

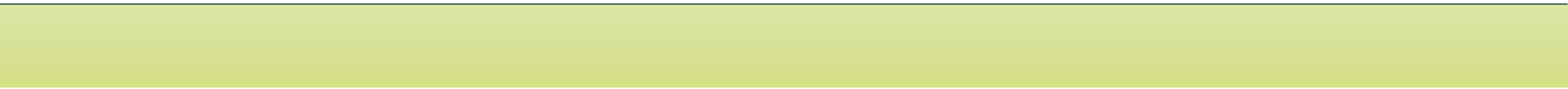


Climate Conversations

How to Stay Warm, Use Less Energy and Save Money

St Mark's Creation Care Ministry

February 2025





Agenda

- **Land Acknowledgement:** Saint Mark's Cathedral acknowledges that we gather on the traditional land of the first people of Seattle, the Duwamish People, who are still here, and we honor with gratitude the land itself and the life of all the Coast Salish tribes.
 - Opening Prayer
 - Framework
 - Discussion
 - Actions
 - Sharing and Q&A
 - Closing Prayer
-
- Home energy usage is one of the has some of the biggest negative effects on the environment. In the middle of a dark winter, though, it can seem hard to turn the temperature lower or to turn fewer lights on in your home. We'll discuss easy ways that you can reduce your energy usage at home while still staying comfy, and how those changes can reduce climate change while also saving you money.

Opening Prayer

Lord, show us how to do things well today, so that others may not suffer, here & there, now & in the future.

Show us how to make our contribution as we change the way we live, travel, make and consume, distribute and sell, use and reuse energy and products.

Show us how to do simple things well in our home, places of work and daily lives.

Show us how to protect the world you made, in all its diversity and goodness, from our carbon emissions, global warming, climate change, rising temperatures and sea levels, the displacement of peoples, environmental poverty, harm and destruction.

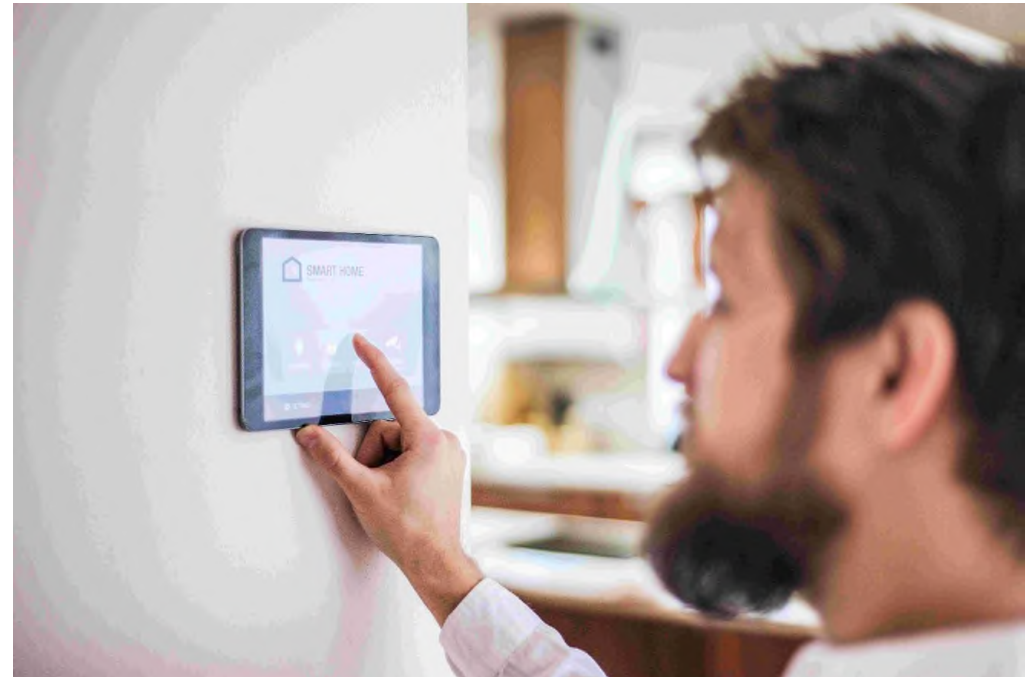
Show us how and show us why, so that alone and with others our contribution will make a difference.

