 12-30 minutes
Monthly Billing History
kWh

BASELOAD
Monthly Billing History
kWh

HEATING LOAD
Monthly Billing History
kWh

AIR CONDITIONING
The average cost of conservation is less than 1.8 cents per kilowatt-hr, which is less than half the cost of the most efficient natural gas power plant.

Source: NW Power Planning Council 2013
Where Does My Energy Go To?
The Stack Effect

Cool Air In

Warm Air Out

Warm Air Out to Attic

Room Air In
What Can I Do?
Find & Seal The Leaks!
Incense Sticks
1. Seal up the house. (Close all doors and windows)
2. Turn on exhaust fans and clothes dryer.
3. Probe suspect areas with a smoking incense stick.
4. Mark the leaky spots.
5. Seal the leaks!
Major Sources of Air Leaks

- Floors, walls, and ceilings (31%)
- Windows (10%)
- Doors (11%)
- Electrical outlets (2%)
- Fans and vents (4%)
- Ducts (15%)
- Plumbing entries (13%)
- Fireplace (14%)
Caulking

• Caulking is used on **fixed** cracks and seams

• Interior vs. exterior caulk
• Paintable vs. non paintable types
• Rope & caulking gun cartridge types
Weather Stripping

• Used on *movable* objects – windows, doors etc.
• Is subject to wear – doors & windows *used the most* wear out the fastest.
• Is available in many cost effective forms, some more durable than others.
Weather Stripping

V-Flex Vinyl

Cross Section
STORM WINDOWS
Storm Window Kit
Cheap Weatherization
For Windows
Free Ways To Immediately Save Energy - Conservation

- Set heating furnace thermostat down to 65-68°F in winter. This can save two percent or more per degree on your electric bill! Turn down thermostat at night and when away.

- Set cooling thermostat at 78°F or higher in summer.

- Close windows and fireplace dampers when heating.

- Do not block registers with furniture or draperies.

- Keep shades and drapes on south-facing side of house open during sunny fall and spring days.

- Turn off kitchen and bathroom exhaust fans 15-20 minutes after last use.
Low – Cost Ways to Save Energy

Heating - Efficiency

• Place draft stopping devices at base of leaky doors.

• Caulk and weather-strip leaky window and door frames.

• Install low-cost plastic sheeting to the inside of the window frames – kits are available.

• Seal air conditioners and swamp coolers with plastic sheeting in off-season.

• Install a programmable thermostat – recycle the old one to avoid mercury contamination.
Water Heating

- Turn water heater thermostats down to 120°F
- Use cold water for laundry whenever possible.
- Take shorter showers, smaller baths.
- Launder full loads only.
- Scrape food from plates instead of using hot water prior to dishwashing.
- Use “air dry” or “energy saver” setting on dishwasher
- Turn water heater off (electric) or to “vacation” setting (gas) if gone for more than four days
Shower Timer
Low - Cost Ways to Save-Water Heating

• Use low-flow shower and faucet heads.
• Insulate the first six feet of water pipes going to the water heater – hot and cold
• Repair leaky faucets, especially hot water faucets
• Purchase energy efficient replacement water heaters.
• Consider alternatives, e.g. heat pump, solar, tank-less, etc.
Refrigerator Thermostat
Kill-A-Watt Meter

Cost

$260.11

Month
Low-Cost Ways to Save
Appliances

• Purchase Energy Star appliances for replacement refrigerators, dishwashers, ceiling fans, televisions, etc.

• Repair torn refrigerator door gaskets.

• Purchase a toaster oven for use instead of a conventional oven.

• Beware of Phantom loads!
Low–Cost Ways to Save Energy - Lighting

• Install LED lights where possible.

• Use smaller wattage bulbs in existing fixtures.

• Place photo cells or motion detectors on outdoor lighting.

• Place daylight transmitting curtains in rooms.

• Consider painting dark interior rooms a light color to require less light. – mobile home hallways.

• Use energy saving night-lights, e.g. LED’s instead of incandescent types.
# New Light Bulb Labels

**Lighting Facts™**

**LED Product**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Output (Lumens)</td>
<td>840</td>
</tr>
<tr>
<td>Watts</td>
<td>9</td>
</tr>
<tr>
<td>Lumens per Watt (Efficacy)</td>
<td>93</td>
</tr>
<tr>
<td>Color Accuracy</td>
<td>87</td>
</tr>
</tbody>
</table>

**Color Accuracy**

- Color Rendering Index (CRI)

**Light Color**

- Correlated Color Temperature (CCT): 3100 (Warm White)
- Color Temperature Range:
  - 2600K: Warm White
  - 3200K: Bright White
  - 4500K: Daylight
  - 6500K: Bright White


All results are according to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.
Color Temperature Examples

- Warm White 2800K
- Natural White 4000K
- Cool White 6000K
LED and Conventional Light Bulb Contacts

Flat Protruding
How Much Can I Save????

- Turning down hot water heater from 140º to 120ºF $3 per month
- Take a five minute shower instead of a 10 minute $6 per month
- Washing clothes in cold water instead of warm $5 per month
- Setting back thermostat from 72º to 68ºF $ 8 per month
- Replacing a 10 yr old refrigerator with a new Energy Star model $ 6 per month
- Unplugging an extra refrigerator $13 per month
- Using an 8 watt LED vs 60 Watt Light bulb $ 0.57 per month
The End