Amen



Energy Usage at Home Costs a Lot

- Home energy includes electricity, gas, oil, propane and other fuel
- US average monthly costs include:
 - Electricity: \$91 to \$156
Average: \$136 for 855 KWH
 - Gas: \$60 per month
- Average Washington household: \$618 per month on overall energy costs
 - Gas: \$33-\$99
 - Electricity: \$107-\$114
 - Home heating oil: \$260
 - Motor fuel: \$145
- Up to 30% of the energy is wasted and some is unnecessary



We Use Energy in Many Ways

- Heating 29%
- Electronics 21%
- Water heater 13%
- Cooling 13%
- Lighting 12%
- Appliances 12%
- Fridge, washer, etc.
- Other 2%

Washington	United States
3 Air-conditioning (AC) consumption per household using AC (MMBtu)	7.9 Air-conditioning (AC) consumption per household using AC (MMBtu)
Household characteristics	Household characteristics
2.94 Number of housing units (million)	123.53 Number of housing units (million)
1,674 Total square footage per housing unit	1,818 Total square footage per housing unit
67.1 Total site consumption per household (MMBtu)	76.8 Total site consumption per household (MMBtu)
37% Natural gas as main space heating fuel	51% Natural gas as main space heating fuel
41% All-electric households	25% All-electric households
53% Households that use air-conditioning equipment	89% Households that use air-conditioning equipment

Source: Score-zero

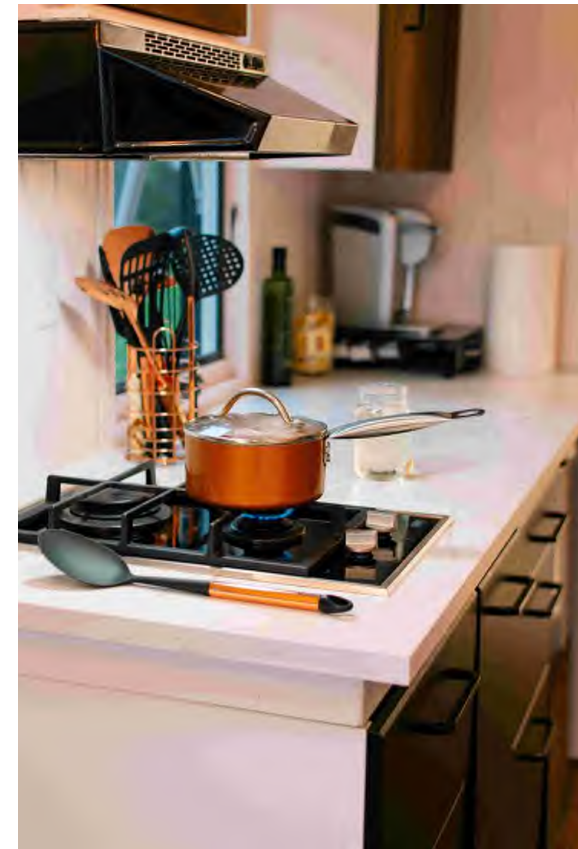
Home Energy Usage hurts the Environment

- For each kWh generated in the US, 0.83 lb of CO₂e is released at the power plant
- Heating and cooling buildings uses about 43% of all energy in the US
- Residential buildings are the largest share of energy emissions
 - 20% in the US and 12.5% globally
 - Emissions from generating electricity and direct fossil fuel use such as gas
- Emissions from electricity use make up a majority of emissions from residential energy use, at 61%, followed by gas at 31% and other fossil fuels (oil, kerosene & propane)



Home Energy Use affect People's Health

- Energy efficiency supports physical and mental health with healthy humidity, temperatures noise, and air quality
 - Reduced respiratory, cardio, injuries, rheumatism, arthritis, and allergies
- Household appliances such as stoves, furnaces and dryers that use gas, wood or coal release particulates like carbon, metals, nitrates, and sulfates.
 - They lodge in our lungs, causing or exacerbating disease
- More people have runny noses or sore throats at 72°. At 77°, symptoms vanish



Improving Energy Usage is Beneficial

- Cost Savings: Healthy home and energy-efficiency retrofit activities can lower costs, reduce electricity use, and improve air quality
- Improved Air Quality: Energy-efficient homes have better indoor air quality due to fewer pollutants, with a healthier living environment
- Comfortable Living Spaces: Enhanced insulation and moisture control create a more comfortable living environment
- Higher Market Value: Homes with energy-efficient features often have a 1%-10% increase in value
- CO2: LEED-certified homes use 20%-30% less energy, with 60% lower utility bills and less CO2



Bible

- *Exodus 15:27 - They came to Elim, where there were twelve springs of water and seventy palm trees; and they encamped there beside the water.*
 - The tops of some date trees look like a green sun. The date is one of the sweetest fruits with 60%-80% sugar by weight, so it is highly efficient at converting sunlight into energy - solar panels mimic this
- Numbers 35: You shall not defile the land in which you live, in the midst of which I dwell, for I the LORD dwell in the midst of the people of Israel



Direct Benefits of Home Energy Efficiency

- The Energy Star program says energy efficient appliances can reduce carbon emissions by 34% and the Alliance to Save Energy said it can reduce CO2 by 40%
- Adjusting your thermostat down 2 degrees in winter and up 2 degrees in summer saves about 2,000 pounds of carbon dioxide
- Using less hot water by installing a low-flow showerhead saves about 350 pounds of CO2/year
- Washing clothes in cold or warm water save 500 pounds per year
- LEDs use up to 90% less energy and have a lifespan up to 25 times longer than traditional bulbs
 - Switching to LED lighting can \$225/year



Direct Benefits of Home Energy Efficiency

- Energy-efficient windows can save 12% per year, between \$200 and \$600
- An Energy Star dishwasher costs \$55 per year to run and saves about 3,850 gallons of water over its lifetime
 - You can save \$210/year by washing dishes in a new Energy Star dishwasher instead of hand washing
- Energy Star refrigerators are about 9% more efficient than average energy efficient fridges and can save \$230 over a 12-year lifespan



Source: <https://www.thisoldhouse.com/solar-alternative-energy/reviews/home-energy-efficiency-statistics>

Discussion & Breakout Session

Questions:

- What actions have you taken to reduce home energy usage?
- What effects do you experience from home energy usage?



Start with a Home Energy Assessment

- A DIY Energy Assessment – Check:
 - Air leaks
 - Ventilation and back drafts (fans / vents)
 - Insulation
 - Heating and cooling equipment
 - Lighting
 - Appliances and devices
- Create a whole house plan

tear-out checklist

Use this form to make detailed notes as you inspect the various areas of your home. The checklist is set up by location so you don't have to visit one area more than once. For each area, you will be checking for insulation, air leaks, moisture problems and the heating system components.

Ceiling Above Heated Area

			Comments/Concerns
☐ Attic hatch	☐ insulated	☐ weatherstripped	
☐ Attic floors	☐ insulated	☐ R-Value _____	
☐ Attic roof (sloped)	☐ insulated	☐ R-Value _____	
☐ Dropped ceiling	☐ insulated	☐ R-Value _____	
☐ Cathedral ceiling	☐ insulated	☐ R-Value _____	
☐ Flat roof	☐ insulated	☐ R-Value _____	
☐ Wall top plates	☐ insulated	☐ R-Value _____	
☐ Attic side walls	☐ insulated	☐ R-Value _____	
	☐ blocked	☐ sealed _____	

Take Steps to Lower your Energy Costs

- Use smart thermostats
- Adjust your fridge and freezer temperatures
- A safe temperature for a refrigerator is below 40°F and a freezer should be below 0°F (FDA)
- Keep up with routine maintenance
- Do regular appliance maintenance
- Take shorter showers
- Install dimmer switches
- Insulate windows and doors to seal air leaks
- Sunlight management



Source: <https://www.nerdwallet.com/article/finance/how-to-save-money-on-your-electric-bill>, <https://neccoopenergy.com/make-your-home-energy-efficient-in-2024/>

Tips and Tricks

- Eliminate 'vampire loads'
 - Devices that are plugged in use electricity all the time
 - The average cost is \$300/home/year
 - The total US cost is \$39 billion
 - Solutions:
 - Unplug devices
 - Use smart power strips
- Use a fridge with the freezer on top
- Use a front-loading washing machine
- Use a dishwasher
- Close windows and blinds



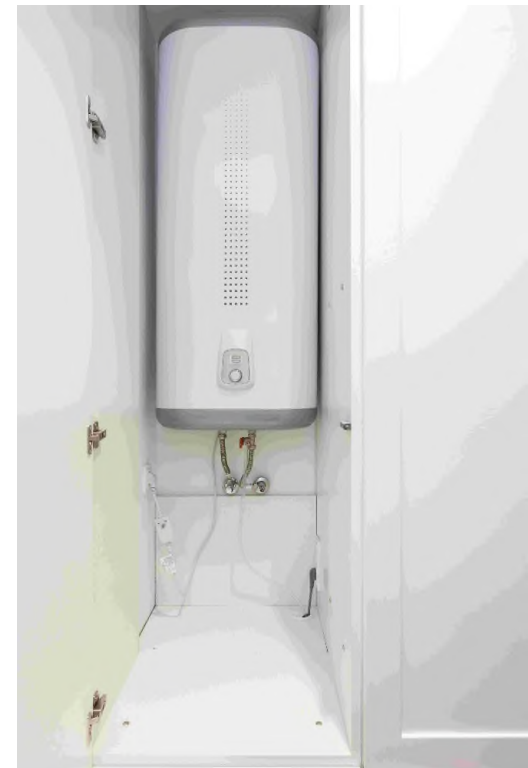
Tips and Tricks

- Put lids on pots and pans to heat food more quickly
 - Cooking in uncovered pots and pans wastes energy
 - A microwave consumes 80% less energy than a conventional oven
- Use cold water for laundry, as 75% of energy usage in laundry results from heating the water
 - Washing in cold water is as effective as using warm water
- Insulate your heating ducts - 20%-30% of air going via ducts is typically lost due to leaks



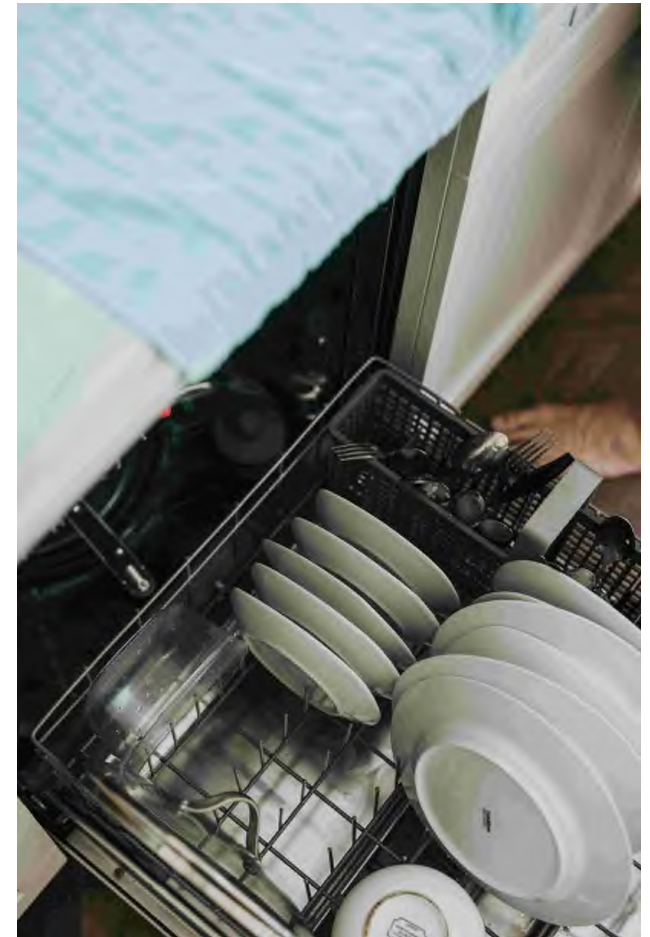
More Tips and Tricks

- Replacing a dirty filter reduce energy usage by 15%
- Turn down your water heater to 120 degrees and wrap your water heater in an insulating jacket if the water heater is more than 5 years old or has no internal insulation
- Turn the thermostat temperature down at night



More Tips

- Most dishwashers have a switch that controls the drying cycle. Leave the switch at 'off' - it shuts everything down after the final rinse. Open the door, let dishes air-dry and save electricity
- Install a water heater timer, a device that lowers your electric bill by scheduling daily usage around your routine
- Say 'no' to small loads for the washer, dryer and dishwasher
- Air dry some or all of your laundry



Taking Action Makes Life Better

- Most actions are straightforward
- They:
 - Reduce greenhouse gas emissions
 - Improve health
 - Save costs
- Many small changes make a big difference
 - They can also make your home more comfortable



Sharing, Discussion and Q&A

Questions

- What have you done that has the biggest impact on reducing energy usage?
- What else would you like to do to reduce your energy usage?



Make a Difference

We should learn to live more with our climate and rely less on electricity to alter our climate – James Dyson

We'd find more energy in the attics of American homes (through energy conservation measures) than in all the oil buried in Alaska – Amory Lovins

When there's a huge solar energy spill, it's just called a 'nice day' - Unknown

Closing Prayer

God, keep me mindful that how I live and what I use affects the earth, its people and resources. Give me courage to take responsibility for renewing your creation through study, prayer and action.

Help me to live in the light, walk gently on your earth, always looking for ways I can replenish what has been taken away, to heal what has been damaged

Creator of all light and power, open my eyes to the ways I can conserve energy and strengthen my resolve to make them daily habits. Amen

